

Primary maths

# Calculation policy

Updated September 2024

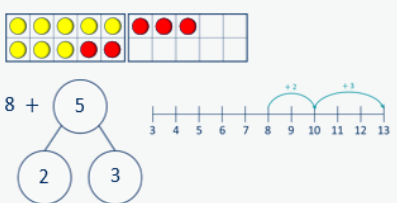
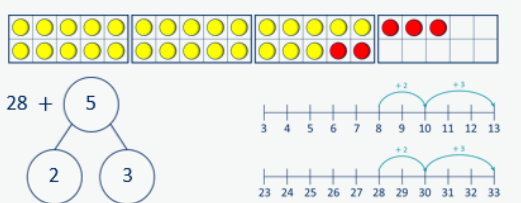
# Guidance for teachers

The calculation policy is divided into four sections: addition, subtraction, multiplication and division. At the start of each section, you will find an overview of the progression of skills. Calculations involving decimal numbers and fractions are included.

The calculation policy follows the same concrete, pictorial, abstract approach as our main schemes of learning. Where appropriate, sentence stems and key questions are included alongside the key representations.

Where skills are divided into more than one section across the page, there is a progression in the level of difficulty from left to right.

For example, when adding across a 10, children need to be able to add across 10 itself, before making links with related facts.

|                                                                                       |                                                                                                                                                              |                                                                                                                                                                                                                           |
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| <b>Add across a 10</b><br><br>Partition the number you are adding to make a full ten. | <p>... can be partitioned into ... and ...</p>  <p><math>8 + 5</math></p> | <p>I add ... to get to ... then I add ...</p> <p><math>8 + 5 = 13</math><br/><math>28 + 5 = 33</math></p>  <p><math>28 + 5</math></p> |
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# Progression of skills - Addition

| Year group | Skill                                                                                                                                                                                             |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nursery    | <ul style="list-style-type: none"><li>• Subitise to 3</li><li>• Count how many</li><li>• Make numbers to 5</li><li>• Add 1 more (through songs and rhymes)</li></ul>                              |
| Reception  | <ul style="list-style-type: none"><li>• Conceptually subitise to 5</li><li>• 1 more</li><li>• Notice the composition of numbers within 10</li><li>• Combine 2 groups</li><li>• Add more</li></ul> |
| Year 1     | <ul style="list-style-type: none"><li>• Add together</li><li>• Add more</li><li>• Bonds within 10</li><li>• Related facts within 20</li><li>• Missing numbers</li></ul>                           |

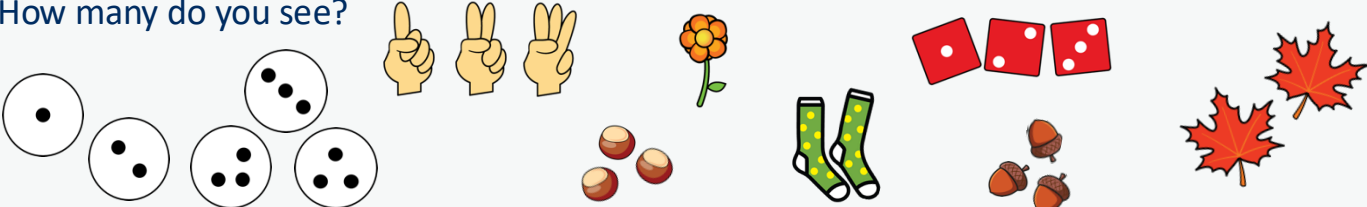
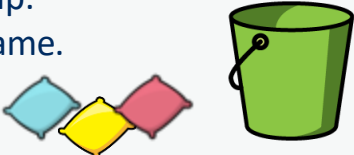
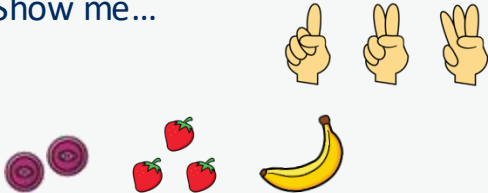
# Progression of skills - Addition

| Year group | Skill                                                                                                                                                                                                                                                                                                                                              |
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| Year 2     | <ul style="list-style-type: none"><li>• Add 1s to any number (related facts)</li><li>• Add three 1-digit numbers</li><li>• Add across a 10</li><li>• Add multiples of 10</li><li>• Add 10s to any number</li><li>• Add two 2-digit numbers (not across a ten)</li><li>• Add two 2-digit numbers (across a ten)</li><li>• Missing numbers</li></ul> |
| Year 3     | <ul style="list-style-type: none"><li>• Add 1s, 10s and 100s to a 3-digit number</li><li>• Add two numbers (no exchange)</li><li>• Add two numbers across a 10 or 100</li><li>• Complements to 100</li><li>• Add fractions with the same denominator within 1 whole</li><li>• Calculate the duration of events</li></ul>                           |

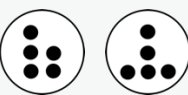
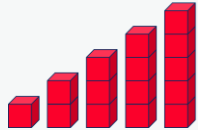
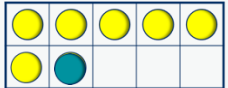
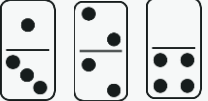
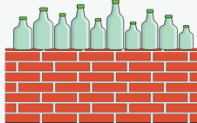
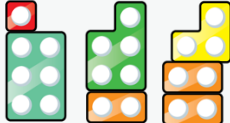
# Progression of skills - Addition

| Year group | Skill                                                                                                                                                                                                                                                                                        |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 4     | <ul style="list-style-type: none"><li>• Add 1s, 10s and 100s to a 4-digit number</li><li>• Add up to two 4-digit numbers</li><li>• Add decimal numbers in the context of money</li><li>• Add fractions and mixed numbers with the same denominator beyond 1 whole</li></ul>                  |
| Year 5     | <ul style="list-style-type: none"><li>• Add using mental strategies</li><li>• Add whole numbers with more than 4 digits</li><li>• Add decimals with up to 2 decimal places</li><li>• Complements to 1</li><li>• Add fractions with denominators that are a multiple of one another</li></ul> |
| Year 6     | <ul style="list-style-type: none"><li>• Add integers up to 10 million</li><li>• Add decimals with up to 3 decimal places</li><li>• Order of operations</li><li>• Negative numbers</li><li>• Add fractions</li></ul>                                                                          |

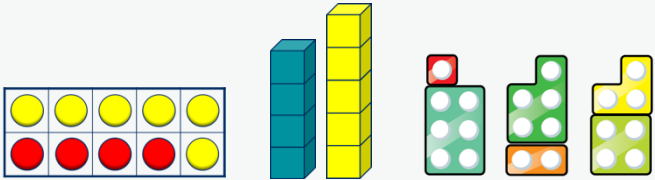
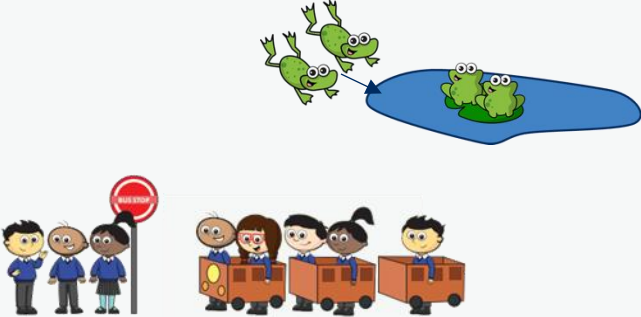
# Addition

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| <b>Nursery</b>                                                                | <ul style="list-style-type: none"> <li>• Begin to have an understanding of numbers to 5</li> <li>• We recommend focusing on noticing and representing small quantities, perceptual subitising and counting.</li> </ul> |                                                                                                                                                                      |
| <b>Progression of skills</b>                                                  | <b>Key representations</b>                                                                                                                                                                                             |                                                                                                                                                                      |
| <b>Subitise to 3</b><br><br>Instantly see how many.                           | How many do you see?<br><br>                                                                                                         |                                                                                                                                                                      |
| <b>Count how many</b><br><br>Begin to count objects using 1-1 correspondence. | How many are there?<br><br>                                                                                                          | Count out ... from a larger group.<br>E.g. Collect 3 beanbags for a game.<br><br> |
| <b>Make numbers to 5</b><br><br>Start by showing 1, 2 and 3 using fingers.    | Show me...<br><br>                                                                                                                  |                                                                                                                                                                      |
| <b>Add 1 more</b><br><br>Through stories, songs and rhymes.                   | How many do I have now?<br><br>                                                                                                   |                                                                                                                                                                      |

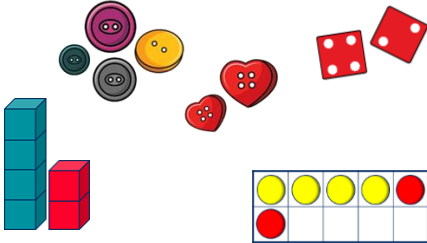
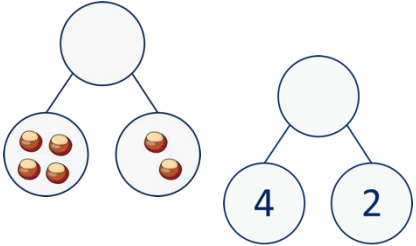
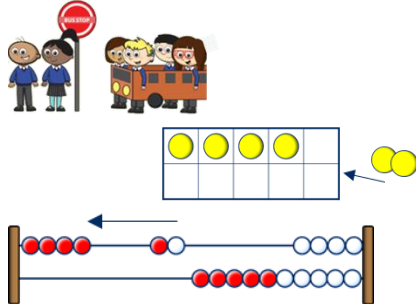
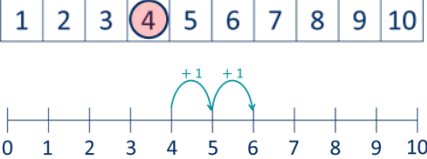
# Addition

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| <b>Reception</b>                                                                             | <ul style="list-style-type: none"> <li>Have a deep understanding of numbers to 10, including the composition of each number.</li> <li>Subitise (recognise quantities without counting) up to 5</li> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts.</li> </ul>                                                                                                        |                                                                                                                                                                                                                                                                                                         |
| <b>Progression of skills</b>                                                                 | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                         |
| <b>Conceptually subitise to 5</b><br><br>Notice the parts that make up the whole.            | What do you see?<br>How do you see it?<br><br>     |                                                                                                                                                                                                                                                                                                         |
| <b>1 more</b><br><br>Continue to link to stories, songs and rhymes.                          | 1 more than ... is ...<br><br>                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                         |
| <b>Notice the composition of numbers within 10</b><br><br>Link to stories, songs and rhymes. | How many...?<br>How many...?<br>How many altogether?<br><br>                                                                  | How many ways can you make...?<br><br>   |

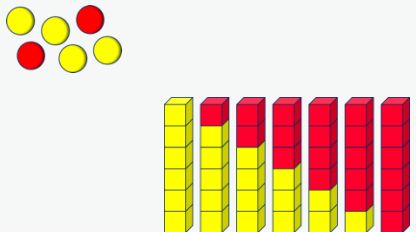
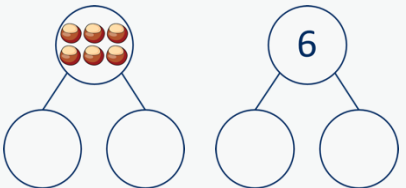
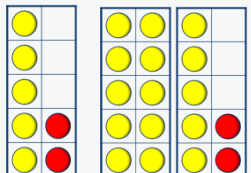
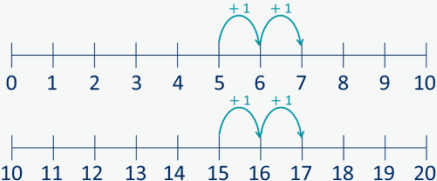
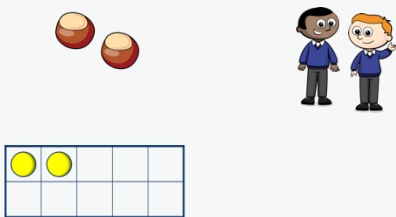
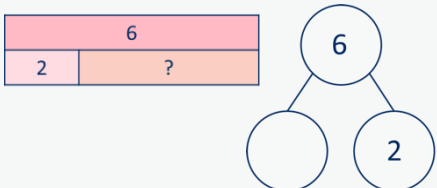
# Addition

| Progression of skills                                                          | Key representations                                                                                                                                        |                                                                                                                                                 |
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| <p><b>Combine 2 groups</b></p> <p>2 groups are combined to find the total.</p> | <p>There are ....<br/>There are ....<br/>There are .... altogether.</p>  | <p>.... and .... make ....</p>                               |
| <p><b>Add more</b></p> <p>A quantity is increased.</p>                         | <p>First... Then.... Now....</p>                                        | <p>I have ....<br/>I add .... more.<br/>Now I have....</p>  |

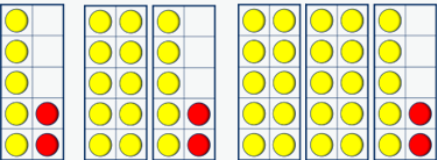
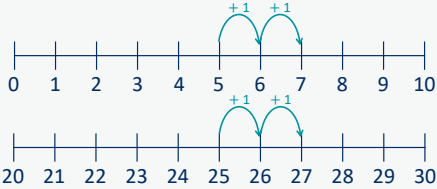
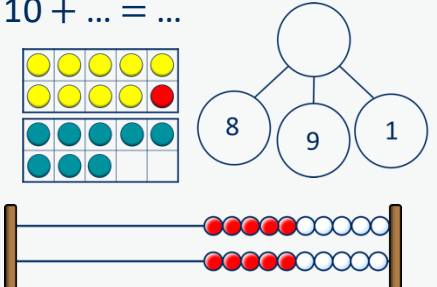
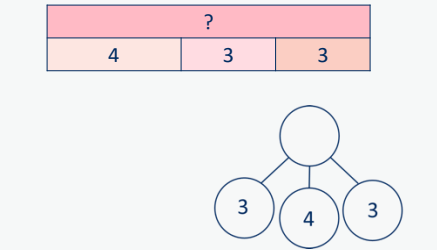
# Addition

| <p><b>Year 1</b></p>                                                                             | <ul style="list-style-type: none"> <li>Read, write and interpret mathematical statements involving addition (+) and equals (=) signs.</li> <li>Represent and use number bonds within 20</li> <li>Add 1-digit and 2-digit numbers to 20, including zero.</li> <li>Solve one-step problems that involve addition, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square + 2</math></li> </ul> |                                                                                                                                                    |                                                                                                                      |
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| Progression of skills                                                                            | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                    |                                                                                                                      |
| <p><b>Add together</b><br/>(aggregation)</p> <p>2 quantities are combined to find the total.</p> | <p>There are ...<br/>There are ...<br/>There are ... altogether.</p>                                                                                                                                                                                                                                                                                            | <p>... is a part.<br/>... is a part.<br/>... is the whole.</p>  | <p>... plus ... is equal to ...<br/>... is equal to ... + ...</p> $4 + 2 = 6$ $2 + 4 = 6$<br>$6 = 4 + 2$ $6 = 2 + 4$ |
| <p><b>Add more</b><br/>(augmentation)</p> <p>A quantity is increased.</p>                        | <p>First... Then... Now...</p>                                                                                                                                                                                                                                                                                                                                | <p>I start at ...<br/>I jump on ...<br/>I land on ...</p>     | <p>... plus ... is equal to ...<br/>... is equal to ... + ...</p> $4 + 2 = 6$ $2 + 4 = 6$<br>$6 = 4 + 2$ $6 = 2 + 4$ |

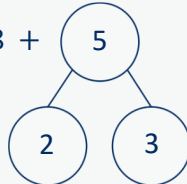
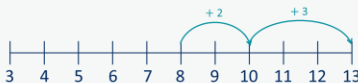
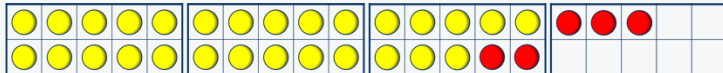
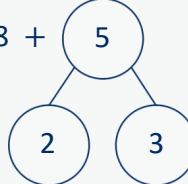
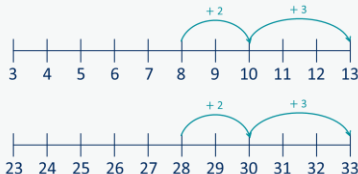
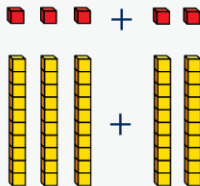
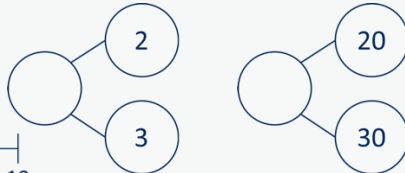
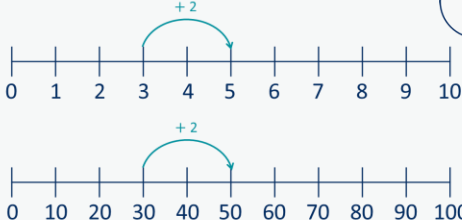
# Addition

| Progression of skills                                                                                               | Key representations                                                                                                                             |                                                                                                                                                               |                                                                                                                                                               |
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| <b>Bonds within 10</b><br><br>Include bonds for each number within 10<br><br>Encourage children to notice patterns. | <p>... is made of ... and ...<br/>... and ... make ...</p>    | <p>... can be partitioned into ... and ...</p>                             | <p>... plus ... is equal to ...</p> $6 + 0 = 6$ $5 + 1 = 6$ $4 + 2 = 6$ $3 + 3 = 6$ $2 + 4 = 6$ $1 + 5 = 6$ $0 + 6 = 6$                                       |
| <b>Related facts within 20</b><br><br>Make links to known facts.                                                    | <p>I know that ... and ... = ...<br/>so ... and ... = ...</p>  | <p>... more than ... is ...<br/>so ... more than ... is ...</p>            | <p>What patterns do you notice?</p> $5 + 2 = 7$ $15 + 2 = 17$ $7 = 5 + 2$ $17 = 15 + 2$                                                                       |
| <b>Missing numbers</b><br><br>Make links to known facts.                                                            | <p>How many more do you need to make ...?</p>                | <p>If ... is the whole and ... is a part, the other part must be...</p>  | <p>... plus ... is equal to ...</p> $2 + \square = 6$ $6 = 2 + \square$  |

# Addition

|                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                     |                                                                                                                      |
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| <p><b>Year 2</b></p>                                                                                                                                  | <ul style="list-style-type: none"> <li>Recall and use addition facts to 20 fluently, and derive and use related facts up to 100</li> <li>Add numbers using concrete objects, pictorial representations, and mentally, including:                     <ul style="list-style-type: none"> <li>a two-digit number and 1s</li> <li>a two-digit number and 10s</li> <li>2 two-digit numbers</li> <li>adding 3 one-digit numbers</li> </ul> </li> <li>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul> |                                                                                                                                                     |                                                                                                                      |
| <p><b>Progression of skills</b></p>                                                                                                                   | <p><b>Key representations</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                     |                                                                                                                      |
| <p><b>Add ones to any number</b><br/>(related facts)</p> <p>Make links to known facts.</p>                                                            | <p>I know that ... and ... = ...<br/>so ... and ... = ...</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>... more than ... is ...<br/>so ... more than ... is ...</p>  | <p>What do you notice?<br/>Can you continue the pattern?</p> $5 + 2 = 7$ $15 + 2 = 17$ $25 + 2 = 27...$              |
| <p><b>Add three 1-digit numbers</b></p> <p>Prompt children to understand that addition can be done in any order and to make links to known facts.</p> | <p>... and ... are a bond to 10<br/><math>10 + ... = ...</math></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Double ... + ... = ...</p>                                  | <p>What do you notice?<br/>Which addition is the easiest to calculate?</p> $8 + 9 + 1 =$ $8 + 1 + 9 =$ $9 + 1 + 8 =$ |

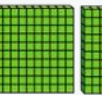
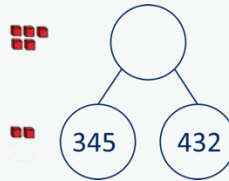
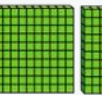
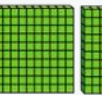
# Addition

| Progression of skills                                                              | Key representations                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |          |    |            |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
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| <b>Add across a 10</b><br><br>Partition the number being added to make a full ten. | <p>... can be partitioned into ... and ...</p> <br><br> | <p>I add ... to get to ... then I add ...</p> <p><math>8 + 5 = 13</math><br/><math>28 + 5 = 33</math></p> <br><br>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |          |    |            |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| <b>Add multiples of 10</b><br><br>Make links to known facts within ten.            | <p>... ones + ... ones = ... ones<br/>so ... tens + ... tens = ... tens</p> <br>$3 + 2 = 5$<br>$30 + 20 = 50$                                                                                                              | <p>What is the same?<br/>What is different?</p> <br><br><table data-bbox="1636 885 1854 935"><tr><td>?</td></tr><tr><td>2      3</td></tr></table><br><table data-bbox="1636 942 1854 992"><tr><td>?</td></tr><tr><td>20      30</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                       | ?  | 2      3 | ?  | 20      30 |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
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| 2      3                                                                           |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |          |    |            |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| ?                                                                                  |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |          |    |            |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| 20      30                                                                         |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |          |    |            |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| <b>Add 10s to any number</b><br><br>Make links to known facts.                     | <p>... tens + ... tens = ... tens<br/>... tens and ... ones = ...</p>                                                                                                                                                    | <p>To add ... I need to add 10 ... times.</p> <table data-bbox="1112 1135 1440 1320"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr><tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr><tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr></table> | 1  | 2        | 3  | 4          | 5  | 6  | 7  | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | <p>I know that ... and ... = ...<br/>so ... and ... = ...</p> <p><math>30 + 20 = 50</math><br/><math>34 + 20 = 54</math></p> |
| 1                                                                                  | 2                                                                                                                                                                                                                                                                                                           | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4  | 5        | 6  | 7          | 8  | 9  | 10 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| 11                                                                                 | 12                                                                                                                                                                                                                                                                                                          | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 14 | 15       | 16 | 17         | 18 | 19 | 20 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| 21                                                                                 | 22                                                                                                                                                                                                                                                                                                          | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 24 | 25       | 26 | 27         | 28 | 29 | 30 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| 31                                                                                 | 32                                                                                                                                                                                                                                                                                                          | 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 34 | 35       | 36 | 37         | 38 | 39 | 40 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| 41                                                                                 | 42                                                                                                                                                                                                                                                                                                          | 43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 44 | 45       | 46 | 47         | 48 | 49 | 50 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |
| 51                                                                                 | 52                                                                                                                                                                                                                                                                                                          | 53                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 54 | 55       | 56 | 57         | 58 | 59 | 60 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                              |

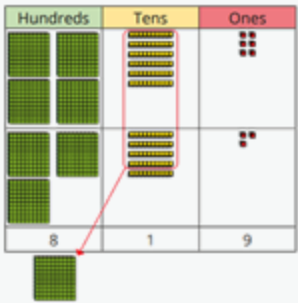
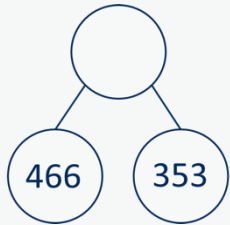
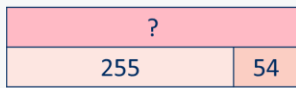
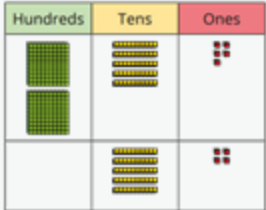
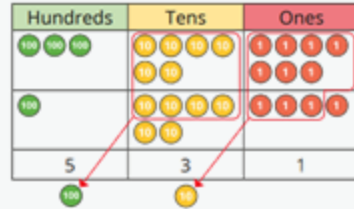
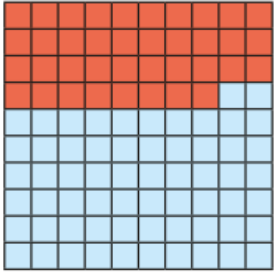
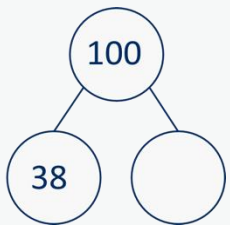
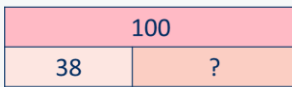
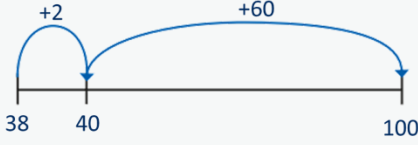
# Addition

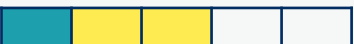
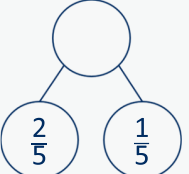
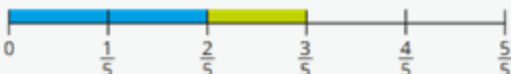
| Progression of skills                                                                                                               | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------|------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------|---|-----------------------------------|----|-----------------------------------|---|--|----|----|
| <b>Add 2-digit numbers</b><br>(not across a ten)<br><br>Lining up ones and tens in columns will support with later written methods. | <div>... ones + ... ones = ... ones<br/>... tens + ... tens = ... tens</div> <div><table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table><div><table><tr><td colspan="2">?</td></tr><tr><td>43</td><td>21</td></tr></table><p>3 ones + 1 one = 4 ones<br/>4 tens + 2 tens = 6 tens<br/>6 tens + 4 ones = 64</p></div></div>                                                                                                                                                  |                                   |                    | Tens | Ones               |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   | ? |                                   | 43 | 21                                |   |  |    |    |
| Tens                                                                                                                                | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| ?                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| 43                                                                                                                                  | 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| <b>Add 2-digit numbers</b><br>(across a ten)<br><br>Begin to exchange 10 ones for 1 ten.                                            | <div>There are .... ones, so I do/do not need to make an exchange.<br/><br/>... ones = ... ten and ... ones</div> <div><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table><div><table><tr><td colspan="2">?</td></tr><tr><td>45</td><td>37</td></tr></table><p>5 ones + 7 ones = 12 ones<br/>12 ones = 1 ten and 2 ones<br/>4 tens + 3 tens + 1 ten = 8 tens<br/>8 tens and 2 ones = 82</p></div></div> |                                   |                    | T    | O                  |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   | T | O                                 |    |                                   | ? |  | 45 | 37 |
| T                                                                                                                                   | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| T                                                                                                                                   | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| ?                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| 45                                                                                                                                  | 37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| <b>Missing numbers</b><br><br>Solve missing number problems and use the inverse to check.                                           | <div>How many more do you need to make ...?</div> <div><table><tr><td></td><td><math>6 + \square = 10</math></td></tr><tr><td></td><td><math>10 - \square = 6</math></td></tr></table></div>                                                                                                                                                                                                                                                                                                                                  |                                   | $6 + \square = 10$ |      | $10 - \square = 6$ | <div>If ... is a whole and ... is a part, then ... is the other part.</div> <div><math>\square + 3 = 7</math><br/><math>7 - 3 = \square</math></div> | <div>... can be partitioned into ... and ...</div> <div><math>10 + 8 = 12 + \square</math><div><table><tr><td></td><td><table><tr><td></td></tr></table></td></tr><tr><td><table><tr><td></td></tr></table></td><td><table><tr><td></td></tr></table></td></tr></table></div></div> |  | <table><tr><td></td></tr></table> |   | <table><tr><td></td></tr></table> |    | <table><tr><td></td></tr></table> |   |  |    |    |
|                                                                                                                                     | $6 + \square = 10$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     | $10 - \square = 6$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     | <table><tr><td></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
| <table><tr><td></td></tr></table>                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <table><tr><td></td></tr></table> |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |
|                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                    |      |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |  |                                   |   |                                   |    |                                   |   |  |    |    |

# Addition

| <b>Year 3</b>                                                                                                                                                                   | <ul style="list-style-type: none"><li>Add numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.</li><li>Add numbers with up to three digits, using formal written methods of columnar addition.</li><li>Add fractions with the same denominator within 1 whole.</li><li>Calculate the time taken by particular events or tasks.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                       |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Progression of skills</b>                                                                                                                                                    | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                       |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
| <b>Add 1s, 10s or 100s to a 3-digit number</b><br><br>Emphasis on mental strategies including number bonds and related facts.<br>Prompt children to notice which digit changes. | <p>The ones/tens/hundreds column will increase by ...</p> <table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table> <p>444 + 5 =<br/>444 + 50 =<br/>444 + 500 =</p>                                                                                                                                                                                                                                                                                                                                                    | Hundreds                                                                              | Tens                                                                                | Ones                                                                                |    |    |    | <table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td></td><td></td></tr></table> <p>777 + 2 =<br/>777 + 20 =<br/>777 + 200 =</p>                                                                                                                                                                                                                                                                                                                                                             | H        | T    | O    |    |    |    | <p>What patterns do you notice?</p> <p>235 + 3 =<br/>235 + 30 =<br/>235 + 300 =</p> <p>111 + <input type="text"/> = 118<br/>111 + <input type="text"/> = 181<br/>111 + <input type="text"/> = 811</p> <p>604 + 20 =<br/>604 + 50 =<br/>604 + 90 =</p> |                                                                                       |                                                                                       |
| Hundreds                                                                                                                                                                        | Tens                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Ones                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
| H                                                                                                                                                                               | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | O                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
| <b>Add two numbers (no exchange)</b><br><br>Mental strategies and introduction of formal written method.                                                                        | <p>... ones + ... ones = ... ones<br/>... tens + ... tens = ... tens<br/>... hundreds + ... hundreds = ... hundreds</p> <table><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>  |    |  |  |  |  |  | <table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>  | Hundreds | Tens | Ones |  |  |  |                                                                                                                                                                  |  |  |
|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
| Hundreds                                                                                                                                                                        | Tens                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Ones                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
|                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |
|                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                                                                                                                                                                                       |                                                                                       |                                                                                       |

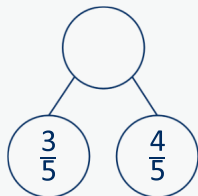
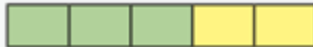
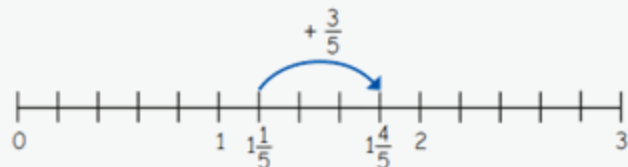
# Addition

| Progression of skills                                                                                                                             | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Add two numbers across a 10 or 100</b></p> <p>Formal written method involving up to 2 exchanges including 3-digit plus 2-digit numbers.</p> | <p>There are ... ones, so I do/do not need to make an exchange.<br/>There are ... tens, so I do/do not need to make an exchange.<br/>... ones = ... ten and ... ones.<br/>... tens = ... hundred and ... tens.</p>         |                                                                                                                                                                                                                                                                                          |
| <p><b>Complements to 100</b></p> <p>Pairs of numbers which total 100</p>                                                                          | <p>... plus ... is equal to 100</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>I add ... to get to the next 10, then ... to get to 100</p>  <p> <math>38 + 62 = 100</math><br/> <math>62 + 38 = 100</math><br/> <math>100 = 38 + 62</math><br/> <math>100 = 62 + 38</math> </p> |

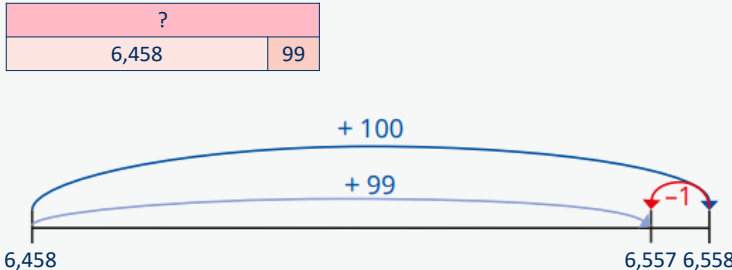
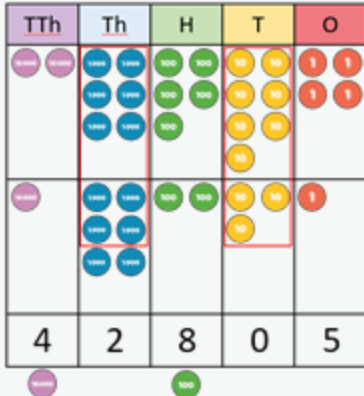
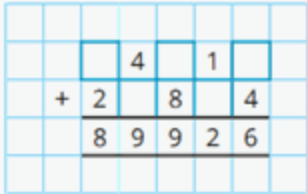
| Progression of skills                                                                                    | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Add fractions with the same denominator within 1 whole</b></p> <p>Make links with known facts.</p> | <p>When adding fractions with the same denominator, I only add the numerator.<br/>... fifths + ... fifths = ... fifths</p> <div>  <math>\frac{1}{5} + \frac{1}{5}</math> </div> <div>  <math>\frac{1}{5} + \frac{2}{5}</math> </div> <div>  <math>\frac{1}{5} + \frac{3}{5}</math> </div> <div>  </div> <div>  </div> |

# Addition

| <b>Year 4</b>                                                                                                                                                                            | <ul style="list-style-type: none"><li>• Add numbers with up to 4 digits using a formal written method.</li><li>• Solve simple measure and money problems involving fractions and decimals to 2 decimal places.</li><li>• Add fractions with the same denominator.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                               |                                                                                                                |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------|------|----------------------------------------|-------------------------------------|---------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|----|---|---|---|--|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--|---|--|---|--|
| <b>Progression of skills</b>                                                                                                                                                             | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                               |                                                                                                                |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
| <b>Add 1s, 10s and 100s to a 4-digit number</b><br><br>Emphasis on mental strategies including number bonds and related facts.<br>Prompt children to notice which digit changes.         | <p>The ones/tens/hundreds/thousands column will increase by ...</p> <table><tr><th>Thousands</th><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td><div>1,0001,000</div><div>1,000</div></td><td><div>100100</div><div>100100</div></td><td><div>1010</div></td><td><div>11</div><div>11</div><div>1</div></td></tr></table> <div><div>3,425 + 3 =</div><div>3,425 + 30 =</div><div>3,425 + 300 =</div><div>3,425 + 3,000 =</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Thousands                                                     | Hundreds                                                                                                       | Tens | Ones | <div>1,0001,000</div> <div>1,000</div> | <div>100100</div> <div>100100</div> | <div>1010</div>                             | <div>11</div> <div>11</div> <div>1</div>                                | <p>What patterns do you notice?</p> <div><div>2,350 + 3 =</div><div>2,350 + 30 =</div><div>2,350 + 300 =</div><div>2,350 + 3,000 =</div></div> <div><div>6,040 + 200 =</div><div>6,040 + 500 =</div><div>6,040 + 900 =</div></div> <div><div>2,211 + <div></div> = 2,251</div><div>2,211 + <div></div> = 2,215</div><div>2,211 + <div></div> = 2,511</div></div> |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
| Thousands                                                                                                                                                                                | Hundreds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Tens                                                          | Ones                                                                                                           |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
| <div>1,0001,000</div> <div>1,000</div>                                                                                                                                                   | <div>100100</div> <div>100100</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div>1010</div>                                               | <div>11</div> <div>11</div> <div>1</div>                                                                       |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
| <b>Add up to two 4-digit numbers</b><br><br>Formal written method with up to 3 exchanges.<br>Encourage children to estimate and use inverse operations to check answers to calculations. | <p>There are ... ones/tens/hundreds so I do/do not need to make an exchange.</p> <p>I can exchange 10 ... for 1 ...</p> <div><table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td><div>1,0001,000</div><div>1,0001,000</div></td><td><div>100100</div><div>100100</div><div>100100</div><div>100100</div></td><td><div>1010</div><div>1010</div><div>1010</div><div>10</div></td><td><div>11</div><div>1</div><div>11</div><div>11</div><div>11</div><div>11</div><div>11</div><div>11</div></td></tr></table><div><div>1,000</div><div>10</div></div></div> <div><table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>4</td><td>6</td><td>7</td><td>3</td></tr><tr><td>+</td><td>1</td><td>5</td><td>1</td><td>8</td></tr><tr><td></td><td>6</td><td>1</td><td>9</td><td>1</td></tr><tr><td></td><td>1</td><td></td><td>1</td><td></td></tr></table></div> |                                                               |                                                                                                                | Th   | H    | T                                      | O                                   | <div>1,0001,000</div> <div>1,0001,000</div> | <div>100100</div> <div>100100</div> <div>100100</div> <div>100100</div> | <div>1010</div> <div>1010</div> <div>1010</div> <div>10</div>                                                                                                                                                                                                                                                                                                    | <div>11</div> <div>1</div> <div>11</div> <div>11</div> <div>11</div> <div>11</div> <div>11</div> <div>11</div> |  |  |  |  |  |  | Th | H | T | O |  | 4 | 6 | 7 | 3 | + | 1 | 5 | 1 | 8 |  | 6 | 1 | 9 | 1 |  | 1 |  | 1 |  |
| Th                                                                                                                                                                                       | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | T                                                             | O                                                                                                              |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
| <div>1,0001,000</div> <div>1,0001,000</div>                                                                                                                                              | <div>100100</div> <div>100100</div> <div>100100</div> <div>100100</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <div>1010</div> <div>1010</div> <div>1010</div> <div>10</div> | <div>11</div> <div>1</div> <div>11</div> <div>11</div> <div>11</div> <div>11</div> <div>11</div> <div>11</div> |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
|                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                               |                                                                                                                |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
|                                                                                                                                                                                          | Th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | H                                                             | T                                                                                                              | O    |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
|                                                                                                                                                                                          | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 6                                                             | 7                                                                                                              | 3    |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
| +                                                                                                                                                                                        | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 5                                                             | 1                                                                                                              | 8    |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
|                                                                                                                                                                                          | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1                                                             | 9                                                                                                              | 1    |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |
|                                                                                                                                                                                          | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                               | 1                                                                                                              |      |      |                                        |                                     |                                             |                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |   |  |   |  |

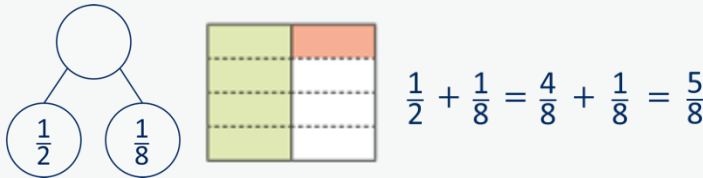
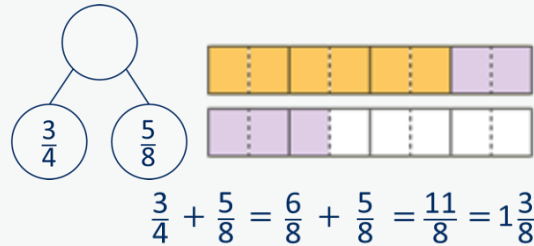
| Progression of skills                                                                                                                                      | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Add decimal numbers in the context of money</b></p> <p>Emphasis on partitioning and use of number lines rather than formal written calculations.</p> | <p>... pence + ... pence = ... pence<br/>... pounds + ... pounds = ... pounds</p> <div></div> <p>45p + 25p = 70p<br/>£2 + £3 = £5<br/>£5 + 70p = £5.70</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>£3.25 can be partitioned into £3 + 20p + 5p</p> <div></div> |
| <p><b>Add fractions and mixed numbers with the same denominator beyond 1 whole</b></p>                                                                     | <p>When adding fractions with the same denominator, I only add the numerator.<br/>... fifths + ... fifths = ... fifths</p> <div><div></div><div><math display="block">\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}</math><div></div></div></div> <div><div></div><div></div></div> |                                                                                                                                                   |

# Addition

|                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year 5</b>                                                                                                                                       | <ul style="list-style-type: none"> <li>Add whole numbers with more than 4 digits, including using formal written methods.</li> <li>Add numbers mentally with increasingly large numbers.</li> <li>Add decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1</li> <li>Add fractions with the same denominator, and denominators that are multiples of the same number.</li> </ul> |
| <b>Progression of skills</b>                                                                                                                        | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Add using mental strategies</b><br><br>Add 1s, 10s, 100s, etc. to any number.<br>Use number bonds and related facts.                             | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">  <p>48,650 + 300 =<br/> 48,650 + 30,000 =<br/> 48,650 + 30 =</p> </div> <div style="width: 48%;"> <p>To add ..., I can add ... then subtract ...</p>  </div> </div>                             |
| <b>Add whole numbers with more than 4 digits</b><br><br>Encourage children to estimate and use inverse operations to check answers to calculations. | <p>I can exchange 10 ... for 1 ...</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;">   </div> </div>                                                    |

| Progression of skills                                                                                                                                                                      | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|------------|-------|-------------|----------------|---|-----|-----------|-------|---------|------|---|---|---|---|---|---|--|--|--|---|-----|-----|------|---|---------|-----------|-------|--|--|-----------|--|--|--|-----------|--|--|--|-----------|--|-----|---------|-----------|--|--|---------|-----------|--|--|-----|--|--|---|---|---|---|---|---|---|---|--|--|--|--|
| <p><b>Add decimals with up to 2 decimal places</b></p> <p>Progress from the same number of decimal places to a different number of decimal places, and from no exchange to exchange.</p>   | <p>I do/do not need to make an exchange because ...<br/>I can exchange 10 ... for 1 ...</p> <div><div><table><tr><th>Ones</th><th>Tenths</th><th>Hundredths</th></tr><tr><td>1 1 1</td><td>0.1 0.1 0.1</td><td>0.01 0.01 0.01</td></tr><tr><td>1</td><td>0.1</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.1 0.1</td><td>0.01</td></tr></table><table><tr><td>4</td><td>4</td><td>5</td></tr><tr><td>+</td><td>3</td><td>2</td></tr><tr><td></td><td></td><td></td></tr></table></div><div><table><tr><th>O</th><th>Tth</th><th>Hth</th><th>Thth</th></tr><tr><td>1</td><td>0.1 0.1</td><td>0.01 0.01</td><td>0.001</td></tr><tr><td></td><td></td><td>0.01 0.01</td><td></td></tr><tr><td></td><td></td><td>0.01 0.01</td><td></td></tr><tr><td></td><td></td><td>0.01 0.01</td><td></td></tr><tr><td>1 1</td><td>0.1 0.1</td><td>0.01 0.01</td><td></td></tr><tr><td></td><td>0.1 0.1</td><td>0.01 0.01</td><td></td></tr><tr><td></td><td>0.1</td><td></td><td></td></tr></table><table><tr><td>1</td><td>2</td><td>8</td><td>1</td></tr><tr><td>+</td><td>2</td><td>5</td><td>4</td></tr><tr><td></td><td></td><td></td><td></td></tr></table></div></div> | Ones           | Tenths | Hundredths | 1 1 1 | 0.1 0.1 0.1 | 0.01 0.01 0.01 | 1 | 0.1 | 0.01 0.01 | 1 1 1 | 0.1 0.1 | 0.01 | 4 | 4 | 5 | + | 3 | 2 |  |  |  | O | Tth | Hth | Thth | 1 | 0.1 0.1 | 0.01 0.01 | 0.001 |  |  | 0.01 0.01 |  |  |  | 0.01 0.01 |  |  |  | 0.01 0.01 |  | 1 1 | 0.1 0.1 | 0.01 0.01 |  |  | 0.1 0.1 | 0.01 0.01 |  |  | 0.1 |  |  | 1 | 2 | 8 | 1 | + | 2 | 5 | 4 |  |  |  |  |
| Ones                                                                                                                                                                                       | Tenths                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Hundredths     |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 1 1 1                                                                                                                                                                                      | 0.1 0.1 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.01 0.01 0.01 |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 1                                                                                                                                                                                          | 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.01 0.01      |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 1 1 1                                                                                                                                                                                      | 0.1 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.01           |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 4                                                                                                                                                                                          | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5              |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| +                                                                                                                                                                                          | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2              |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| O                                                                                                                                                                                          | Tth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Hth            | Thth   |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 1                                                                                                                                                                                          | 0.1 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.01 0.01      | 0.001  |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.01 0.01      |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.01 0.01      |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.01 0.01      |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 1 1                                                                                                                                                                                        | 0.1 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.01 0.01      |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|                                                                                                                                                                                            | 0.1 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.01 0.01      |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|                                                                                                                                                                                            | 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 1                                                                                                                                                                                          | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 8              | 1      |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| +                                                                                                                                                                                          | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5              | 4      |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
|                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| <p><b>Complements to 1</b></p> <p>Pairs of numbers with up to 3 decimal places which total 1</p> <p>Encourage children to make links with bonds to 10 and complements to 100 and 1,000</p> | <div><div><math>0.3 + \square = 1</math></div><div><math>0.35 + \square = 1</math></div><div><table><tr><td>71</td><td></td></tr><tr><td>100</td><td></td></tr></table></div><div><table><tr><td>0.71</td><td></td></tr><tr><td>1</td><td></td></tr></table></div></div> <div><div><div><div>1</div><div>0.4</div><div></div></div><div><div></div><div></div><div>0.44</div></div></div><div><div>1</div><div></div><div>0.444</div></div></div> <div><div><math>4 + 6 = 10</math></div><div><math>44 + 56 = 100</math></div><div><math>444 + 556 = 1,000</math></div></div> <div><div><math>0.4 + 0.6 = 1</math></div><div><math>0.44 + 0.56 = 1</math></div><div><math>0.444 + 0.556 = 1</math></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 71             |        | 100        |       | 0.71        |                | 1 |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 71                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 100                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 0.71                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |
| 1                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |        |            |       |             |                |   |     |           |       |         |      |   |   |   |   |   |   |  |  |  |   |     |     |      |   |         |           |       |  |  |           |  |  |  |           |  |  |  |           |  |     |         |           |  |  |         |           |  |  |     |  |  |   |   |   |   |   |   |   |   |  |  |  |  |

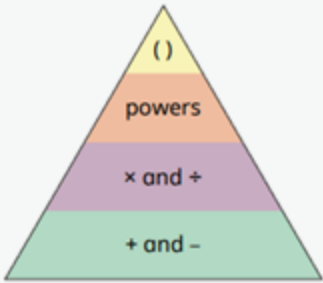
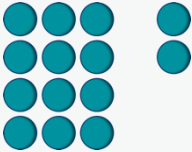
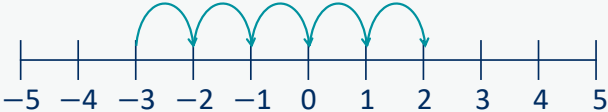
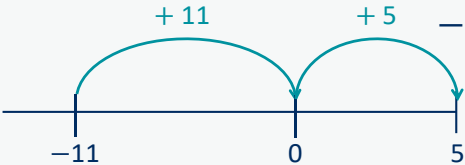
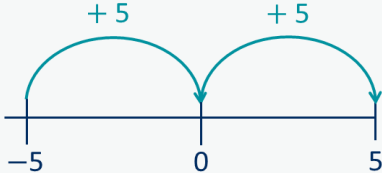
# Addition

| Progression of skills                                                                                                                                                                                                                                           | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Add fractions with denominators that are a multiple of one another</b></p> <p>Encourage children to convert fractions to the same denominator before adding.</p> <p>Progress from adding fractions within 1 whole to adding fractions beyond 1 whole.</p> | <p>The denominator has been multiplied by ..., so the numerator needs to be multiplied by... for the fractions to be equivalent.</p> <div data-bbox="576 461 1276 636">  <math display="block">\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}</math> </div> <div data-bbox="576 753 1245 811">  <math display="block">\frac{1}{4} + \frac{3}{8} = \frac{2}{8} + \frac{3}{8} = \frac{5}{8}</math> </div> <div data-bbox="1404 568 1935 811">  <math display="block">\frac{3}{4} + \frac{5}{8} = \frac{6}{8} + \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}</math> </div> |

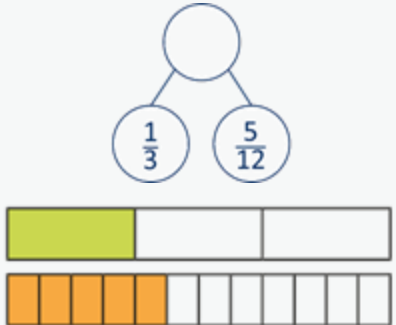
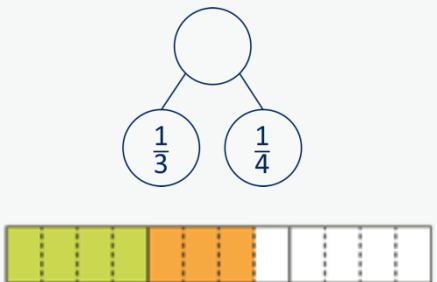
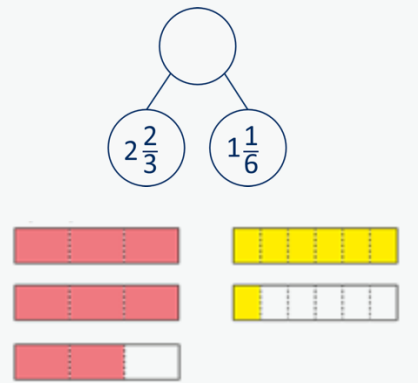
# Addition

|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---|---|---|---|---|--|--|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|---|--|--|---|---|---|---|---|---|---|--|--|--|---|---|---|---|---|---|---|---|--|---|-------|-----|-------|---|--|--|--|--|---|---|---|---|---|---|---|--|---|---|---|--|---|--|--|---|---|--|--|--|--|---|---|---|--|---|--|
| <div>Year 6</div> <div><ul style="list-style-type: none"><li>• Add larger numbers, using the formal written method of columnar addition.</li><li>• Use their knowledge of the order of operations to carry out calculations involving the 4 operations.</li><li>• Calculate intervals across zero.</li><li>• Add fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</li></ul></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
| <div>Progression of skills</div>                                                                                                                                                                                                                                                                                                                                                                                                     | <div>Key representations</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
| <div><div>Add integers up to 10 million</div><div>Encourage children to estimate and use inverse operations to check answers to calculations.</div></div>                                                                                                                                                                                                                                                                            | <div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>3</td><td>4</td><td>6</td><td>2</td><td>2</td><td>1</td><td></td></tr><tr><td></td><td>+</td><td>1</td><td>8</td><td>4</td><td>3</td><td>2</td><td>1</td><td></td></tr><tr><td></td><td></td><td>5</td><td>3</td><td>0</td><td>5</td><td>4</td><td>2</td><td></td></tr><tr><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td></td><td></td></tr></table></div><div><table><tr><td colspan="3">?</td></tr><tr><td>2,354</td><td>750</td><td>1,500</td></tr></table></div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>8</td><td>1</td><td></td><td>8</td><td>5</td><td></td></tr><tr><td></td><td>+</td><td></td><td></td><td>0</td><td>6</td><td></td><td></td></tr><tr><td></td><td></td><td>9</td><td>9</td><td>5</td><td></td><td>8</td><td></td></tr></table></div></div> |       |   |   |   |   |   |  |  |   |   |   | 3 | 4 | 6 | 2 | 2 | 1 |   |  | + | 1 | 8 | 4 | 3 | 2 | 1 |  |  |   | 5 | 3 | 0 | 5 | 4 | 2 |  |  |  | 1 | 1 |   |   |   |   |   | ? |  |   | 2,354 | 750 | 1,500 |   |  |  |  |  |   |   |   |   |   | 8 | 1 |  | 8 | 5 |   |  | + |  |  | 0 | 6 |  |  |  |  | 9 | 9 | 5 |  | 8 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3     | 4 | 6 | 2 | 2 | 1 |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1     | 8 | 4 | 3 | 2 | 1 |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5     | 3 | 0 | 5 | 4 | 2 |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1     | 1 |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
| ?                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
| 2,354                                                                                                                                                                                                                                                                                                                                                                                                                                | 750                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1,500 |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8     | 1 |   | 8 | 5 |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |   | 0 | 6 |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9     | 9 | 5 |   | 8 |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
| <div><div>Add decimals with up to 3 decimal places</div><div>Progress to numbers with digits in different place value columns.</div><div>Encourage children to check that they have lined up the columns correctly.</div></div>                                                                                                                                                                                                      | <div><div>I do/do not need to make an exchange because ...</div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>3</td><td>1</td><td>0</td><td>8</td></tr><tr><td></td><td>+</td><td>2</td><td>1</td><td>5</td><td>4</td></tr><tr><td></td><td></td><td>5</td><td>2</td><td>6</td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td>1</td><td></td></tr></table></div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>1</td><td>5</td><td>0</td><td>2</td><td>7</td><td></td></tr><tr><td></td><td>+</td><td></td><td>9</td><td>5</td><td>8</td><td></td><td></td></tr><tr><td></td><td></td><td>2</td><td>4</td><td>6</td><td>0</td><td>7</td><td></td></tr><tr><td></td><td></td><td>1</td><td></td><td>1</td><td></td><td></td><td></td></tr></table></div></div>                                                                                                        |       |   |   |   |   |   |  |  | 3 | 1 | 0 | 8 |   | + | 2 | 1 | 5 | 4 |  |   | 5 | 2 | 6 | 2 |   |   |  |  | 1 |   |   |   |   |   |   |  |  |  |   |   | 1 | 5 | 0 | 2 | 7 |   |  | + |       | 9   | 5     | 8 |  |  |  |  | 2 | 4 | 6 | 0 | 7 |   |   |  | 1 |   | 1 |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3     | 1 | 0 | 8 |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2     | 1 | 5 | 4 |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5     | 2 | 6 | 2 |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   | 1 |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1     | 5 | 0 | 2 | 7 |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       | 9 | 5 | 8 |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2     | 4 | 6 | 0 | 7 |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1     |   | 1 |   |   |   |  |  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |   |   |  |   |       |     |       |   |  |  |  |  |   |   |   |   |   |   |   |  |   |   |   |  |   |  |  |   |   |  |  |  |  |   |   |   |  |   |  |

# Addition

| Progression of skills                                                                                                                                                                                                                                               | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Order of operations</b></p> <p>Calculations in brackets should be done first. Multiplication and division should be performed before addition and subtraction. *When no brackets are shown and the operations have the same priority, work left to right.</p> | <p>... has greater priority than ..., so the first part of the calculation I need to do is ...</p> <div style="display: flex; align-items: center; justify-content: space-around;">  <div style="text-align: center;">  <p><math>(3 + 4) \times 2 = 14</math></p> </div> <div style="text-align: center;">  <p><math>3 + 4 \times 2 = 11</math></p> </div> </div> <div style="display: flex; align-items: center; justify-content: center; margin-top: 20px;">  <p><math>3 \times 4 + 2 = 14</math></p> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Negative numbers</b></p> <p>Children add to negative numbers and carry out calculations which cross 0</p>                                                                                                                                                     | <p>... plus ... is equal to ...</p> <div style="display: flex; align-items: center; justify-content: center;">  <p><math>-3 + 5 = 2</math></p> </div> <div style="display: flex; align-items: center; justify-content: center; margin-top: 20px;">  <p><math>-11 + 16 = 5</math></p> </div>                                                                                                                                                                                                                                                                                                                                                                                        |  <p>The difference between <math>-5</math> and <math>-1</math> is 4</p> <div style="display: flex; align-items: center; justify-content: center; margin-top: 20px;">  <p><math>+5</math>      <math>+5</math></p> </div> <p>The difference between <math>-5</math> and 5 is 10</p> |

# Addition

| Progression of skills                                                                                                                                                                                             | Key representations                                                                                                                                                                 |                                                                                                                                                                                                                      |                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Add fractions</b></p> <p>Convert fractions to the same denominator before adding. Progress from fractions where one denominator is a multiple of the other, to any fractions and then to mixed numbers.</p> | <p>The denominator has been multiplied by ..., so the numerator needs to be multiplied by ...</p>  | <p>The lowest common multiple of ... and ... is ...</p>  $\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}$ | <p>...is made up of ... wholes and ...</p>  |

# Progression of skills - Subtraction

| Year group | Skill                                                                                                                                                                                       |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nursery    | <ul style="list-style-type: none"><li>• Subitise to 3</li><li>• Count how many</li><li>• Make numbers to 5</li><li>• Take 1 away (through songs and rhymes)</li></ul>                       |
| Reception  | <ul style="list-style-type: none"><li>• Conceptually subitise to 5</li><li>• 1 less</li><li>• Notice the composition of numbers within 10</li><li>• Partition</li><li>• Take away</li></ul> |
| Year 1     | <ul style="list-style-type: none"><li>• Find a part</li><li>• Take away</li><li>• Bonds within 10</li><li>• Related facts within 20</li><li>• Missing numbers</li></ul>                     |

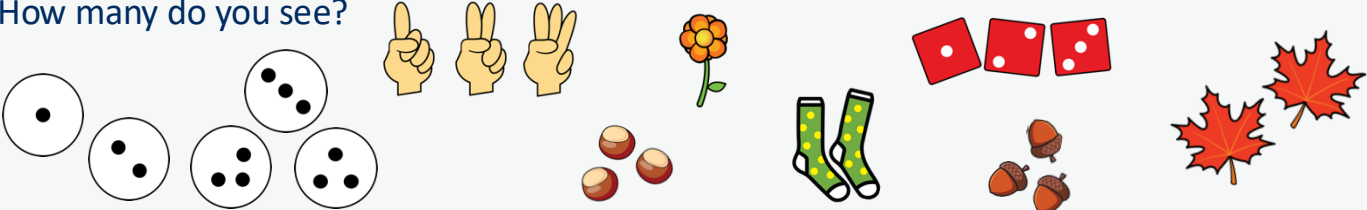
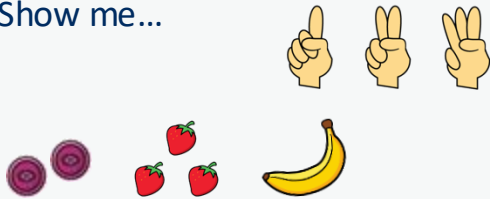
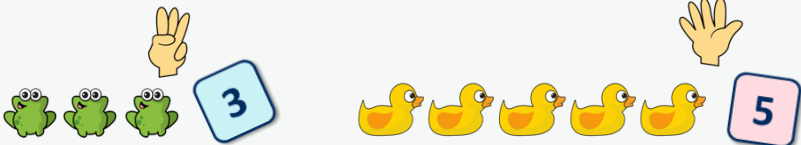
# Progression of skills - Subtraction

| Year group | Skill                                                                                                                                                                                                                                                                                                                                            |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 2     | <ul style="list-style-type: none"><li>• Subtract 1s from any number (related facts)</li><li>• Subtract across a 10</li><li>• Subtract multiples of 10</li><li>• Subtract 10s from any number</li><li>• Subtract two 2-digit numbers (not across a ten)</li><li>• Subtract two 2-digit numbers (across a ten)</li><li>• Missing numbers</li></ul> |
| Year 3     | <ul style="list-style-type: none"><li>• Subtract 1s, 10s and 100s from a 3-digit number</li><li>• Subtract two numbers (no exchange)</li><li>• Subtract two numbers across a 10 or 100</li><li>• Complements to 100</li><li>• Subtract fractions with the same denominator within 1 whole</li></ul>                                              |

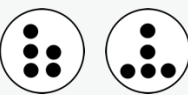
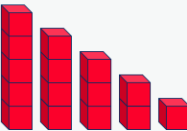
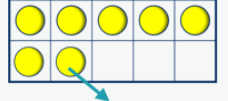
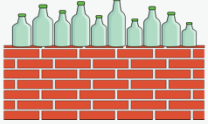
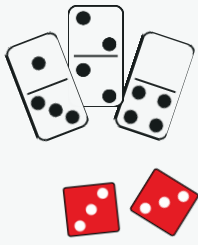
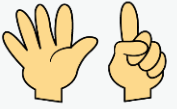
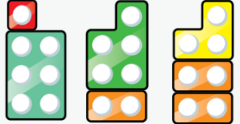
# Progression of skills - Subtraction

| Year group | Skill                                                                                                                                                                                                                                                                                                            |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 4     | <ul style="list-style-type: none"><li>• Subtract 1s, 10s, 100s and 1,000s from a 4-digit number</li><li>• Subtract up to two 4-digit numbers</li><li>• Subtract decimal numbers in the context of money</li><li>• Subtract fractions and mixed numbers with the same denominator</li></ul>                       |
| Year 5     | <ul style="list-style-type: none"><li>• Subtract whole numbers with more than 4 digits</li><li>• Subtract using mental strategies</li><li>• Subtract decimals with up to 2 decimal places</li><li>• Complements to 1</li><li>• Subtract fractions with denominators that are a multiple of one another</li></ul> |
| Year 6     | <ul style="list-style-type: none"><li>• Subtract integers up to 10 million</li><li>• Subtract decimals with up to 3 decimal places</li><li>• Order of operations</li><li>• Negative numbers</li><li>• Subtract fractions</li></ul>                                                                               |

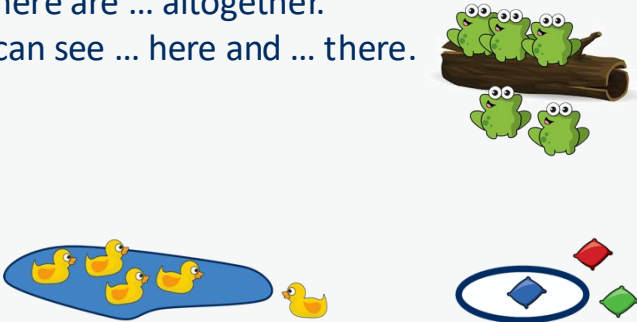
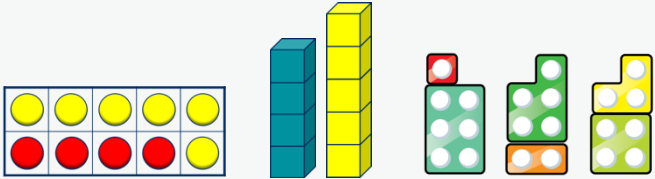
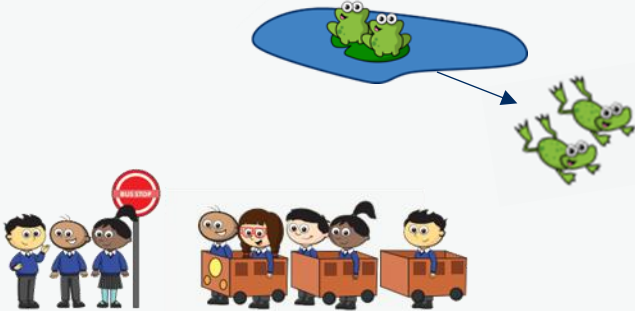
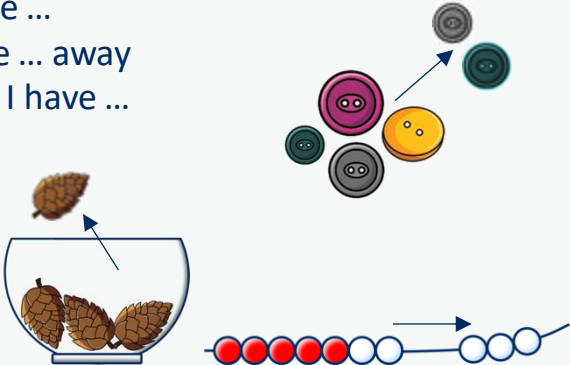
# Subtraction

|                                                                               |                                                                                                                                                                                                                    |                                                                                                                                                                                |
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| <b>Nursery</b>                                                                | <ul style="list-style-type: none"> <li>Begin to have an understanding of numbers to 5</li> <li>We recommend focusing on noticing and representing small quantities, perceptual subitising and counting.</li> </ul> |                                                                                                                                                                                |
| <b>Progression of skills</b>                                                  | <b>Key representations</b>                                                                                                                                                                                         |                                                                                                                                                                                |
| <b>Subitise to 3</b><br><br>Instantly see how many.                           | How many do you see?<br><br>                                                                                                     |                                                                                                                                                                                |
| <b>Count how many</b><br><br>Begin to count objects using 1-1 correspondence. | How many are there?<br><br>                                                                                                      | Count out ... from a larger group.<br>E.g. Collect a cup for everyone at the table.<br><br> |
| <b>Make numbers to 5</b><br><br>Start by showing 1, 2 and 3 using fingers.    | Show me...<br><br>                                                                                                              | Begin to link numerals to quantities.<br><br>                                              |
| <b>Take 1 away</b><br><br>Through stories, songs and rhymes.                  | How many do we have now?<br><br>                                                                                               |                                                                                                                                                                                |

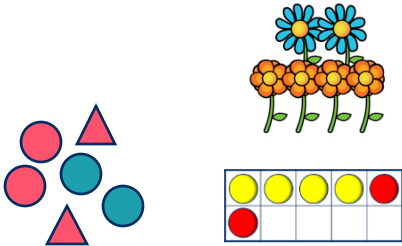
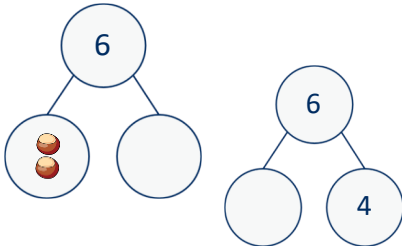
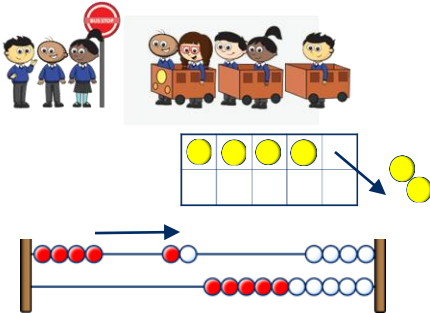
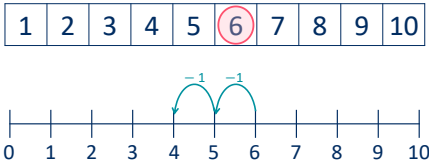
# Subtraction

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| <b>Reception</b>                                                                             | <ul style="list-style-type: none"> <li>Have a deep understanding of number to 10, including the composition of each number.</li> <li>Subitise (recognise quantities without counting) up to 5</li> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (and some subtraction facts) and some number bonds to 10, including double facts.</li> </ul>                                                                            |                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Progression of skills</b>                                                                 | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Conceptually subitise to 5</b><br><br>Notice the parts that make up the whole.            | What do you see?<br>How do you see it?<br><br>     |                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>1 less</b><br><br>Continue to link to stories, songs and rhymes.                          | 1 less than ... is ...<br><br>                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Notice the composition of numbers within 10</b><br><br>Link to stories, songs and rhymes. | How many...?<br>How many...?<br>How many altogether?<br><br>                                                                                                                                                       | How many ways can you make...?<br><br>    |

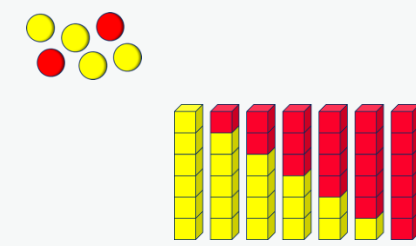
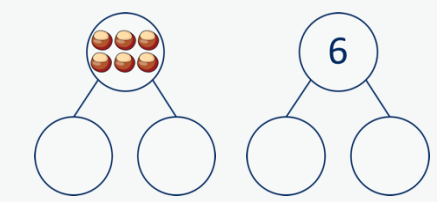
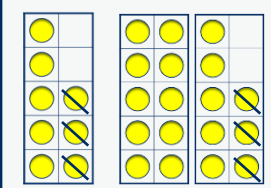
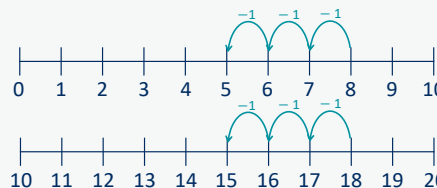
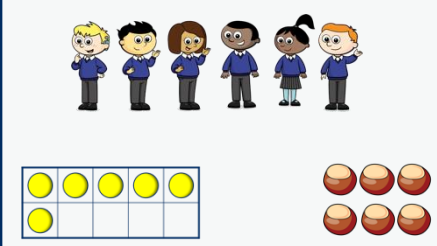
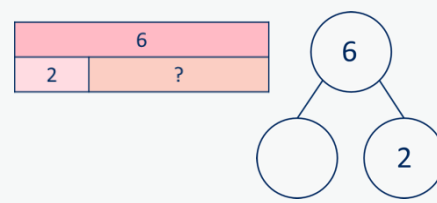
# Subtraction

| Progression of skills                                                                                     | Key representations                                                                                                                                       |                                                                                                                                               |
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| <b>Partition</b><br><br>Using objects, explore different ways to partition a number into 2 or more parts. | <p>There are ... altogether.<br/>I can see ... here and ... there.</p>  | <p>... and ... make ...</p>                                |
| <b>Take away</b><br><br>A quantity is reduced.                                                            | <p>First... Then... Now...</p>                                         | <p>I have ...<br/>I take ... away<br/>Now I have ...</p>  |

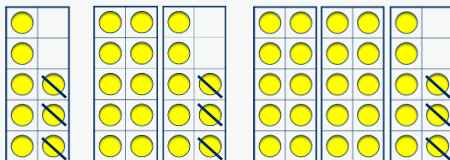
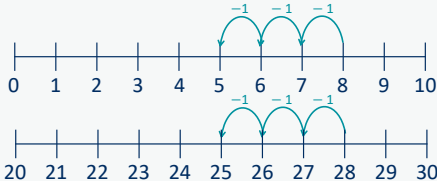
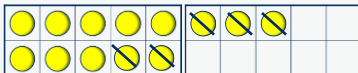
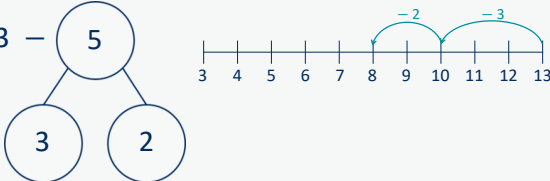
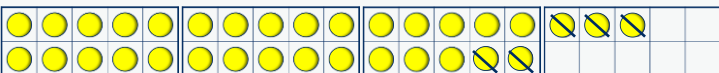
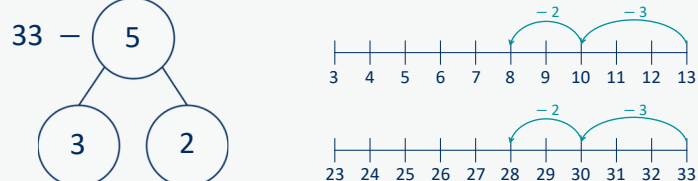
# Subtraction

| <p><b>Year 1</b></p>                                                                                                                                              | <ul style="list-style-type: none"> <li>Read, write and interpret mathematical statements involving subtraction (−) and equals (=) signs.</li> <li>Represent and use number bonds and related subtraction facts within 20</li> <li>Subtract one-digit and two-digit numbers to 20, including zero.</li> <li>Solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math></li> </ul> |                                                                                                                                                    |                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Progression of skills                                                                                                                                             | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                    |                                                                                                                       |
| <p><b>Find a part</b></p> <p>Link to number bonds and known facts. E.g. <math>2 + 4 = 6</math> so if 6 is the whole and 4 is a part, the other part must be 2</p> | <p>There are ... in total.<br/>... are ...<br/>How many are <b>not</b> ...?</p>                                                                                                                                                                                                                                                                                                                               | <p>... is the whole.<br/>... is a part.<br/>... is a part.</p>  | <p>... subtract ... is equal to ...<br/>... is equal to ... − ...</p> $6 - 2 = 4$ $6 - 4 = 2$ $4 = 6 - 2$ $2 = 6 - 4$ |
| <p><b>Take away</b></p> <p>A quantity is decreased.</p>                                                                                                           | <p>First... Then... Now...</p>                                                                                                                                                                                                                                                                                                                                                                             | <p>I start at ...<br/>I jump back ...<br/>I land on ...</p>   | <p>... minus ... is equal to ...<br/>... is equal to ... − ...</p> $6 - 2 = 4$ $6 - 4 = 2$ $4 = 6 - 2$ $2 = 6 - 4$    |

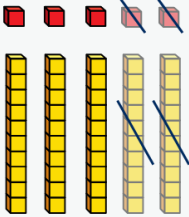
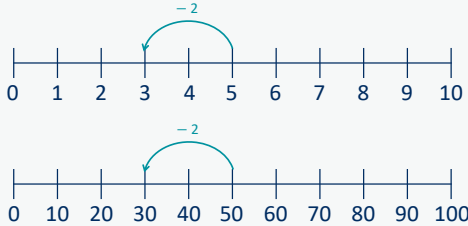
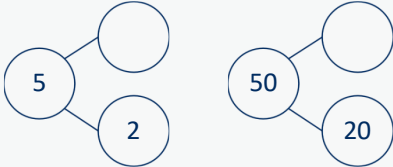
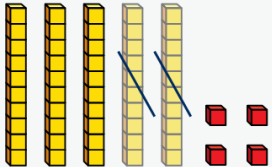
# Subtraction

| Progression of skills                                                                                   | Key representations                                                                                                                                 |                                                                                                                                                               |                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bonds within 10</b><br><br>Focus on subtraction facts.<br><br>Encourage children to notice patterns. | <p>... is made of ... and ...<br/>... and ... make ...</p>         | <p>... can be partitioned into ... and ...</p>                             | <p>... minus ... is equal to ...</p> $6 - 0 = 6$ $6 - 1 = 5$ $6 - 2 = 4$ $6 - 3 = 3$ $6 - 4 = 2$ $6 - 5 = 1$ $6 - 6 = 0$                                       |
| <b>Related facts within 20</b><br><br>Make links to known facts.                                        | <p>I know that ... minus ... = ...<br/>so ... minus ... = ...</p>  | <p>... less than ... is ...<br/>so ... less than ... is ...</p>            | <p>What patterns do you notice?</p> $8 - 3 = 5$ $18 - 3 = 15$ $5 = 8 - 3$ $15 = 18 - 3$                                                                        |
| <b>Missing numbers</b><br><br>Make links to known facts.                                                | <p>How many do you need to subtract to make ...?</p>             | <p>If ... is the whole and ... is a part, the other part must be...</p>  | <p>... minus ... is equal to ...</p> $6 - \square = 2$ $2 = 6 - \square$  |

# Subtraction

|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                      |                                                                                                              |
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|                                                                                                   | <ul style="list-style-type: none"><li>Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100</li><li>Subtract numbers using concrete objects, pictorial representations, and mentally, including:<ul style="list-style-type: none"><li>a two-digit number and 1s</li><li>a two-digit number and 10s</li><li>2 two-digit numbers</li></ul></li><li>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li></ul> |                                                                                                                                                                                                                                      |                                                                                                              |
| Progression of skills                                                                             | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                      |                                                                                                              |
| <b>Subtract ones from any number</b><br>(related facts)<br><br>Make links to known facts.         | I know that ... minus ... = ...<br>so ... minus ... = ...<br><br>                                                                                                                                                                                                                                                                                                                                                                                                | ... less than ... is ...<br>so ... less than ... is ...<br><br>                                                                                   | What do you notice?<br>Can you continue the pattern?<br><br>$8 - 3 = 5$<br>$18 - 3 = 15$<br>$28 - 3 = 25...$ |
| <b>Subtract across a 10</b><br><br>Partition the number being subtracted to bridge through a ten. | ... can be partitioned into ... and ...<br><br><br><br>$13 - 5$<br>                                                                                                                                                                                                                                                                                                         | Make links with related facts.<br><br><br><br>$33 - 5$<br> |                                                                                                              |

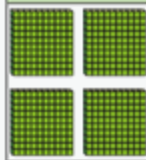
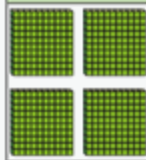
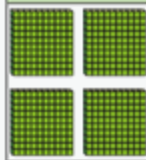
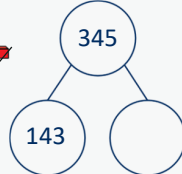
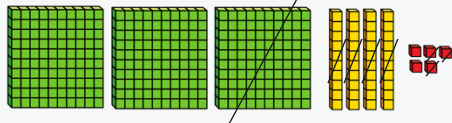
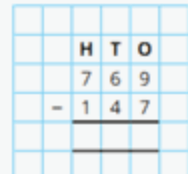
# Subtraction

| Progression of skills                                                        | Key representations                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
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| <b>Subtract multiples of 10</b><br><br>Make links to known facts within ten. | <p>... ones — ... ones = ... ones<br/>so ... tens — ... tens = ... tens</p>  <p><math>5 - 2 = 3</math><br/><math>50 - 20 = 30</math></p> | <p>What is the same?<br/>What is different?</p>   <table border="1" data-bbox="1630 491 1889 562"><tr><td colspan="2">5</td></tr><tr><td>2</td><td>?</td></tr></table> <table border="1" data-bbox="1630 574 1889 645"><tr><td colspan="2">50</td></tr><tr><td>20</td><td>?</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                | 5  |    | 2  | ?  | 50 |    | 20 | ? |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
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| 20                                                                           | ?                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
| <b>Subtract 10s from any number</b><br><br>Make links to known facts.        | <p>... tens — ... tens = ... tens<br/>... tens and ... ones = ...</p>                                                                   | <p>To subtract ... I need to subtract 10 ... times.</p> <table border="1" data-bbox="1077 841 1475 1066"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr><tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr><tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr></table> | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | <p>I know that ... minus ... = ...<br/>so ... minus ... = ...</p> <p><math>50 - 20 = 30</math><br/><math>54 - 20 = 34</math></p> |
| 1                                                                            | 2                                                                                                                                                                                                                         | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
| 11                                                                           | 12                                                                                                                                                                                                                        | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
| 21                                                                           | 22                                                                                                                                                                                                                        | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
| 31                                                                           | 32                                                                                                                                                                                                                        | 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
| 41                                                                           | 42                                                                                                                                                                                                                        | 43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |
| 51                                                                           | 52                                                                                                                                                                                                                        | 53                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                  |

# Subtraction

| Progression of skills                                                                             | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----|--|----|---|---|---|--|--|---|---|--|--|---|---|--|--|
| <b>Subtract two 2-digit numbers</b><br>(not across a ten)                                         | <div>... ones – ... ones = ... ones<br/>... tens – ... tens = ... tens</div> <div><div><div>43</div><div>21</div><div></div></div><div><table><tr><td colspan="2">43</td></tr><tr><td>21</td><td>?</td></tr></table></div></div> <div><table><tr><td>T</td><td>O</td></tr><tr><td></td><td></td></tr></table><div>3 ones – 1 one = 2 ones<br/>4 tens – 2 tens = 2 tens<br/>2 tens and 2 ones = 22</div></div>                                                                                                                                                                                                                                    |                                                                                                                                                                                                               |                                                                                                                                    | 43 |  | 21 | ? | T | O |  |  |   |   |  |  |   |   |  |  |
| 43                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| 21                                                                                                | ?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| T                                                                                                 | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| <b>Subtract two 2-digit numbers</b><br>(across a ten)<br><br>Begin to exchange 1 ten for 10 ones. | <div>I need to make an exchange because I do not have enough ones to subtract ... ones.</div> <div><div><table><tr><td colspan="2">43</td></tr><tr><td>25</td><td>?</td></tr></table><div><div>43</div><div>25</div><div></div></div></div><div><table><tr><td>T</td><td>O</td></tr><tr><td></td><td></td></tr></table><table><tr><td>T</td><td>O</td></tr><tr><td></td><td></td></tr></table><table><tr><td>T</td><td>O</td></tr><tr><td></td><td></td></tr></table></div><div>3 ones – 5 ones<br/>(I need to exchange 1 ten for 10 ones)</div><div>13 ones – 5 ones = 8 ones<br/>3 tens – 2 tens = 1 ten<br/>1 ten and 8 ones = 18</div></div> |                                                                                                                                                                                                               |                                                                                                                                    | 43 |  | 25 | ? | T | O |  |  | T | O |  |  | T | O |  |  |
| 43                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| 25                                                                                                | ?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| T                                                                                                 | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| T                                                                                                 | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| T                                                                                                 | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                               |                                                                                                                                    |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |
| <b>Missing numbers</b><br><br>Solve missing number problems and use the inverse to check.         | <div>How many do you need to subtract to make ...?</div> <div><div><math>10 - \square = 6</math><br/><math>6 + \square = 10</math></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <div>If ... is a whole and ... is a part, then ... is the other part.</div> <div><div><math>7 - 3 = \square</math><br/><math>\square + 3 = 7</math></div><div><div>7</div><div>3</div><div></div></div></div> | <div>... can be partitioned into ... and ...</div> <div><math>18 - \square = 12 + 2</math></div> <div><div></div><div></div></div> |    |  |    |   |   |   |  |  |   |   |  |  |   |   |  |  |

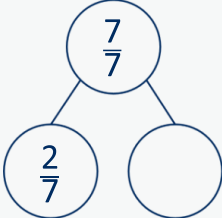
# Subtraction

| Year 3                                                                                                                                                                                  | <ul style="list-style-type: none"><li>Subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.</li><li>Subtract numbers with up to three digits, using formal written methods.</li><li>Subtract fractions with the same denominator within 1 whole.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                       |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------|----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Progression of skills                                                                                                                                                                   | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                       |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
| <b>Subtract 1s, 10s and 100s from a 3-digit number</b><br><br>Emphasis on mental strategies including number bonds and related facts.<br>Prompt children to notice which digit changes. | <p>The ones/tens/hundreds column will decrease by ...</p> <div><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table><p><math>444 - 2 =</math><br/><math>444 - 20 =</math><br/><math>444 - 200 =</math></p></div> <div><table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td></td><td></td></tr></table><p><math>777 - 4 =</math><br/><math>777 - 40 =</math><br/><math>777 - 400 =</math></p></div> | Hundreds                                                                              | Tens | Ones     |  |  |      | H                                                                                     | T                                                                                     | O |  |  |  | <p>What patterns do you notice?</p> <p><math>235 - 3 =</math><br/><math>235 - 30 =</math><br/><math>235 - 300 =</math></p> <div><math>118 - \square = 111</math><br/><math>181 - \square = 111</math><br/><math>811 - \square = 111</math></div> |
| Hundreds                                                                                                                                                                                | Tens                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ones                                                                                  |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
|                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
| H                                                                                                                                                                                       | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | O                                                                                     |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
| <b>Subtract two numbers (no exchange)</b><br><br>Mental strategies and introduction of formal written method.                                                                           | <p>... ones – ... ones = ... ones<br/>... tens – ... tens = ... tens<br/>... hundreds – ... hundreds = ... hundreds</p> <div></div> <div><table><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td></tr></table></div>                                                                                                                                                                                        |                                                                                       |      | Hundreds | Tens                                                                              | Ones                                                                              |  |  |  |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
| Hundreds                                                                                                                                                                                | Tens                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ones                                                                                  |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |
|                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |      |          |                                                                                   |                                                                                   |                                                                                       |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                  |

White Rose  
**MATHS**

37

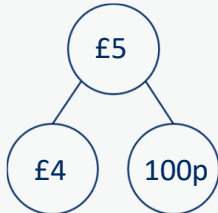
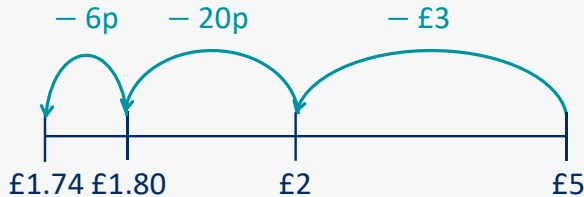
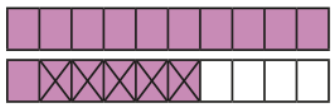
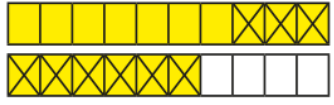
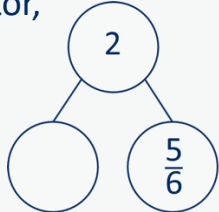
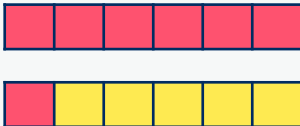
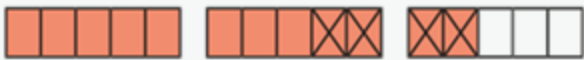
# Subtraction

| Progression of skills                                                                                         | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Subtract fractions with the same denominator within 1 whole</b></p> <p>Make links with known facts.</p> | <p>When subtracting fractions with the same denominator, I only subtract the numerator.<br/>... fifths – ... fifths = ... fifths</p> <div>  <math display="block">\frac{5}{5} - \frac{1}{5}</math> </div> <div>  <math display="block">\frac{4}{5} - \frac{1}{5}</math> </div> <div>  <math display="block">\frac{3}{5} - \frac{1}{5}</math> </div> <div>  </div> <div>  </div> |

# Subtraction

| Year 4                                                                                                                                                                                          | <ul style="list-style-type: none"><li>Subtract numbers with up to 4 digits using a formal written method.</li><li>Solve simple measure and money problems involving fractions and decimals to 2 decimal places.</li><li>Subtract fractions with the same denominator.</li></ul>                                                                                                                                                                                                                         |           |          |      |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|------|------|---|---|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|----|---|---|---|--|---|---|---|---|---|---|---|---|---|--|---|---|---|---|
| Progression of skills                                                                                                                                                                           | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |          |      |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| <b>Subtract 1s, 10s, 100s and 1,000s from a 4-digit number</b><br><br>Emphasis on mental strategies including number bonds and related facts.<br>Prompt children to notice which digit changes. | <p>The ones/tens/hundreds/thousands column will decrease by ...</p> <table><tr><th>Thousands</th><th>Hundreds</th><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td><td></td><td></td></tr></table><br>$3,425 - 2 =$ $3,425 - 200 =$<br>$3,425 - 20 =$ $3,425 - 2,000 =$                                                                                                                                                                                                                             | Thousands | Hundreds | Tens | Ones |   |   |  |  | <p>What patterns do you notice?</p> $4,356 - 3 =$<br>$4,356 - 30 =$<br>$4,356 - 300 =$<br>$4,356 - 3,000 =$<br><br>$4,433 - \square = 4,430$<br>$4,433 - \square = 4,033$<br>$4,433 - \square = 4,403$<br><br>$6,940 - 200 =$<br>$6,940 - 300 =$<br>$6,940 - 400 =$ |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| Thousands                                                                                                                                                                                       | Hundreds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Tens      | Ones     |      |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
|                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |          |      |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| <b>Subtract up to two 4-digit numbers</b><br><br>Formal written method with up to 3 exchanges.<br>Encourage children to estimate and use inverse operations to check answers to calculations.   | <p>I need to subtract... ones/tens/hundreds. I do/do not need to make an exchange.</p> <p>I can exchange 1... for 10...</p> <table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td></td><td></td><td></td></tr></table><br><table><tr><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>3</td><td>2</td><td>5</td><td>6</td></tr><tr><td>-</td><td>2</td><td>1</td><td>4</td><td>8</td></tr><tr><td></td><td>1</td><td>0</td><td>5</td><td>8</td></tr></table> |           |          | Th   | H    | T | O |  |  |                                                                                                                                                                                                                                                                     |  |  | Th | H | T | O |  | 3 | 2 | 5 | 6 | - | 2 | 1 | 4 | 8 |  | 1 | 0 | 5 | 8 |
| Th                                                                                                                                                                                              | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T         | O        |      |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
|                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |          |      |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
|                                                                                                                                                                                                 | Th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | H         | T        | O    |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
|                                                                                                                                                                                                 | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2         | 5        | 6    |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| -                                                                                                                                                                                               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1         | 4        | 8    |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
|                                                                                                                                                                                                 | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0         | 5        | 8    |      |   |   |  |  |                                                                                                                                                                                                                                                                     |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |

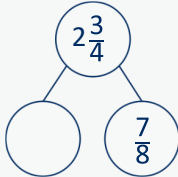
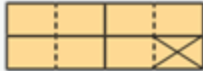
# Subtraction

| Progression of skills                                                                                                                                            | Key representations                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subtract decimal numbers in the context of money</b><br><br>Emphasis here is on partitioning and use of number lines rather than formal written calculations. | I can partition £... into £... and 100p<br>$£... - £... = £...$<br>$100p - ...p = ...p$<br><br><b>£5 – £3.26</b><br>$£4 - £3 = £1$<br>$100p - 26p = 74p$<br>$£5 - £3.26 = £1.74$<br><br>                                                                                                               | $£3.26$ can be partitioned into $£3 + 20p + 6p$<br><br>                                                                                                                                                                                                                  |
| <b>Subtract fractions and mixed numbers with the same denominator</b><br><br>Include subtracting fractions from wholes.                                          | When subtracting fractions with the same denominator,<br>I only subtract the numerator.<br>... tenths – ... tenths = ... tenths<br><br><br>$\frac{16}{10} - \frac{5}{10}$<br><br><br>$\frac{16}{10} - \frac{9}{10}$ | <br><br><br> |

# Subtraction

| Year 5                                                                                                                                                   | <ul style="list-style-type: none"><li>Subtract whole numbers with more than 4 digits.</li><li>Subtract numbers mentally with increasingly large numbers.</li><li>Subtract decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1</li><li>Subtract fractions with the same denominator, and denominators that are multiples of the same number.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                |     |     |    |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----|---|---|---|--|--|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------|---|-------|----|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--|--|--|---|---|---|---|---|--|--|--|---|--|---|--|---|--|--|---|--|---|--|---|--|--|--|--|---|---|---|---|---|--|--|
| Progression of skills                                                                                                                                    | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |     |    |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| <b>Subtract whole numbers with more than 4 digits</b><br><br>Encourage children to estimate and use inverse operations to check answers to calculations. | <p>I can exchange 1 ... for 10 ...</p> <div><table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>8</td><td>2</td><td>6</td><td>0</td></tr></table><table><tr><td>2</td><td>3</td><td>1</td><td>4</td><td>5</td><td>1</td><td>3</td><td>4</td></tr><tr><td>-</td><td></td><td>3</td><td>2</td><td>7</td><td>4</td><td></td><td></td></tr><tr><td></td><td>2</td><td>8</td><td>2</td><td>6</td><td>0</td><td></td><td></td></tr></table><table><tr><td></td><td>5</td><td></td><td>4</td><td></td><td>8</td><td></td><td></td></tr><tr><td>-</td><td></td><td>1</td><td></td><td>2</td><td></td><td></td><td></td></tr><tr><td></td><td>2</td><td>0</td><td>8</td><td>5</td><td>8</td><td></td><td></td></tr></table></div> |     | TTh | Th | H | T | O |  |  |  |  |                                                                                                                                                  | 2 | 8     | 2  | 6 | 0 | 2 | 3 | 1 | 4 | 5 | 1 | 3 | 4 | - |  | 3 | 2 | 7 | 4 |  |  |  | 2 | 8 | 2 | 6 | 0 |  |  |  | 5 |  | 4 |  | 8 |  |  | - |  | 1 |  | 2 |  |  |  |  | 2 | 0 | 8 | 5 | 8 |  |  |
| TTh                                                                                                                                                      | Th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | H   | T   | O  |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
|                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |    |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| 2                                                                                                                                                        | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2   | 6   | 0  |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| 2                                                                                                                                                        | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1   | 4   | 5  | 1 | 3 | 4 |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| -                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3   | 2   | 7  | 4 |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
|                                                                                                                                                          | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8   | 2   | 6  | 0 |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
|                                                                                                                                                          | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     | 4   |    | 8 |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| -                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1   |     | 2  |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
|                                                                                                                                                          | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0   | 8   | 5  | 8 |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| <b>Subtract using mental strategies</b><br><br>Subtract 1s, 10s, 100s etc from any number.<br>Use number bonds and related facts.                        | <table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table> <p>48,650 – 300 =<br/>48,650 – 30,000 =<br/>48,650 – 30 =</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TTh | Th  | H  | T | O |   |  |  |  |  | <p>To subtract ..., I can subtract ... then add ...</p> <div><table><tr><td></td><td>6,558</td></tr><tr><td>99</td><td>?</td></tr></table></div> |   | 6,558 | 99 | ? |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| TTh                                                                                                                                                      | Th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | H   | T   | O  |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
|                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |    |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
|                                                                                                                                                          | 6,558                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |     |    |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |
| 99                                                                                                                                                       | ?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |     |    |   |   |   |  |  |  |  |                                                                                                                                                  |   |       |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |  |   |  |   |  |  |  |  |   |   |   |   |   |  |  |

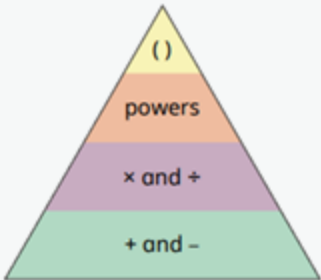
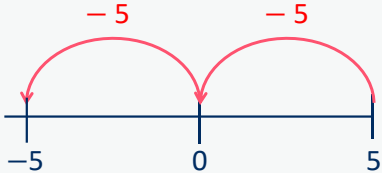
| Progression of skills                                                                                                                                                                        | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Subtract decimals with up to 2 decimal places</b></p> <p>Progress from the same number of decimal places to a different number of decimal places and from no exchange to exchange.</p> | <div><div><div>Ones</div><div>Tenths</div><div>Hundredths</div></div><div><div>1</div><div>0.1</div><div>0.01</div></div><div><div>0.1</div><div>0.01</div></div><div><div>0.01</div><div>0.01</div><div>0.01</div><div>0.01</div><div>0.01</div><div>0.01</div><div>0.01</div><div>0.01</div></div></div> <div><div>2</div><div>1</div><div>1</div><div>7</div><div>1</div><div>2</div><div>5</div></div> <div><div>24.4</div><div>3.12</div><div>?</div></div> <div><div>24.4</div><div>3.12</div></div> <div><div>2</div><div>4</div><div>4</div><div>3</div><div>1</div><div>2</div></div> |

| Progression of skills                                                                                                                                                                                                                             | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Subtract fractions with denominators that are a multiple of one another</b></p> <p>Convert fractions to the same denominator before subtracting. Progress from subtracting fractions within 1 whole to subtracting from a mixed number.</p> | <p>The denominator has been multiplied by ..., so the numerator needs to be multiplied by... for the fractions to be equivalent.</p> <div></div> <div><math display="block">\frac{1}{3} - \frac{1}{15} = \frac{5}{15} - \frac{1}{15} = \frac{4}{15}</math></div> <div></div> <div><math display="block">\frac{2}{3} - \frac{2}{9} = \frac{6}{9} - \frac{2}{9} = \frac{4}{9}</math></div> <div></div> <div></div> <div></div> <div></div> |

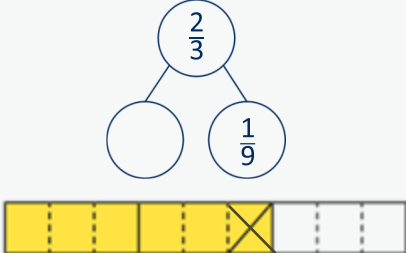
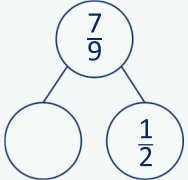
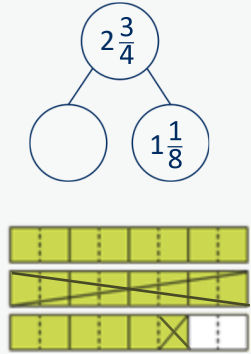
# Subtraction

|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|---------------------------|----------------|---|---|---|--|--|--|--|---------------------------|---------------------------|---------------------------|----------------|---|---|--|--|---|---|---|---|---|---|---|--|--|--|---|---|---|---|---|---|--|-------|-----|-----|-------|-----|---|--|--|---|---|---|---|--|--|--|--|--|---|--|---|---|---|--|---------------------------|----------------------------|----------------|---|---|--|--|--|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--|--|--|
| <div>Year 6</div>                                                                                                                                                                                        | <div><ul style="list-style-type: none"><li>Subtract larger numbers, using the formal written methods of columnar subtraction.</li><li>Use their knowledge of the order of operations to carry out calculations involving the 4 operations.</li><li>Calculate intervals across zero.</li><li>Subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</li></ul></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
| <div>Progression of skills</div>                                                                                                                                                                         | <div>Key representations</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
| <div><div>Subtract integers up to 10 million</div><div>Encourage children to estimate and use inverse operations to check answers to calculations.</div></div>                                           | <div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td><sup>2</sup><del>3</del></td><td><sup>1</sup>4</td><td><sup>5</sup><del>6</del></td><td><sup>1</sup>2</td><td>2</td><td>1</td><td></td></tr><tr><td></td><td>–</td><td>1</td><td>8</td><td>4</td><td>3</td><td>2</td><td>1</td><td></td></tr><tr><td></td><td></td><td>1</td><td>6</td><td>1</td><td>9</td><td>0</td><td>0</td><td></td></tr></table></div><div><table><tr><td colspan="3">4,604</td></tr><tr><td>2,354</td><td>750</td><td>?</td></tr></table></div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>8</td><td></td><td>4</td><td>8</td><td>5</td><td></td><td></td></tr><tr><td></td><td>–</td><td>3</td><td>6</td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td></td><td></td></tr></table></div></div>                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  | <sup>2</sup> <del>3</del> | <sup>1</sup> 4            | <sup>5</sup> <del>6</del> | <sup>1</sup> 2 | 2 | 1 |  |  | – | 1 | 8 | 4 | 3 | 2 | 1 |  |  |  | 1 | 6 | 1 | 9 | 0 | 0 |  | 4,604 |     |     | 2,354 | 750 | ? |  |  |   |   |   |   |  |  |  |  |  | 8 |  | 4 | 8 | 5 |  |                           |                            | –              | 3 | 6 |  |  |  |   | 4 |   |   | 5 | 5 | 5 | 5 | 5 |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <sup>2</sup> <del>3</del> | <sup>1</sup> 4             | <sup>5</sup> <del>6</del> | <sup>1</sup> 2 | 2 | 1 |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          | –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1                         | 8                          | 4                         | 3              | 2 | 1 |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                         | 6                          | 1                         | 9              | 0 | 0 |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
| 4,604                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
| 2,354                                                                                                                                                                                                    | 750                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ?                         |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8                         |                            | 4                         | 8              | 5 |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          | –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3                         | 6                          |                           |                |   |   | 4 |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5                         | 5                          | 5                         | 5              | 5 |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
| <div><div>Subtract decimals with up to 3 decimal places</div><div>Progress from the same number of decimal and whole number places to a different number of decimal and whole number places.</div></div> | <div><div>I do/do not need to make an exchange because ...</div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>6</td><td><sup>6</sup><del>7</del></td><td><sup>1</sup>3</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>–</td><td>1</td><td>3</td><td>4</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>5</td><td>3</td><td>9</td><td></td><td></td><td></td><td></td></tr></table></div><div><table><tr><td>O</td><td>Tth</td><td>Hth</td><td>Thth</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>0</td><td>9</td><td>7</td><td>5</td></tr></table></div><div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td><sup>0</sup><del>1</del></td><td><sup>15</sup><del>6</del></td><td><sup>1</sup>1</td><td>5</td><td></td><td></td><td></td></tr><tr><td></td><td>–</td><td>0</td><td>6</td><td>4</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>0</td><td>9</td><td>7</td><td>5</td><td></td><td></td><td></td></tr></table></div></div> |                           |                            |                           |                |   |   |   |  |  |  |  | 6                         | <sup>6</sup> <del>7</del> | <sup>1</sup> 3            |                |   |   |  |  | – | 1 | 3 | 4 |   |   |   |  |  |  | 5 | 3 | 9 |   |   |   |  | O     | Tth | Hth | Thth  |     |   |  |  | 0 | 9 | 7 | 5 |  |  |  |  |  |   |  |   |   |   |  | <sup>0</sup> <del>1</del> | <sup>15</sup> <del>6</del> | <sup>1</sup> 1 | 5 |   |  |  |  | – | 0 | 6 | 4 |   |   |   |   |   |  | 0 | 9 | 7 | 5 |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6                         | <sup>6</sup> <del>7</del>  | <sup>1</sup> 3            |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          | –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1                         | 3                          | 4                         |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5                         | 3                          | 9                         |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
| O                                                                                                                                                                                                        | Tth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Hth                       | Thth                       |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
| 0                                                                                                                                                                                                        | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7                         | 5                          |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                            |                           |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <sup>0</sup> <del>1</del> | <sup>15</sup> <del>6</del> | <sup>1</sup> 1            | 5              |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          | –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                         | 6                          | 4                         |                |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |
|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0                         | 9                          | 7                         | 5              |   |   |   |  |  |  |  |                           |                           |                           |                |   |   |  |  |   |   |   |   |   |   |   |  |  |  |   |   |   |   |   |   |  |       |     |     |       |     |   |  |  |   |   |   |   |  |  |  |  |  |   |  |   |   |   |  |                           |                            |                |   |   |  |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |

# Subtraction

| Progression of skills                                                                                                                                                                                                                   | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Order of operations</b><br><br>Children learn the order of priority for operations in a calculation. Calculations in brackets should be done first. Multiplication and division should be performed before addition and subtraction. | <p>... has greater priority than ... , so the first part of the calculation I need to do is ...</p> <div><p>A triangle divided into four horizontal sections. From top to bottom: a yellow section with '()', an orange section with 'powers', a purple section with '× and ÷', and a green section with '+ and -'.</p></div> <div><p>8 - 2 × 3 = 2</p><p>Diagram showing 8 red dots in two rows of four. Two dots in the top row are crossed out with a diagonal line.</p></div> <div><p>(8 - 2) × 3 = 18</p><p>Diagram showing 18 red dots arranged in three groups of six. Each group is a 3x2 grid. In each group, two dots are crossed out with a diagonal line.</p></div> <div><p>8 - 2<sup>2</sup> = 4</p><p>Diagram showing 8 red dots in two rows of four. Two dots in the top row are crossed out with a diagonal line.</p></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Negative numbers</b><br><br>Children subtract from positive and negative numbers and calculate intervals across 0                                                                                                                    | <p>... minus ... is equal to ...</p> <p><math>-1 - 4 = -5</math></p>  <p>A number line from -5 to 5. Red arrows show jumps of 1 unit to the left from -1 to -2, -2 to -3, -3 to -4, and -4 to -5.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  <p>A number line from -5 to 5. Red arrows show jumps of 1 unit to the right from -5 to -4, -4 to -3, -3 to -2, and -2 to -1.</p> <p>The difference between -5 and -1 is 4</p><br> <p>A number line from -5 to 5. Red arrows show jumps of 1 unit to the left from 1 to 0, 0 to -1, -1 to -2, and -2 to -3.</p> <p><math>1 - 4 = -3</math></p><br> <p>A number line from -5 to 5. Red arrows show jumps of 5 units to the left from 5 to 0, and 0 to -5. The jumps are labeled '-5'.</p> <p>The difference between 5 and -5 is 10</p> |

# Subtraction

| Progression of skills                                                                                                                                                                                                               | Key representations                                                                                                                                                                                                                                      |                                                                                                                                                                                                                       |                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subtract fractions</b><br><br>Convert fractions to the same denominator before subtracting. Progress from fractions where one denominator is a multiple of the other, to any fractions and then subtracting from a mixed number. | <p>The denominator has been multiplied by ..., so the numerator needs to be multiplied by...</p>  $\frac{2}{3} - \frac{1}{9} = \frac{6}{9} - \frac{1}{9} = \frac{5}{9}$ | <p>The lowest common multiple of ... and ... is ...</p>  $\frac{7}{9} - \frac{1}{2} = \frac{14}{18} - \frac{9}{18} = \frac{5}{18}$ | <p>... is made up of ... wholes and ...</p>  $2\frac{3}{4} - 1\frac{1}{8} = 1\frac{5}{8}$ |

# Progression of skills - Multiplication

| Year group | Skill                                                                                                                                                                                |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nursery    | <ul style="list-style-type: none"><li>Continue with counting and subitising skills as a foundation for later work on equal groups. (see addition and subtraction sections)</li></ul> |
| Reception  | <ul style="list-style-type: none"><li>Double to 10</li><li>Make equal groups</li></ul>                                                                                               |
| Year 1     | <ul style="list-style-type: none"><li>Count in 2s, 5s and 10s</li><li>Add equal groups</li><li>Make arrays</li><li>Make doubles</li></ul>                                            |

# Progression of skills - Multiplication

| Year group | Skill                                                                                                                                                                                                                                                                                                                                                 |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 2     | <ul style="list-style-type: none"><li>• Link repeated addition and multiplication</li><li>• Use arrays</li><li>• Double</li><li>• The 2 times-table</li><li>• The 10 times-table</li><li>• The 5 times-table</li><li>• Missing numbers</li></ul>                                                                                                      |
| Year 3     | <ul style="list-style-type: none"><li>• The 3 times-table</li><li>• The 4 times-table</li><li>• The 8 times-table</li><li>• Related facts</li><li>• Multiply a 2-digit number by a 1-digit number - no exchange</li><li>• Multiply a 2-digit number by a 1-digit number - with exchange</li><li>• Scaling</li><li>• Correspondence problems</li></ul> |

# Progression of skills - Multiplication

| Year group | Skill                                                                                                                                                                                                                                                                                                                                                                                    |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 4     | <ul style="list-style-type: none"><li>• Times-table facts to <math>12 \times 12</math></li><li>• Multiply by 1 and 0</li><li>• Multiply 3 numbers</li><li>• Factor pairs</li><li>• Multiply by 10 and 100</li><li>• Related facts</li><li>• Mental strategies</li><li>• Multiply a 2 or 3-digit number by a 1-digit number</li><li>• Scaling</li><li>• Correspondence problems</li></ul> |

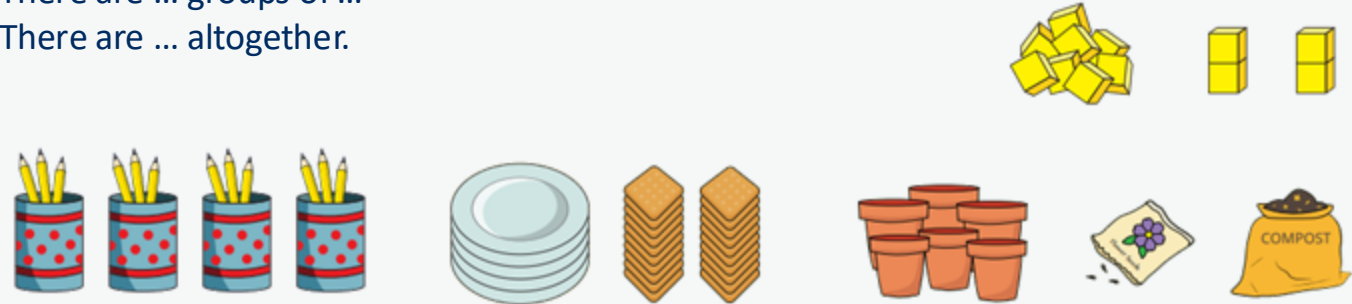
# Progression of skills - Multiplication

| Year group | Skill                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 5     | <ul style="list-style-type: none"><li>• Multiples and factors</li><li>• Square and cube numbers</li><li>• Multiply numbers up to 4 digits by a 1-digit number</li><li>• Multiply numbers up to 4 digits by a 2-digit number</li><li>• Multiply by 10, 100 and 1,000</li><li>• Mental strategies</li><li>• Multiply fractions by a whole number</li><li>• Multiply mixed numbers by a whole number</li><li>• Find the whole</li></ul> |

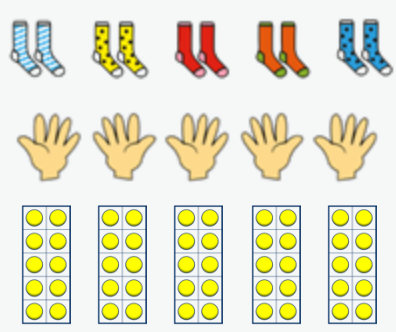
# Progression of skills - Multiplication

| Year group | Skill                                                                                                                                                                                                                                                                                                                         |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 6     | <ul style="list-style-type: none"><li>• Multiply numbers up to 4 digits by a 2-digit number</li><li>• Multiply by 10, 100 and 1,000</li><li>• Order of operations</li><li>• Multiply decimals by integers</li><li>• Multiply fractions by fractions</li><li>• Find the whole</li><li>• Calculations involving ratio</li></ul> |

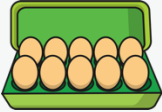
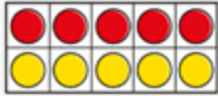
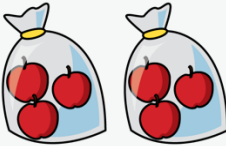
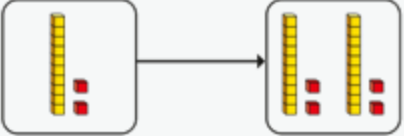
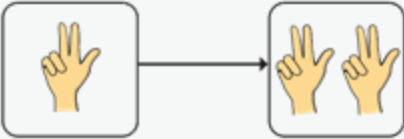
# Multiplication

|                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <p><b>Reception</b></p>                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Have a deep understanding of number to 10, including the composition of each number.</li> <li>Subitise (recognise quantities without counting) up to 5</li> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts.</li> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</li> </ul> |
| <p><b>Progression of skills</b></p>                                                                                                                                                      | <p><b>Key representations</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p><b>Double to 10</b></p> <p>Prompt children to notice that double means twice as many and to notice that there are two equal groups.</p>                                               | <p>Double ... is ...<br/>... is double ...</p>                                                                                                                                                                                                                                                                                                                                                                                              |
| <p><b>Make equal groups</b></p> <p>Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.</p> | <p>There are ... groups of ...<br/>There are ... altogether.</p>                                                                                                                                                                                                                                                                                                                                                                          |

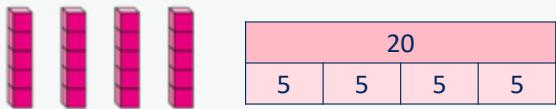
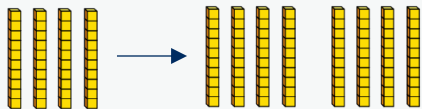
# Multiplication

|                                                                                                                                                                                                            |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                          |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
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| Year 1                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>Count in multiples of twos, fives and tens.</li><li>Solve one-step problems involving multiplication, using concrete objects, pictorial representations and arrays with the support of the teacher.</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                          |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| Progression of skills                                                                                                                                                                                      | Key representations                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                          |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| <b>Count in 2s, 5s and 10s</b><br><br>Begin by counting objects that naturally come in 2s, 5s and 10s, for example pairs of socks or fingers.                                                              | <p>There are ... equal groups of ...<br/>There are ... altogether.</p>                                                                                            | <p>Continue to colour in ...s<br/>What do you notice?</p> <table border="1" data-bbox="1085 662 1469 855"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr><tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr></table> | 1                                                                                                                                                                                                                                        | 2  | 3  | 4  | 5  | 6  | 7  | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | <p>Complete the number track/number line by counting in ...s.</p> <table border="1" data-bbox="1510 684 1935 733"><tr><td>5</td><td>10</td><td>15</td><td>20</td><td></td><td></td><td></td><td></td></tr></table>  | 5 | 10 | 15 | 20 |  |  |  |  |
| 1                                                                                                                                                                                                          | 2                                                                                                                                                                                                                                                   | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4                                                                                                                                                                                                                                        | 5  | 6  | 7  | 8  | 9  | 10 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| 11                                                                                                                                                                                                         | 12                                                                                                                                                                                                                                                  | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14                                                                                                                                                                                                                                       | 15 | 16 | 17 | 18 | 19 | 20 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| 21                                                                                                                                                                                                         | 22                                                                                                                                                                                                                                                  | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 24                                                                                                                                                                                                                                       | 25 | 26 | 27 | 28 | 29 | 30 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| 31                                                                                                                                                                                                         | 32                                                                                                                                                                                                                                                  | 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 34                                                                                                                                                                                                                                       | 35 | 36 | 37 | 38 | 39 | 40 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| 41                                                                                                                                                                                                         | 42                                                                                                                                                                                                                                                  | 43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 44                                                                                                                                                                                                                                       | 45 | 46 | 47 | 48 | 49 | 50 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| 5                                                                                                                                                                                                          | 10                                                                                                                                                                                                                                                  | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 20                                                                                                                                                                                                                                       |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |
| <b>Add equal groups</b><br>(repeated addition)<br><br>Children should be able to write a repeated addition to represent equal groups and to draw pictures or use objects to represent a repeated addition. | <p>There are ... groups of ...<br/>There are ... altogether.</p>  <p><math>10 + 10 + 10 = 30</math></p> <p><math>5 + 5 + 5 + 5 = 20</math></p>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>What is the same? What is different?</p> <p><math>2 + 2 + 2 =</math></p> <p><math>5 + 5 + 5 =</math></p> <p><math>10 + 10 + 10 =</math></p> <p>Use objects or a drawing to represent the equal groups and find how many in total.</p> |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                        |   |    |    |    |  |  |  |  |

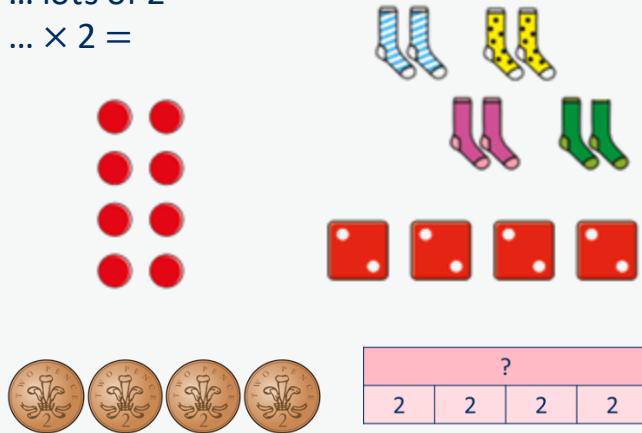
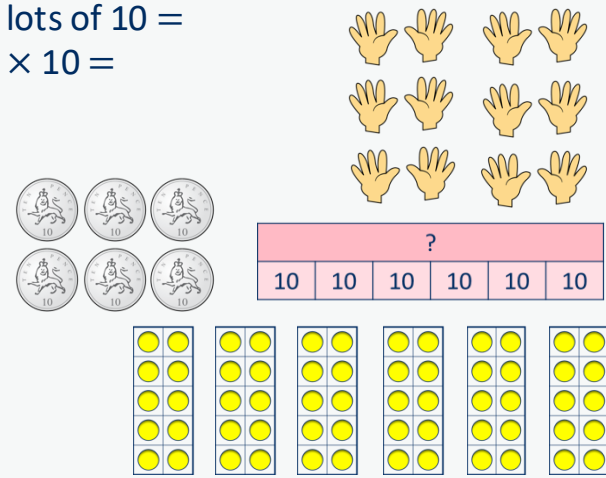
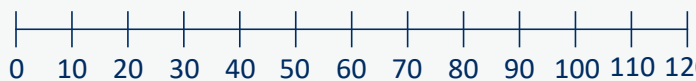
# Multiplication

| Progression of skills                                                                                                                                  | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Make arrays</b></p> <p>Children use their knowledge of adding equal groups to arrange objects in columns and rows.</p>                           | <p>There are ... rows of ... There are ... altogether.<br/>There are ... columns of ... There are ... altogether.</p> <div></div>                                                                                                                                                                                        |
| <p><b>Make doubles</b></p> <p>Children understand that doubles are two equal groups. Children may begin to explore doubles beyond 20 using base 10</p> | <p>Double ... is ...<br/>... + ... = ...</p> <div></div> |

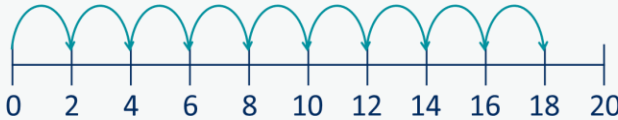
# Multiplication

|                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year 2</b>                                                                                                                             | <ul style="list-style-type: none"> <li>Recall and use multiplication facts for the 2, 5 and 10 multiplication tables.</li> <li>Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (<math>\times</math>) and equals (<math>=</math>) signs.</li> <li>Show that multiplication of two numbers can be done in any order (commutative).</li> </ul> |                                                                                                                                                                                                                                                                           |
| <b>Progression of skills</b>                                                                                                              | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                           |
| <b>Link repeated addition and multiplication</b><br><br>Encourage children to make the link between repeated addition and multiplication. | <p>There are ... equal groups with ... in each group.<br/>There are ... altogether.</p> <div>  <math>3 + 3 = 6</math><br/> <math>2 \times 3 = 6</math> </div> <div>  <math>5 + 5 + 5 + 5 = 20</math><br/> <math>4 \times 5 = 20</math> </div>       |                                                                                                                                                                                                                                                                           |
| <b>Use arrays</b><br><br>Encourage children to see that multiplication is commutative.                                                    | <p>There are ... rows with ... in each row.<br/>There are ... columns with ... in each column.</p> <div>  <math>3 \text{ lots of } 5 = 15</math><br/> <math>5 + 5 + 5 = 15</math><br/> <math>5 \text{ lots of } 3 = 15</math><br/> <math>3 + 3 + 3 + 3 + 3 = 15</math> </div>                                                           | <p>I can see ... <math>\times</math> ... and ... <math>\times</math> ...</p> $3 \times 5 = 15$<br>$5 \times 3 = 15$<br>$3 \times 5 = 5 \times 3$                                                                                                                          |
| <b>Double</b><br><br>Encourage children to make links with related facts.                                                                 | <p>Double ... is ...</p> <div>  <math>\text{Double } 4 = 4 + 4</math><br/> Double 4 is 8 </div>                                                                                                                                                                                                                                        | <p>Double ... is ... so double ... is ...</p> <div>  Double 4 is 8<br/>  Double 40 is 80 </div> |

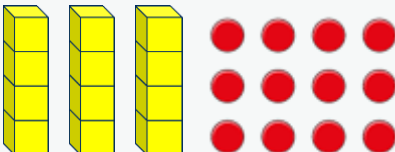
# Multiplication

| Progression of skills                                                                                                                            | Key representations                                                                                                                                                                                                                              |    |    |    |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| <h3>The 2 times-table</h3> <p>Encourage daily counting in multiples both forwards and back. Notice that all multiples of 2 are even numbers.</p> | <p>... lots of 2 =<br/>... <math>\times 2 =</math></p>  <p>?</p> <table><tr><td>2</td><td>2</td><td>2</td><td>2</td></tr></table>                              | 2  | 2  | 2  | 2  | <p>... times 2 is equal to ...</p> <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr></table> <p><math>1 \times 2 = 2</math>    <math>2 = 1 \times 2</math><br/><math>2 \times 2 = 4</math>    <math>4 = 2 \times 2</math><br/><math>3 \times 2 = 6</math>    <math>6 = 3 \times 2</math></p>  | 1  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3  | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |    |    |    |    |    |    |    |    |    |    |    |    |
| 2                                                                                                                                                | 2                                                                                                                                                                                                                                                | 2  | 2  |    |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1                                                                                                                                                | 2                                                                                                                                                                                                                                                | 3  | 4  | 5  | 6  | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8  | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11                                                                                                                                               | 12                                                                                                                                                                                                                                               | 13 | 14 | 15 | 16 | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 18 | 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21                                                                                                                                               | 22                                                                                                                                                                                                                                               | 23 | 24 | 25 | 26 | 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28 | 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <h3>The 10 times-table</h3> <p>Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.</p>              | <p>... lots of 10 =<br/>... <math>\times 10 =</math></p>  <p>?</p> <table><tr><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td></tr></table> | 10 | 10 | 10 | 10 | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10 | <p>... times 10 is equal to ...</p> <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr></table> <p><math>1 \times 10 = 10</math>    <math>10 = 1 \times 10</math><br/><math>2 \times 10 = 20</math>    <math>20 = 2 \times 10</math><br/><math>3 \times 10 = 30</math>    <math>30 = 3 \times 10</math></p>  | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 10                                                                                                                                               | 10                                                                                                                                                                                                                                               | 10 | 10 | 10 | 10 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1                                                                                                                                                | 2                                                                                                                                                                                                                                                | 3  | 4  | 5  | 6  | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8  | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11                                                                                                                                               | 12                                                                                                                                                                                                                                               | 13 | 14 | 15 | 16 | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 18 | 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21                                                                                                                                               | 22                                                                                                                                                                                                                                               | 23 | 24 | 25 | 26 | 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28 | 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 31                                                                                                                                               | 32                                                                                                                                                                                                                                               | 33 | 34 | 35 | 36 | 37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 38 | 39                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 40 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

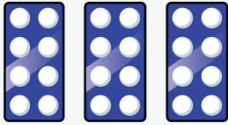
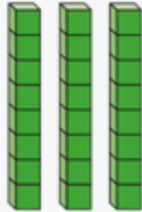
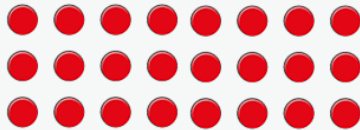
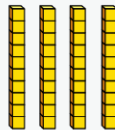
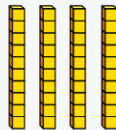
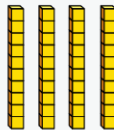
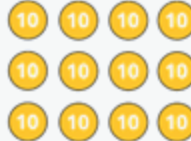
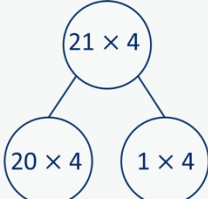
# Multiplication

| Progression of skills                                                                                                              | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                           |    |    |    |    |    |    |    |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <h3>The 5 times-table</h3> <p>Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.</p> | <p>... lots of 5 =</p> <p>... <math>\times 5 =</math></p> <div></div> <div></div> <div></div> <div><table border="1"><tr><td colspan="5">?</td></tr><tr><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr></table></div> | ?                                                                                                                         |    |    |    |    | 5  | 5  | 5  | 5 | 5 | <p>... times 5 is equal to ...</p> <table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr></table> <div><math>1 \times 5 = 5</math>      <math>5 = 1 \times 5</math><br/><math>2 \times 5 = 10</math>    <math>10 = 2 \times 5</math><br/><math>3 \times 5 = 15</math>    <math>15 = 3 \times 5</math></div> <div></div> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| ?                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                           |    |    |    |    |    |    |    |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5                                                                                                                                  | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5                                                                                                                         | 5  | 5  |    |    |    |    |    |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1                                                                                                                                  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                                                         | 4  | 5  | 6  | 7  | 8  | 9  | 10 |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11                                                                                                                                 | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 13                                                                                                                        | 14 | 15 | 16 | 17 | 18 | 19 | 20 |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21                                                                                                                                 | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23                                                                                                                        | 24 | 25 | 26 | 27 | 28 | 29 | 30 |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 31                                                                                                                                 | 32                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 33                                                                                                                        | 34 | 35 | 36 | 37 | 38 | 39 | 40 |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <h3>Missing numbers</h3> <p>Make links to known facts.</p>                                                                         | <p>... is equal to ... groups of ...</p> <p>18 socks, how many pairs?</p> <div></div> <div></div>                                                                                                                                                                                                            | <p>... times ... is equal to ...</p> <div><math>\square \times 2 = 18</math><br/><math>18 = 2 \times \square</math></div> |    |    |    |    |    |    |    |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

# Multiplication

|                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <b>Year 3</b>                                                                                                                                                      | <ul style="list-style-type: none"><li>Recall and use multiplication facts for the 3, 4 and 8 multiplication tables.</li><li>Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</li><li>Solve problems, including missing number problems, involving multiplication, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <b>Progression of skills</b>                                                                                                                                       | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <b>The 3 times-table</b><br><br>Encourage daily counting in multiples both forwards and back.                                                                      | <p>... groups of 3 =<br/>... <math>\times 3 =</math><br/>3, ... times =<br/><math>3 \times \dots =</math></p>                                                                                                                                                                                                                                                                                                 | <p>... times 3 is equal to ...</p> <table border="1" data-bbox="1342 664 1831 801"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr></table> <p><math>4 \times 3 = 12</math>   <math>12 = 4 \times 3</math></p>      |    | 1  | 2  | 3  | 4  | 5  | 6  | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1                                                                                                                                                                  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11                                                                                                                                                                 | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21                                                                                                                                                                 | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <b>The 4 times-table</b><br><br>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between the 2 and 4 times-tables. | <p>... groups of 4 =<br/>... <math>\times 4 =</math><br/>4, ... times =<br/><math>4 \times \dots =</math></p>                                                                                                                                                                                                                                                                                             | <p>... times 4 is equal to ...</p> <table border="1" data-bbox="1342 1023 1831 1160"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr></table> <p><math>3 \times 4 = 12</math>   <math>12 = 3 \times 4</math></p>  |    | 1  | 2  | 3  | 4  | 5  | 6  | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1                                                                                                                                                                  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11                                                                                                                                                                 | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21                                                                                                                                                                 | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

# Multiplication

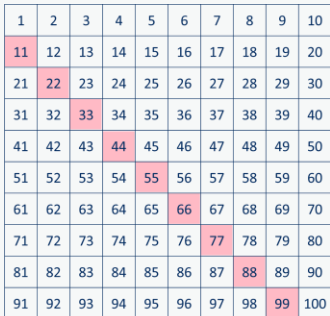
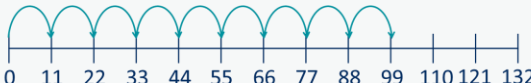
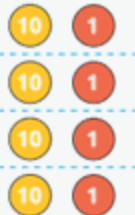
| Progression of skills                                                                                                                                                                               | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <div>The 8 times-table</div> <div>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between the 2, 4 and 8 times-tables.</div>                       | <div>... lots of 8 =<br/>× 8 =<br/>8, ... times =<br/>8 × ... =</div> <div><br/><br/><br/></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div>... times 8 is equal to ...</div> <div><table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr></table></div> <div><math>3 \times 8 = 24</math>   <math>24 = 3 \times 8</math></div> <div></div> | 1    | 2    | 3                                                                                   | 4                                                                                   | 5                                                                                   | 6                                                                                   | 7    | 8    | 9                                                                                     | 10                                                                                    | 11                                                                                    | 12                                                                                    | 13                                                                                    | 14                                                                                    | 15                                                                                    | 16                                                                                    | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 1                                                                                                                                                                                                   | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4    | 5    | 6                                                                                   | 7                                                                                   | 8                                                                                   | 9                                                                                   | 10   |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11                                                                                                                                                                                                  | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 14   | 15   | 16                                                                                  | 17                                                                                  | 18                                                                                  | 19                                                                                  | 20   |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21                                                                                                                                                                                                  | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 24   | 25   | 26                                                                                  | 27                                                                                  | 28                                                                                  | 29                                                                                  | 30   |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <div>Related facts</div> <div>Use knowledge of multiplying by 10 to scale times-table facts.</div>                                                                                                  | <div>... × ... ones is equal to ... ones<br/>so ... × ... tens is equal to ... tens.</div> <div><br/><br/><br/></div> <div><br/></div> <div><math>3 \times 4 = 12</math><br/><math>3 \times 40 = 120</math></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| <div>Multiply a 2-digit number by a 1-digit number - no exchange</div> <div>Children apply their understanding of partitioning to represent and solve calculations using the expanded method.</div> | <div>... tens multiplied by ... is equal to ... tens.<br/>...ones multiplied by ... is equal to ... ones.</div> <div><table border="1"><thead><tr><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table></div> <div><math>30 \times 2 = 60</math><br/><math>2 \times 2 = 4</math><br/><math>32 \times 2 = 64</math></div> <div></div> <div><table border="1"><thead><tr><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Tens | Ones |  |  |  |  | Tens | Ones |  |  |  |  |  |  |  |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Tens                                                                                                                                                                                                | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| Tens                                                                                                                                                                                                | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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# Multiplication

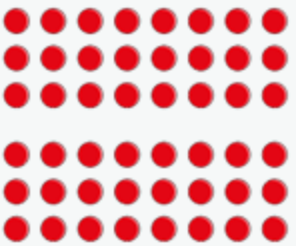
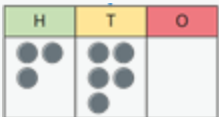
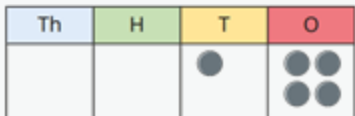
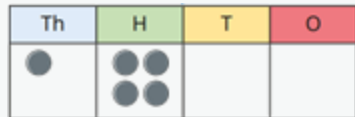
| Progression of skills                                                                                                                                                                                | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                  |      |  |  |  |  |  |  |  |  |  |  |  |  |      |      |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|--|--|--|--|--|--|--|--|--|--|--|------|------|--|--|--|--|--|--|--|
| <p><b>Multiply a 2-digit number by a 1-digit number - with exchange</b></p> <p>Children apply their understanding of partitioning to represent and solve calculations using the expanded method.</p> | <p>... tens multiplied by ... is equal to ... tens.<br/>... ones multiplied by ... is equal to ... ones.</p> <div><table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table><div><math>20 \times 4 = 80</math><br/><math>4 \times 4 = 16</math><br/><math>24 \times 4 = 96</math></div></div> <div><div><div>45 × 3</div><div>40 × 3</div><div>5 × 3</div></div><table><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table></div> | Tens                                                                                                                                                                             | Ones |  |  |  |  |  |  |  |  |  |  |  |  | Tens | Ones |  |  |  |  |  |  |  |
| Tens                                                                                                                                                                                                 | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                  |      |  |  |  |  |  |  |  |  |  |  |  |  |      |      |  |  |  |  |  |  |  |
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| Tens                                                                                                                                                                                                 | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                  |      |  |  |  |  |  |  |  |  |  |  |  |  |      |      |  |  |  |  |  |  |  |
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| <p><b>Scaling</b></p> <p>Children focus on multiplication as scaling ( ... times the size) as opposed to repeated addition.</p>                                                                      | <p>There are .... times as many ... as ...</p> <div><div></div><div></div><div></div><div></div></div> <p>There are 3 times as many triangles as circles.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>... is ... times the size of ...<br/>... is ... times the length/height of ...</p> <div><div></div><div></div></div> <div></div> <p>Miss Smith is twice the height of Jo.</p> |      |  |  |  |  |  |  |  |  |  |  |  |  |      |      |  |  |  |  |  |  |  |

| Progression of skills                                                                                                                                        | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |         |                                                                                          |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |
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| <p><b>Correspondence problems</b><br/>(How many ways?)</p> <p>Encourage children to work systematically to find all the different possible combinations.</p> | <p>For every ... , there are ... possible ...<br/>There are ... <math>\times</math> ... possibilities altogether.</p> <div></div> <table><tr><th>hats</th><th>scarves</th></tr><tr><td>blue </td><td><br/></td></tr><tr><td>orange </td><td><br/></td></tr><tr><td>purple </td><td><br/></td></tr></table> <p>For every hat, there are two possible scarves.<br/><math>3 \times 2 = 6</math></p> <p>There are 6 possibilities altogether.</p> | hats | scarves | blue  | <br> | orange  | <br> | purple  | <br> |
| hats                                                                                                                                                         | scarves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |         |                                                                                          |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |
| blue                                                                      | <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |         |                                                                                          |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |
| orange                                                                    | <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |         |                                                                                          |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |
| purple                                                                    | <br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |         |                                                                                          |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |                                                                                            |                                                                                                                                                                            |

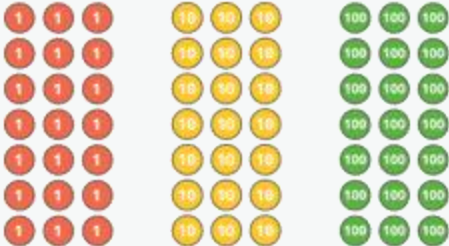
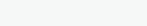
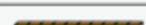
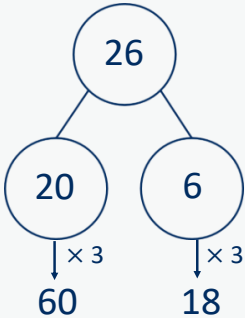
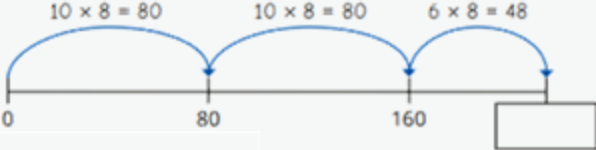
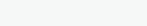
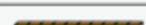
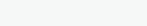
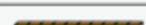
# Multiplication

|                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |
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| Year 4                                                                                                                                                                                             | <ul style="list-style-type: none"><li>Recall multiplication facts for multiplication tables up to <math>12 \times 12</math></li><li>Use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers.</li><li>Recognise and use factor pairs and commutativity in mental calculations.</li><li>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</li><li>Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| Progression of skills                                                                                                                                                                              | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| <p><b>Times-table facts to <math>12 \times 12</math></b></p> <p>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between related times-tables.</p> | <p>... groups of ... =<br/>... times ... is equal to ...<br/>... <math>\times</math> ... =</p> <div></div>                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| <b>Multiply by 1 and 0</b>                                                                                                                                                                         | <p>Any number multiplied by 1 is equal to ...<br/>Any number multiplied by 0 is equal to ...</p> <div></div>                                                                                                                                                                                                                                                                                                                                                       | <p>... <math>\times</math> ... = ...</p> <table><tr><td><math>1 \times 1 = 1</math></td><td><math>1 \times 0 = 0</math></td></tr><tr><td><math>2 \times 1 = 2</math></td><td><math>2 \times 0 = 0</math></td></tr><tr><td><math>3 \times 1 = 3</math></td><td><math>3 \times 0 = 0</math></td></tr><tr><td><math>4 \times 1 = 4</math></td><td><math>4 \times 0 = 0</math></td></tr></table> | $1 \times 1 = 1$ | $1 \times 0 = 0$ | $2 \times 1 = 2$ | $2 \times 0 = 0$ | $3 \times 1 = 3$ | $3 \times 0 = 0$ | $4 \times 1 = 4$ | $4 \times 0 = 0$ |
| $1 \times 1 = 1$                                                                                                                                                                                   | $1 \times 0 = 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| $2 \times 1 = 2$                                                                                                                                                                                   | $2 \times 0 = 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| $3 \times 1 = 3$                                                                                                                                                                                   | $3 \times 0 = 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |
| $4 \times 1 = 4$                                                                                                                                                                                   | $4 \times 0 = 0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                              |                  |                  |                  |                  |                  |                  |                  |                  |

# Multiplication

| Progression of skills                                                                                                                                                                        | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Multiply 3 numbers</b><br><br>Children use their understanding of commutativity to multiply more efficiently.                                                                             | To work out $\dots \times \dots \times \dots$ , I can first calculate $\dots \times \dots$ and then multiply the answer by ...<br><br> $4 \times 2 \times 3 = 8 \times 3 = 24$<br>$2 \times 3 \times 4 = 6 \times 4 = 24$<br>$3 \times 4 \times 2 = 12 \times 2 = 24$                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                   |
| <b>Factor pairs</b><br><br>Children explore equivalent calculations using different factors pairs.                                                                                           | $12 = \dots \times \dots$ , so $\dots \times 12 = \dots \times \dots \times \dots$<br><br><div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <math>8 \times 6 = 8 \times 3 \times 2</math><br/> <math>8 \times 6 = 24 \times 2</math> </div> <div style="text-align: center;">  <math>6 \times 8 = 6 \times 4 \times 2</math><br/> <math>6 \times 8 = 24 \times 2</math> </div> </div> |                                                                                                                                                                                                                                                                                                                                   |
| <b>Multiply by 10 and 100</b><br><br>Some children may over-generalise that multiplying by 10 or 100 always results in adding zeros. This will cause issues later when multiplying decimals. | When I multiply by 10, the digits move ...<br>place value column to the left.<br>... is 10 times the size of ...<br><br><br> $35 \times 10 = 350$                                                                                                                                                                                                                                                                                                         | When I multiply by 100, the digits move ...<br>place value columns to the left.<br>... is 100 times the size of ...<br><br><br> $14 \times 100 = 1,400$ |

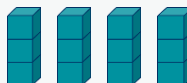
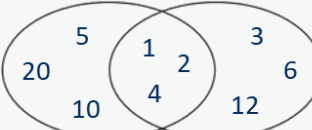
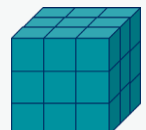
# Multiplication

| Progression of skills                                                                                     | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <p><b>Related facts</b></p> <p>Use knowledge of multiplying by 10 and 100 to scale times-table facts.</p> | <p>... × ... ones is equal to ... ones<br/>so ... × ... tens is equal to ... tens<br/>and ... × ... hundreds is equal to ... hundreds.</p> <div>  <div> <math>3 \times 7 = 21</math><br/> <math>3 \times 70 = 210</math><br/> <math>3 \times 700 = 2,100</math> </div> <div> <math>7 \times 3 = 21</math><br/> <math>7 \times 30 = 210</math><br/> <math>7 \times 300 = 2,100</math> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| <p><b>Mental strategies</b></p> <p>Partition 2 or 3-digit numbers to multiply using informal methods.</p> | <p>... tens multiplied by ... is equal to ... tens.<br/>...ones multiplied by ... is equal to ... ones.</p> <div> <div> <table border="1"> <thead> <tr> <th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> </tbody> </table> </div> <div>  </div> <div>  </div> <div> <math>3 \times 26 = 60 + 18 = 78</math><br/> <math>26 \times 8 = 80 + 80 + 48 = 208</math> </div> </div> | Tens | Ones |  |  |  |  |  |  |
| Tens                                                                                                      | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
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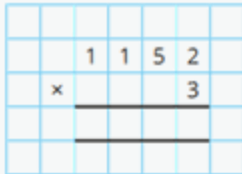
# Multiplication

| Progression of skills                                                                                                                                                    | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|-----------|---------|-----|------|---------|------|-----|------|------|------|-----|------|---|---|--|---|-----|--|---|-----|---|---|---|--|---|---|---|--|---|--|---|-----|--|---|---|---|---|---|--|----------|---------|--|----------|---------|--|----------|---------|--|----------|---------|--|----------|---------|--|-------|--|
| <p><b>Multiply a 2 or 3-digit number by a 1-digit number</b></p> <p>The short multiplication method is introduced for the first time, initially in an expanded form.</p> | <p>To multiply a 2-digit number by ... , I multiply the ones by ... and the tens by ...<br/>To multiply a 3-digit number by ... , I multiply the ones by ... , the tens by ... and the hundreds by ...</p> <div><div><table><tr><th>T</th><th>O</th></tr><tr><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td>10 10 10</td><td>1 1 1 1</td></tr></table></div><div><table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>3</td><td>4</td></tr><tr><td>x</td><td></td><td>5</td></tr><tr><td></td><td>2</td><td>0</td></tr><tr><td></td><td>1</td><td>5 0</td></tr><tr><td></td><td>1</td><td>7 0</td></tr></table><div>(4 × 5)<br/>(30 × 5)</div></div><div><table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>3</td><td>4</td></tr><tr><td>x</td><td></td><td>5</td></tr><tr><td></td><td>1</td><td>7 0</td></tr><tr><td></td><td>1</td><td>2</td></tr></table></div><div><table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td></td><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td></td><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td></td><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td></td><td>10 10 10</td><td>1 1 1 1</td></tr><tr><td></td><td>10 10</td><td></td></tr></table><div>100</div></div></div> | T       | O        | 10 10 10 | 1 1 1 1 | 10 10 10 | 1 1 1 1 | 10 10 10 | 1 1 1 1 | 10 10 10 | 1 1 1 1 | 10 10 10 | 1 1 1 1 | 10 10 10  | 1 1 1 1 | H   | T    | O       |      | 3   | 4    | x    |      | 5   |      | 2 | 0 |  | 1 | 5 0 |  | 1 | 7 0 | H | T | O |  | 3 | 4 | x |  | 5 |  | 1 | 7 0 |  | 1 | 2 | H | T | O |  | 10 10 10 | 1 1 1 1 |  | 10 10 10 | 1 1 1 1 |  | 10 10 10 | 1 1 1 1 |  | 10 10 10 | 1 1 1 1 |  | 10 10 10 | 1 1 1 1 |  | 10 10 |  |
| T                                                                                                                                                                        | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 10 10 10                                                                                                                                                                 | 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 10 10 10                                                                                                                                                                 | 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 10 10 10                                                                                                                                                                 | 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 10 10 10                                                                                                                                                                 | 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 10 10 10                                                                                                                                                                 | 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 10 10 10                                                                                                                                                                 | 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
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|                                                                                                                                                                          | 10 10 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1 1 1 1 |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
|                                                                                                                                                                          | 10 10 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1 1 1 1 |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
|                                                                                                                                                                          | 10 10 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1 1 1 1 |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
|                                                                                                                                                                          | 10 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| <p><b>Scaling</b></p> <p>Children focus on multiplication as scaling ( ... times the size).</p>                                                                          | <p>... is ... times the size of ...</p> <div><div><table><tr><td>7</td></tr></table></div><div><table><tr><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td></tr></table></div><div>A computer mouse costs £7<br/>A keyboard costs 6 times as much.</div></div> <div><div><table><tr><td>6</td></tr></table></div><div><table><tr><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td></tr></table></div><div>A red ribbon is 6 cm.<br/>A yellow ribbon is 7 times as long.</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 7       | 7        | 7        | 7       | 7        | 7       | 7        | 6       | 6        | 6       | 6        | 6       | 6         | 6       | 6   |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 7                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 7                                                                                                                                                                        | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7       | 7        | 7        | 7       |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 6                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |          |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| 6                                                                                                                                                                        | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6       | 6        | 6        | 6       | 6        |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| <p><b>Correspondence problems</b></p> <p>Encourage children to use tables to show all the different possible combinations.</p>                                           | <p>For every ... , there are ... possibilities.<br/>There are ... × ... possibilities altogether.</p> <p>A pizza company offers a choice of 5 toppings and 3 bases.</p> <p>5 × 3 = 15</p> <table><tr><th></th><th>Deep pan</th><th>Italian</th><th>Thin</th></tr><tr><td>Cheese</td><td>C DP</td><td>C I</td><td>C Th</td></tr><tr><td>Mushroom</td><td>M DP</td><td>M I</td><td>M Th</td></tr><tr><td>Vegetable</td><td>V DP</td><td>V I</td><td>V Th</td></tr><tr><td>Chicken</td><td>C DP</td><td>C I</td><td>C Th</td></tr><tr><td>Tuna</td><td>T DP</td><td>T I</td><td>T Th</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         | Deep pan | Italian  | Thin    | Cheese   | C DP    | C I      | C Th    | Mushroom | M DP    | M I      | M Th    | Vegetable | V DP    | V I | V Th | Chicken | C DP | C I | C Th | Tuna | T DP | T I | T Th |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
|                                                                                                                                                                          | Deep pan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Italian | Thin     |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| Cheese                                                                                                                                                                   | C DP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | C I     | C Th     |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| Mushroom                                                                                                                                                                 | M DP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | M I     | M Th     |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| Vegetable                                                                                                                                                                | V DP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | V I     | V Th     |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| Chicken                                                                                                                                                                  | C DP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | C I     | C Th     |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |
| Tuna                                                                                                                                                                     | T DP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | T I     | T Th     |          |         |          |         |          |         |          |         |          |         |           |         |     |      |         |      |     |      |      |      |     |      |   |   |  |   |     |  |   |     |   |   |   |  |   |   |   |  |   |  |   |     |  |   |   |   |   |   |  |          |         |  |          |         |  |          |         |  |          |         |  |          |         |  |       |  |

# Multiplication

|                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                                                                                                                                                                                                                                                                                                                                                                                                                                |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year 5</b>                                                                                              | <ul style="list-style-type: none"><li>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</li><li>Recognise and use square numbers and cube numbers, and the notation for squared (<sup>2</sup>) and cubed (<sup>3</sup>)</li><li>Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</li><li>Multiply numbers mentally drawing upon known facts.</li><li>Multiply whole numbers and those involving decimals by 10, 100 and 1000</li><li>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</li></ul> |    |                                                                                                                                                                                                                                                                                                                                                                                                                                |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |
| <b>Progression of skills</b>                                                                               | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |
| <b>Multiples and factors</b><br><br>Encourage children to notice patterns and make links with known facts. | <p>... is a multiple of ... because<br/>... × ... = ...</p>  <table border="1" data-bbox="573 901 1002 1023"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr></table>                                                                                                                                                | 1  | 2                                                                                                                                                                                                                                                                                                                                                                                                                              | 3  | 4  | 5  | 6  | 7  | 8  | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | <p>... is a factor of ... because<br/>... × ... = ...</p>  <p>1 × 8</p>  <p>2 × 4</p> <p>1, 2, 4 and 8 are factors of 8</p> | <p>The common factors of ... and ... are ...</p> <p>Factors of 20      Factors of 12</p>  |
| 1                                                                                                          | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3  | 4                                                                                                                                                                                                                                                                                                                                                                                                                              | 5  | 6  | 7  | 8  | 9  | 10 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |
| 11                                                                                                         | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 13 | 14                                                                                                                                                                                                                                                                                                                                                                                                                             | 15 | 16 | 17 | 18 | 19 | 20 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |
| 21                                                                                                         | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23 | 24                                                                                                                                                                                                                                                                                                                                                                                                                             | 25 | 26 | 27 | 28 | 29 | 30 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |
| <b>Square and cube numbers</b>                                                                             | <p>... squared means ... × ...</p>  <p>1 × 1<br/>1<sup>2</sup> = 1</p>  <p>2 × 2<br/>2<sup>2</sup> = 4</p>  <p>3 × 3<br/>3<sup>2</sup> = 9</p>  <p>4 × 4<br/>4<sup>2</sup> = 16</p>                                                                                                                                                                                  |    | <p>... cubed means ... × ... × ...</p>  <p>1 × 1 × 1<br/>1<sup>3</sup> = 1</p>  <p>2 × 2 × 2<br/>2<sup>3</sup> = 8</p>  <p>3 × 3 × 3<br/>3<sup>3</sup> = 27</p> |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |

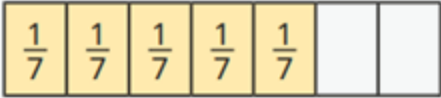
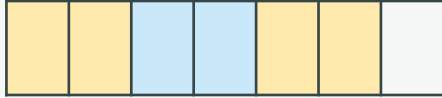
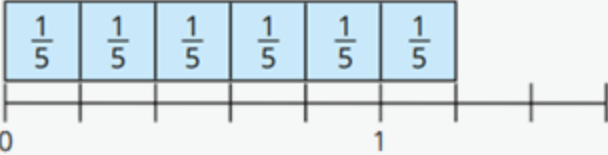
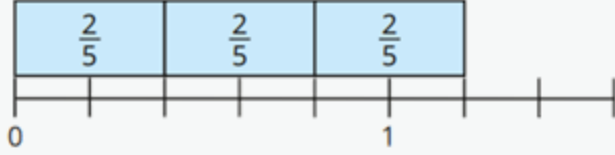
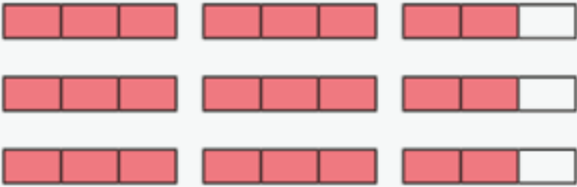
# Multiplication

| Progression of skills                                                                                                                                                          | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |     |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|---|----|-------|-------|-----|----------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------|-----|-------|-----|----------|-----|----|---|
| <b>Multiply numbers up to 4 digits by a 1-digit number</b><br><br>This builds on the short multiplication method introduced in Y4                                              | To multiply a 4-digit number by ... , I multiply the ones by ... , the tens by ... , the hundreds by ... and the thousands by ...<br><br><table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>1,000</td><td>100</td><td>10 10 10</td><td>1 1</td></tr><tr><td>1,000</td><td>100</td><td>10 10 10</td><td>1 1</td></tr><tr><td>1,000</td><td>100</td><td>10 10 10</td><td>1 1</td></tr></table>  |          | Th  | H | T  | O     | 1,000 | 100 | 10 10 10 | 1 1 | 1,000                                                                                                                                                                                                                                                                                                                                                                    | 100 | 10 10 10 | 1 1 | 1,000 | 100 | 10 10 10 | 1 1 |    |   |
| Th                                                                                                                                                                             | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | T        | O   |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| 1,000                                                                                                                                                                          | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10 10 10 | 1 1 |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| 1,000                                                                                                                                                                          | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10 10 10 | 1 1 |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| 1,000                                                                                                                                                                          | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10 10 10 | 1 1 |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| <b>Multiply numbers up to 4 digits by a 2-digit number</b><br><br>Numbers are first partitioned using an area model then long multiplication is introduced for the first time. | I can partition ... into ... and ...<br><br><table><tr><td>x</td><td>40</td><td>4</td></tr><tr><td>30</td><td>1,200</td><td>120</td></tr><tr><td>2</td><td>80</td><td>8</td></tr></table><br>$32 \times 44 = 1,200 + 80 + 120 + 8$<br>$32 \times 44 = 1,408$                                                                                                                                                                                                                                   | x        | 40  | 4 | 30 | 1,200 | 120   | 2   | 80       | 8   | First, I multiply by the ... Then I multiply by the ...<br><br><table><tr><td>x</td><td>10</td><td>3</td></tr><tr><td>30</td><td>300</td><td>90</td></tr><tr><td>2</td><td>20</td><td>6</td></tr></table><br>$300 + 90 + 20 + 6 = 416$<br><br><br>$(32 \times 3)$<br>$(32 \times 10)$ | x   | 10       | 3   | 30    | 300 | 90       | 2   | 20 | 6 |
| x                                                                                                                                                                              | 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4        |     |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| 30                                                                                                                                                                             | 1,200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 120      |     |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| 2                                                                                                                                                                              | 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8        |     |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| x                                                                                                                                                                              | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3        |     |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| 30                                                                                                                                                                             | 300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 90       |     |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |
| 2                                                                                                                                                                              | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6        |     |   |    |       |       |     |          |     |                                                                                                                                                                                                                                                                                                                                                                          |     |          |     |       |     |          |     |    |   |

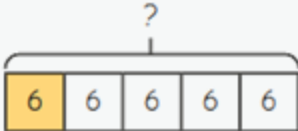
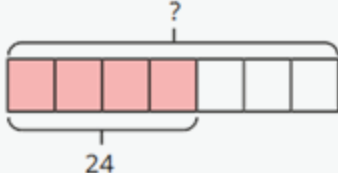
# Multiplication

| Progression of skills                                                                                                                                                                                          | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |         |         |         |     |   |   |  |  |  |  |     |     |     |    |   |   |   |     |     |  |  |  |         |         |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------|---------|---------|-----|---|---|--|--|--|--|-----|-----|-----|----|---|---|---|-----|-----|--|--|--|---------|---------|---------|
| <p><b>Multiply by 10, 100 and 1,000</b></p> <p>Some children may over-generalise that multiplying by a power of 10 always results in adding zeros. This will cause issues later when multiplying decimals.</p> | <p>To multiply by 10/100/1,000, I move all the digits ... places to the left.<br/>... is 10/100/1,000 times the size of ...</p> <div><table><tr><td>M</td><td>HTh</td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td></td><td></td><td></td><td>● ●</td><td>● ●</td><td>● ●</td></tr></table></div> <div><table><tr><td>Th</td><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td></td><td></td><td>● ● ● ●</td><td>● ● ● ●</td><td>● ● ● ●</td></tr></table></div> <div><div><math>234 \times 10 = 2,340</math><br/><math>234 \times 100 = 23,400</math><br/><math>234 \times 1,000 = 234,000</math></div><div><math>2.34 \times 10 = 23.4</math><br/><math>2.34 \times 100 = 234</math><br/><math>2.34 \times 1,000 = 2,340</math></div></div> | M   | HTh     | TTh     | Th      | H   | T | O |  |  |  |  | ● ● | ● ● | ● ● | Th | H | T | O | Tth | Hth |  |  |  | ● ● ● ● | ● ● ● ● | ● ● ● ● |
| M                                                                                                                                                                                                              | HTh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | TTh | Th      | H       | T       | O   |   |   |  |  |  |  |     |     |     |    |   |   |   |     |     |  |  |  |         |         |         |
|                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |         | ● ●     | ● ●     | ● ● |   |   |  |  |  |  |     |     |     |    |   |   |   |     |     |  |  |  |         |         |         |
| Th                                                                                                                                                                                                             | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T   | O       | Tth     | Hth     |     |   |   |  |  |  |  |     |     |     |    |   |   |   |     |     |  |  |  |         |         |         |
|                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     | ● ● ● ● | ● ● ● ● | ● ● ● ● |     |   |   |  |  |  |  |     |     |     |    |   |   |   |     |     |  |  |  |         |         |         |
| <p><b>Mental strategies</b></p> <p>Children continue to use efficient mental strategies such as partitioning and knowledge of factor pairs and related facts to multiply.</p>                                  | <p>The most efficient strategy to calculate ... <math>\times</math> ... is ...<br/>To calculate ... <math>\times</math> 12, I can do ... <math>\times</math> ... <math>\times</math> ...</p> <p>For example: <math>121 \times 12</math><br/>I could calculate <math>100 \times 12</math> plus <math>20 \times 12</math> plus <math>1 \times 12</math><br/>I could calculate <math>121 \times 10</math> plus <math>121 \times 2</math><br/>I could calculate <math>121 \times 6 \times 2</math><br/>I could calculate <math>121 \times 4 \times 3</math></p>                                                                                                                                                                                                                                           |     |         |         |         |     |   |   |  |  |  |  |     |     |     |    |   |   |   |     |     |  |  |  |         |         |         |

# Multiplication

| Progression of skills                                                                                                                                                                              | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Multiply fractions by a whole number</b></p> <p>Make links with repeated addition.</p> <p>E.g. <math>\frac{1}{5} \times 4 = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}</math></p> | <p>To multiply a fraction by an integer, I multiply the numerator by the integer and the denominator remains the same.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <math display="block">\frac{1}{7} \times 5 = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{5}{7}</math> </div> <div style="text-align: center;">  <math display="block">\frac{2}{7} \times 3 = \frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \frac{6}{7}</math> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <math display="block">\frac{1}{5} \times 6 = \frac{6}{5} = 1\frac{1}{5}</math> </div> <div style="text-align: center;">  <math display="block">\frac{2}{5} \times 3 = \frac{6}{5} = 1\frac{1}{5}</math> </div> </div> |
| <p><b>Multiply mixed numbers by a whole number</b></p>                                                                                                                                             | <p>I can partition <math>\begin{array}{ c } \hline \square \\ \hline \square \\ \hline \end{array}</math> into <math>\begin{array}{ c } \hline \square \\ \hline \end{array}</math> and <math>\begin{array}{ c } \hline \square \\ \hline \end{array}</math></p> <div style="display: flex; align-items: center; margin-top: 20px;"> <div style="text-align: center; margin-right: 20px;">  </div> <div> <math display="block">2\frac{2}{3} \times 3</math> <math display="block">2 \times 3 = 6 \quad \frac{2}{3} \times 3 = \frac{6}{3} = 2</math> <math display="block">2\frac{2}{3} \times 3 = 6 + 2 = 8</math> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

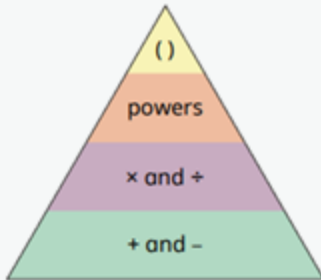
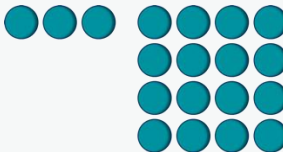
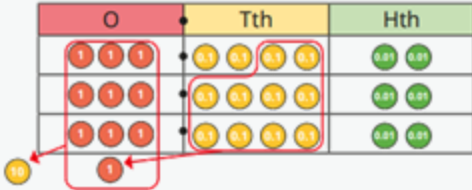
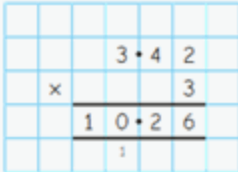
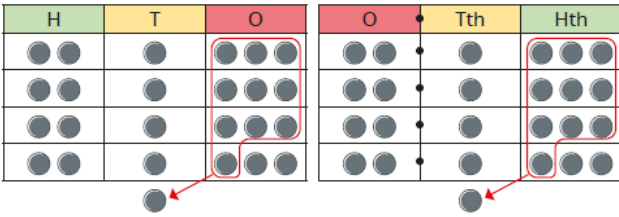
# Multiplication

| Progression of skills                                                                      | Key representations                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Find the whole</b></p> <p>Children multiply to find the whole from a given part.</p> | <p>If <math>\frac{1}{\square}</math> is ... , then the whole is ... <math>\times</math> ...</p> <p><math>\frac{1}{5}</math> of ___ = 6</p> <p></p> <p><math>5 \times 6 = 30</math></p> <p><math>\frac{1}{5}</math> of <b>30</b> = 6</p> | <p>If <math>\frac{\square}{\square}</math> is ... , then <math>\frac{1}{\square}</math> is ... and the whole is ... <math>\times</math> ...</p> <p><math>\frac{4}{7}</math> of ___ = 24</p> <p></p> <p><math>\frac{1}{7} = 24 \div 4 = 6</math></p> <p><math>7 \times 6 = 42</math></p> <p><math>\frac{4}{7}</math> of <b>42</b> = 24</p> |

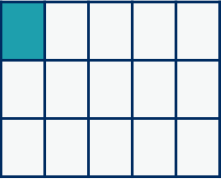
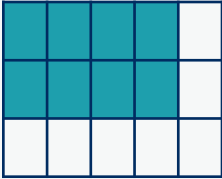
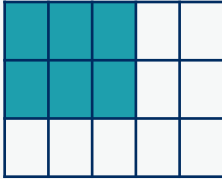
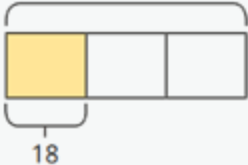
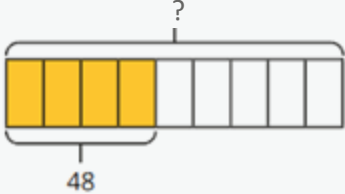
# Multiplication

|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |     |     |     |      |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|------|--------------|---|--|--|--|--|-----|-----|-----|----|---|---|---|-----|-----|------|---|---|--|---|-----|-----|-----|---|---|---|-------------|--|--|---|---|---|---|---|--------------|--|--|---|---|---|---|---|--|--|--|---|--|--|--|--|--|
| Year 6                                              | <ul style="list-style-type: none"><li>Identify common factors and common multiples.</li><li>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</li><li>Multiply numbers by 10, 100 and 1,000</li><li>Multiply one-digit numbers with up to two decimal places by whole numbers.</li><li>Use their knowledge of the order of operations to carry out calculations involving the 4 operations.</li><li>Multiply simple pairs of proper fractions, writing the answer in its simplest form.</li><li>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</li><li>Solve problems involving the calculation of percentages.</li></ul> |     |     |     |     |      |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
| Progression of skills                               | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |     |     |     |      |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
| Multiply numbers up to 4 digits by a 2-digit number | <div>To multiply by a 2-digit number, first multiply by the ones, then multiply by the tens and then find the total.</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td>1</td><td>2</td><td>0</td><td>7</td><td></td></tr><tr><td></td><td>×</td><td></td><td></td><td></td><td>3</td><td>6</td><td></td></tr><tr><td>+</td><td></td><td></td><td>7</td><td>2</td><td>4</td><td>2</td><td>(1,207 × 6)</td></tr><tr><td></td><td></td><td>3</td><td>6</td><td>2</td><td>1</td><td>0</td><td>(1,207 × 30)</td></tr><tr><td></td><td></td><td>4</td><td>3</td><td>4</td><td>5</td><td>2</td><td></td></tr><tr><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td></tr></table></div>                   |     |     |     |     |      |              |   |  |  |  |  | 1   | 2   | 0   | 7  |   |   | × |     |     |      | 3 | 6 |  | + |     |     | 7   | 2 | 4 | 2 | (1,207 × 6) |  |  | 3 | 6 | 2 | 1 | 0 | (1,207 × 30) |  |  | 4 | 3 | 4 | 5 | 2 |  |  |  | 1 |  |  |  |  |  |
|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |     |     |     |      |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     | 1   | 2   | 0   | 7    |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|                                                     | ×                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |     |     | 3   | 6    |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
| +                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     | 7   | 2   | 4   | 2    | (1,207 × 6)  |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3   | 6   | 2   | 1   | 0    | (1,207 × 30) |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4   | 3   | 4   | 5   | 2    |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1   |     |     |     |      |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
| Multiply by 10, 100 and 1,000                       | <div>To multiply by 10/100/1,000, I move all the digits ... places to the left.</div> <div>... is 10/100/1,000 times the size of ...</div> <div><table><tr><td>M</td><td>HTh</td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td></td><td></td><td></td><td>● ●</td><td>● ●</td><td>● ●</td></tr></table><div>234 × 10 = 2,340<br/>234 × 100 = 23,400<br/>234 × 1,000 = 234,000</div></div> <div><table><tr><td>Th</td><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td><td>Thth</td></tr><tr><td></td><td></td><td></td><td></td><td>● ●</td><td>● ●</td><td>● ●</td></tr></table><div>0.234 × 10 = 2.34<br/>0.234 × 100 = 23.4<br/>0.234 × 1,000 = 234</div></div>                                                                                                         | M   | HTh | TTh | Th  | H    | T            | O |  |  |  |  | ● ● | ● ● | ● ● | Th | H | T | O | Tth | Hth | Thth |   |   |  |   | ● ● | ● ● | ● ● |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
| M                                                   | HTh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TTh | Th  | H   | T   | O    |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |     | ● ● | ● ● | ● ●  |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
| Th                                                  | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T   | O   | Tth | Hth | Thth |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |
|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |     | ● ● | ● ● | ● ●  |              |   |  |  |  |  |     |     |     |    |   |   |   |     |     |      |   |   |  |   |     |     |     |   |   |   |             |  |  |   |   |   |   |   |              |  |  |   |   |   |   |   |  |  |  |   |  |  |  |  |  |

# Multiplication

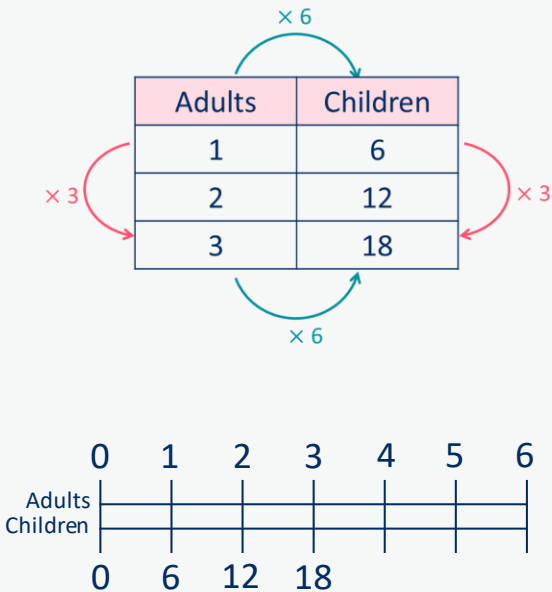
| Progression of skills                                                                                                                                                                                                  | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Order of operations</b><br><br>Calculations in brackets should be done first.<br>Multiplication and division should be performed before addition and subtraction.                                                   | ... has greater priority than ..., so the first part of the calculation I need to do is ...<br><br><br><br>$(3 + 4) \times 2 = 14$<br><br>$3 + 4 \times 2 = 11$<br><br>$3 + 4^2 = 19$ |                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Multiply decimals by integers</b><br><br>This is the first time children multiply decimals by numbers other than 10, 100 or 1,000<br>Encourage them to make links with known facts and whole number multiplication. | I know that ... $\times$ ... = ...,<br>so I also know that ... $\times$ ... = ...<br><br><br>$6 \times 2 = 12$<br><br>$6 \times 0.2 = 1.2$                                                                                                                                                                                                              | I need to exchange 10 ... for 1 ...<br><br><br><br><br>$213 \times 4 = 852$<br>$2.13 \times 4 = 8.52$ |

# Multiplication

| Progression of skills                                                                                           | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Multiply fractions by fractions</b></p> <p>Encourage children to give answers in their simplest form.</p> | <p>When multiplying a pair of fractions, I need to multiply the numerator and multiply the denominator.</p> <div>    </div> <div> <math>\frac{1}{3} \times \frac{1}{5} = \frac{1}{15}</math> <math>\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}</math> <math>\frac{2}{3} \times \frac{3}{5} = \frac{6}{15} = \frac{2}{5}</math> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p><b>Find the whole</b></p> <p>Children multiply to find the whole from a given part.</p>                      | <p>If <math>\frac{1}{\square}</math> is ... , then the whole is ... <math>\times</math> ...</p> <p><math>\frac{1}{3}</math> of ___ = 18</p> <div>  </div> <p><math>18 \times 3 = 54</math></p> <p><math>\frac{1}{3}</math> of <b>54</b> = 18</p>                                                                                                                                                                                                                                                            | <p>If <math>\frac{\square}{\square}</math> is ... , then <math>\frac{1}{\square}</math> is ... and the whole is ... <math>\times</math> ...</p> <p><math>\frac{4}{9}</math> of ___ = 48</p> <div>  </div> <p><math>\frac{1}{9} = 48 \div 4 = 12</math></p> <p><math>9 \times 12 = 108</math></p> <p><math>\frac{4}{9}</math> of <b>108</b> = 48</p> |

# Multiplication

| Progression of skills                                                                                                                                                                                                                                                                                                                      | Key representations                                                                                                                                                                                                                                                                                                 |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|--|--|--|--|--|--|--|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Calculate percentages</b><br><br>Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.                                                                                                                                                                             | There are ... lots of ... % in 100%<br>To find ... %, I need to divide by ...<br><table border="1"><tr><td colspan="4">100%</td></tr><tr><td colspan="2">50%</td><td colspan="2">50%</td></tr><tr><td>25%</td><td>25%</td><td>25%</td><td>25%</td></tr></table><br>50% of ... = ... ÷ 2<br>25% of ... = ... ÷ 4     | 100% |     |     |     | 50% |     | 50% |     | 25% | 25% | 25% | 25% | ... % is made up of ... %, and ... %<br><table border="1"><tr><td colspan="10">100%</td></tr><tr><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td></tr></table><br>To find 30%, I can find 10% and then multiply it by 3<br>To find 23%, I can use 10% × 2 and 1% × 3<br>To find 99%, I can find 1%, then subtract from 100% | 100% |  |  |  |  |  |  |  |  |  | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| 100%                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                     |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 50%                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                     | 50%  |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 25%                                                                                                                                                                                                                                                                                                                                        | 25%                                                                                                                                                                                                                                                                                                                 | 25%  | 25% |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 100%                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                     |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 10%                                                                                                                                                                                                                                                                                                                                        | 10%                                                                                                                                                                                                                                                                                                                 | 10%  | 10% | 10% | 10% | 10% | 10% | 10% | 10% |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| <b>Calculations involving ratio</b><br><br>Encourage children to see the multiplicative relationship between ratios. They will need to multiply or divide each value by the same number to keep the ratio equivalent. Double number lines and ratio tables help children to see both horizontal and vertical multiplicative relationships. | For every ... , there are ...<br><br>For every 1 adult on a school trip, there are 6 children.<br><br>adults <table border="1"><tr><td></td></tr></table><br><br>children <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table><br><br>The ratio of adults to children is 1 : 6 |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
|                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                     |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
|                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                     |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                     |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |



# Progression of skills - Division

| Year group | Skill                                                                                                                                                                                  |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nursery    | <ul style="list-style-type: none"><li>• Continue with counting and subitising skills as a foundation for later work on equal groups. (see addition and subtraction sections)</li></ul> |
| Reception  | <ul style="list-style-type: none"><li>• Sharing</li><li>• Grouping</li></ul>                                                                                                           |
| Year 1     | <ul style="list-style-type: none"><li>• Make equal groups – grouping</li><li>• Make equal groups – sharing</li><li>• Find a half</li><li>• Find a quarter</li></ul>                    |

# Progression of skills - Division

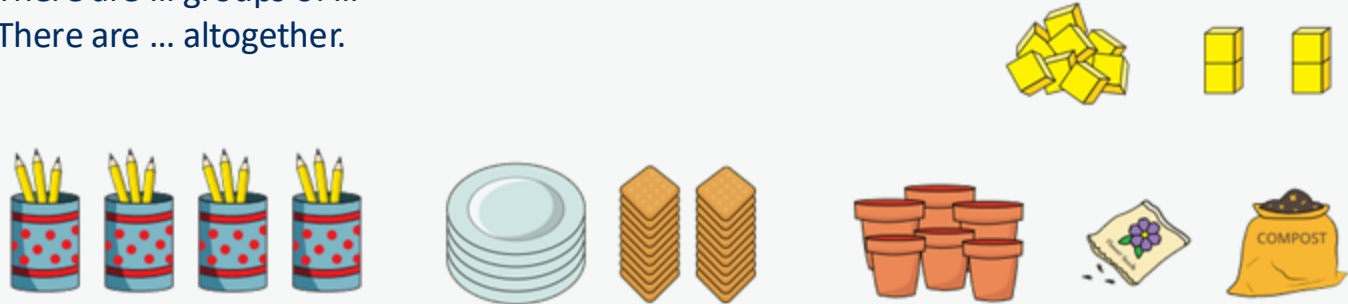
| Year group | Skill                                                                                                                                                                                                                                                                                                                                                                       |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 2     | <ul style="list-style-type: none"><li>• Divide by 2</li><li>• Divide by 10</li><li>• Divide by 5</li><li>• Missing numbers</li><li>• Unit fractions</li><li>• Non-unit fractions</li></ul>                                                                                                                                                                                  |
| Year 3     | <ul style="list-style-type: none"><li>• Divide by 3</li><li>• Divide by 4</li><li>• Divide by 8</li><li>• Related facts</li><li>• Divide a 2-digit number by a 1-digit number - no exchange</li><li>• Divide a 2-digit number by a 1-digit number - with remainders</li><li>• Unit fractions of a set of objects</li><li>• Non-unit fractions of a set of objects</li></ul> |

# Progression of skills - Division

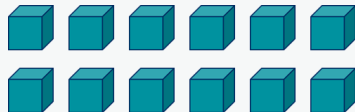
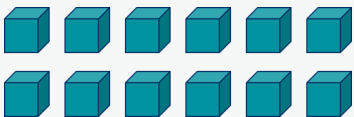
| Year group | Skill                                                                                                                                                                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 4     | <ul style="list-style-type: none"><li>• Division facts to <math>12 \times 12</math></li><li>• Divide a number by 1 and itself</li><li>• Related facts</li><li>• Divide a 2 or 3-digit number by a 1-digit number</li><li>• Divide by 10 and 100</li></ul> |
| Year 5     | <ul style="list-style-type: none"><li>• Mental strategies</li><li>• Divide numbers up to 4 digits by a 1-digit number</li><li>• Divide by 10, 100 and 1,000</li><li>• Fraction of an amount</li></ul>                                                     |

# Progression of skills - Division

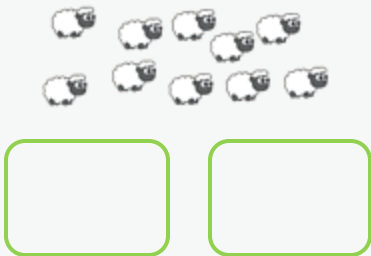
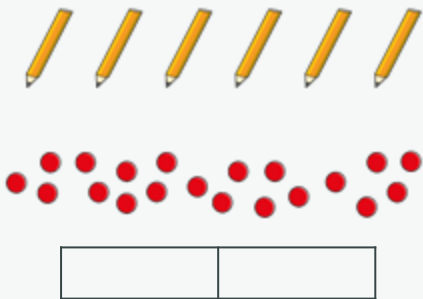
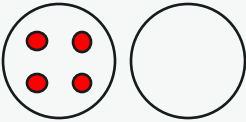
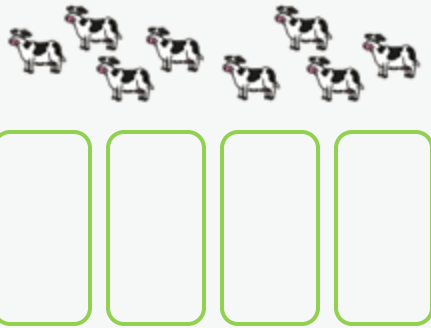
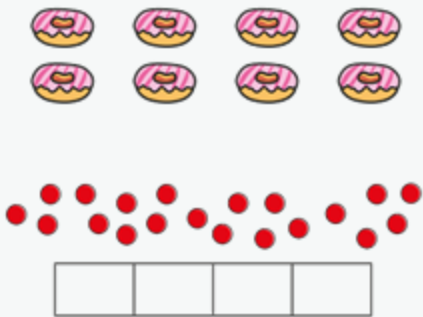
| Year group | Skill                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 6     | <ul style="list-style-type: none"><li>• Short division</li><li>• Mental strategies</li><li>• Long division</li><li>• Order of operations</li><li>• Divide by 10, 100 and 1,000</li><li>• Divide decimals by integers</li><li>• Decimal and fraction equivalents</li><li>• Divide a fraction by an integer</li><li>• Fraction of an amount</li><li>• Calculate percentages</li><li>• Calculations involving ratio</li></ul> |

|                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Reception</b></p>                                                                                                                                                         | <ul style="list-style-type: none"> <li>Have a deep understanding of number to 10, including the composition of each number.</li> <li>Subitise (recognise quantities without counting) up to 5</li> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts.</li> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</li> </ul> |
| <p><b>Progression of skills</b></p>                                                                                                                                             | <p><b>Key representations</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p><b>Sharing</b></p> <p>Provide practical activities such as sharing items during snack time. Encourage children to check whether items have been shared fairly (equally).</p> | <p>There are ... altogether.<br/>They are shared equally between ... groups.</p>                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Grouping</b></p> <p>Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.</p> | <p>There are ... groups of ...<br/>There are ... altogether.</p>                                                                                                                                                                                                                                                                                                                                                                          |

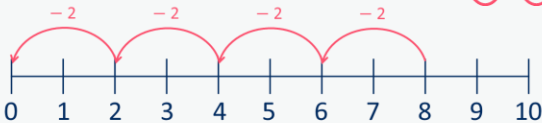
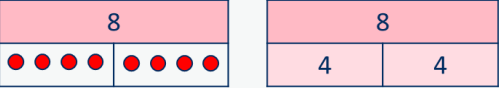
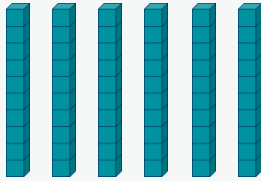
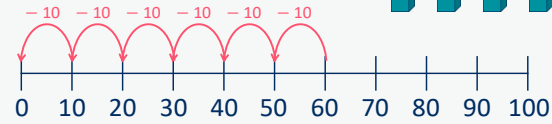
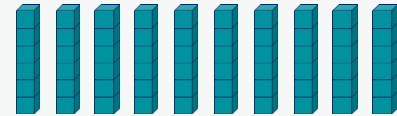
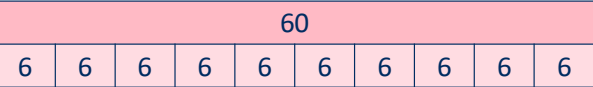
# Division

|                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                             |                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year 1</b>                                                                                                                                                             | <ul style="list-style-type: none"> <li>Solve simple one-step problems involving division, using concrete objects, pictorial representations and arrays with the support of the teacher.</li> <li>Recognise, find and name a half as one of two equal parts of a quantity.</li> <li>Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</li> </ul> |                                                                                                                                             |                                                                                                                                                                             |
| <b>Progression of skills</b>                                                                                                                                              | <b>Key representations</b>                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                             |                                                                                                                                                                             |
| <p><b>Make equal groups - grouping</b></p> <p>Encourage children to physically move objects into equal groups. They can also circle equal groups when using pictures.</p> | <p>There are ... altogether.<br/>How many groups of ... can you make?</p>                                                                                                                                                  | <p>Circle groups of 2<br/>There are ... groups of 2</p>  | <p>Take ... cubes.<br/>Make equal groups.</p>  <p>There are ... groups of ...</p>        |
| <p><b>Make equal groups – sharing</b></p> <p>Encourage children to check that the objects have been shared fairly and each group is the same.</p>                         | <p>... have been shared equally between...<br/>There are ... on/in each ...</p>                                                                                                                                      |                                                                                                                                             | <p>Take ... cubes.<br/>Share them between ...</p>  <p>12 shared between ... is ...</p> |

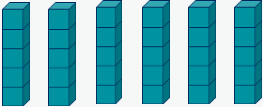
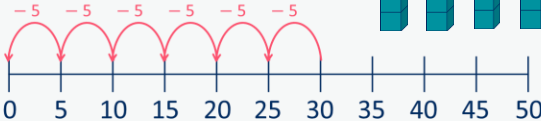
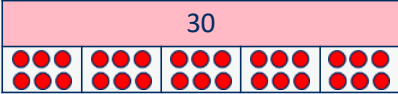
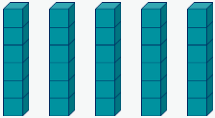
# Division

| Progression of skills                                                                                                                                                                                                    | Key representations                                                                                                                                                                    |                                                                                                                     |                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Find a half</b></p> <p>Start with practical opportunities to share a quantity into 2 groups. Progress to circling half of the objects in a picture and then to finding the whole from a given half.</p>            | <p>To find half, I need to share into 2 equal groups.</p>  <p>There are ... in each group.</p>        | <p>Half of ... is ...</p>        | <p>If ... is half, what is the whole?</p>  <p>4 is half of ...</p>                 |
| <p><b>Find a quarter</b></p> <p>Start with practical opportunities to share a quantity into 4 groups. Progress to using pictures or bar models to find a quarter and then to finding the whole from a given quarter.</p> | <p>To find a quarter, I need to share into 4 equal groups.</p>  <p>There are ... in each group.</p> | <p>A quarter of ... is ...</p>  | <p>If ... is one quarter, what is the whole?</p>  <p>3 is one quarter of ...</p> |

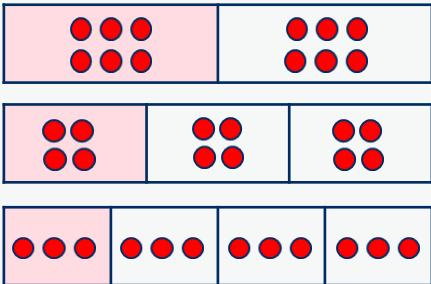
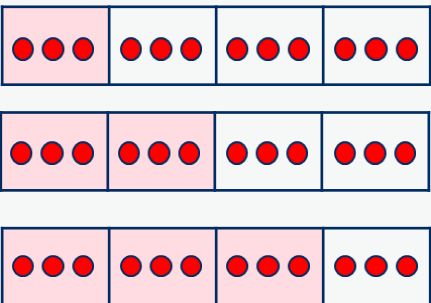
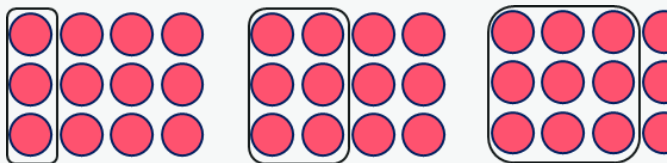
# Division

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Year 2</b></p>                                                                                                                                                 | <ul style="list-style-type: none"> <li>Recall and use division facts for the 2, 5 and 10 multiplication tables.</li> <li>Calculate mathematical statements for division within the multiplication tables and write them using the division (<math>\div</math>) and equals (<math>=</math>) signs.</li> <li>Recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a quantity.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p><b>Progression of skills</b></p>                                                                                                                                  | <p><b>Key representations</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p><b>Divide by 2</b></p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts and halving.</p> | <p>There are ... equal groups of 2<br/>... <math>\div 2 = \dots</math></p>  <p><math>4 \times 2 = 8</math><br/><math>8 \div 2 = 4</math></p>                                                                                      | <p>... shared equally between 2 is ...<br/>Half of ... is ...<br/>... <math>\div 2 = \dots</math></p>  <p><math>4 \times 2 = 8</math><br/><math>8 \div 2 = 4</math></p>   |
| <p><b>Divide by 10</b></p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p>            | <p>There are ... equal groups of 10<br/>... <math>\div 10 = \dots</math></p> <p><math>6 \times 10 = 60</math><br/><math>60 \div 10 = 6</math></p>                                                                                                                                                                 | <p>... shared equally between 10 is ...<br/>... <math>\div 10 = \dots</math></p> <p><math>6 \times 10 = 60</math><br/><math>60 \div 10 = 6</math></p>                                                                                                    |

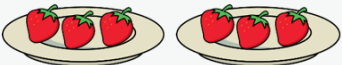
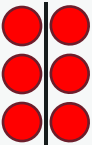
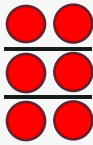
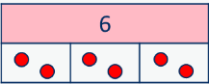
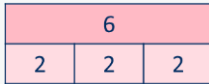
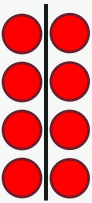
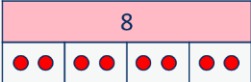
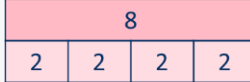
# Division

| Progression of skills                                                                                                                               | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                           |    |    |    |    |    |    |    |  |  |    |    |    |    |    |   |  |  |  |  |  |  |  |  |  |    |    |    |    |    |    |    |    |    |    |
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| <h3>Divide by 5</h3> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... equal groups of 5<br/>... <math>\div 5 = \dots</math></p> <div><div><math>6 \times 5 = 30</math><br/><math>30 \div 5 = 6</math></div></div>                                                                                                                                                                                                                                                                                                                                       | <p>... shared equally between 5 is ...<br/>... <math>\div 5 = \dots</math></p> <div><div><math>6 \times 5 = 30</math><br/><math>30 \div 5 = 6</math></div></div> |    |    |    |    |    |    |    |  |  |    |    |    |    |    |   |  |  |  |  |  |  |  |  |  |    |    |    |    |    |    |    |    |    |    |
| <h3>Missing numbers</h3> <p>Bar models are useful to show the link between multiplication and division.</p>                                         | <p>... divided by 2/5/10 is equal to ...</p> <div><table border="1" data-bbox="571 825 758 906"><tr><td colspan="2">?</td></tr><tr><td>10</td><td>10</td></tr></table><div><div></div><div><math>\div 2 = 10</math></div></div></div> <div><table border="1" data-bbox="571 926 1013 1011"><tr><td colspan="5">?</td></tr><tr><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td></tr></table><div><div></div><div><math>\div 5 = 10</math></div></div></div> <div><table border="1" data-bbox="571 1031 1353 1113"><tr><td colspan="10">?</td></tr><tr><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td></tr></table><div><div></div><div><math>\div 10 = 10</math></div></div></div> |                                                                                                                                                                                                                                                                                                                                                                                                                           | ?  |    | 10 | 10 | ?  |    |    |  |  | 10 | 10 | 10 | 10 | 10 | ? |  |  |  |  |  |  |  |  |  | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| ?                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                           |    |    |    |    |    |    |    |  |  |    |    |    |    |    |   |  |  |  |  |  |  |  |  |  |    |    |    |    |    |    |    |    |    |    |
| 10                                                                                                                                                  | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |    |    |    |    |    |    |    |  |  |    |    |    |    |    |   |  |  |  |  |  |  |  |  |  |    |    |    |    |    |    |    |    |    |    |
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| ?                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                           |    |    |    |    |    |    |    |  |  |    |    |    |    |    |   |  |  |  |  |  |  |  |  |  |    |    |    |    |    |    |    |    |    |    |
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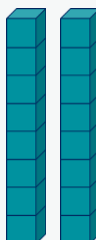
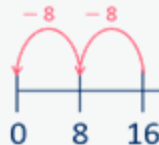
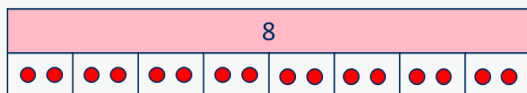
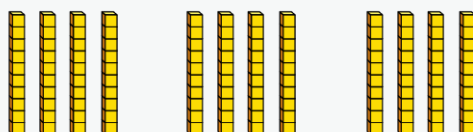
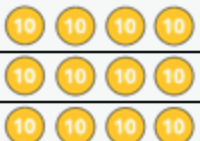
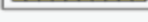
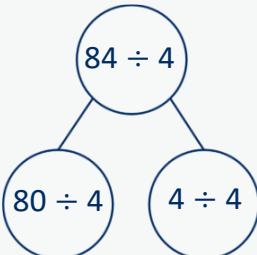
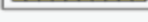
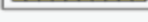
# Division

| Progression of skills                                                                                                                                                                                                                    | Key representations                                                                                                                                                                                       |                                                                                                                                                                                                                    |
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| <p><b>Unit fractions</b></p> <p>In Y2 the focus is on finding <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math> and <math>\frac{1}{3}</math></p> <p>Bar models are useful to show the link between division and finding a fraction.</p> | <p>The objects have been shared fairly into ... groups.</p> <p><math>\frac{1}{\square}</math> of ... is ...</p>         | <p>There are ... equal parts.</p> <p>There is ... part circled.</p> <p><math>\frac{1}{\square}</math> is circled.</p>           |
| <p><b>Non-unit fractions</b></p> <p>In Y2 the focus is on finding <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math></p> <p>Prompt children to notice that <math>\frac{2}{4}</math> is equivalent to <math>\frac{1}{2}</math></p>     | <p>The objects have been shared fairly into ... groups.</p> <p><math>\frac{\square}{\square}</math> of ... is ...</p>  | <p>There are ... equal parts.</p> <p>There are ... parts circled.</p> <p><math>\frac{\square}{\square}</math> is circled.</p>  |

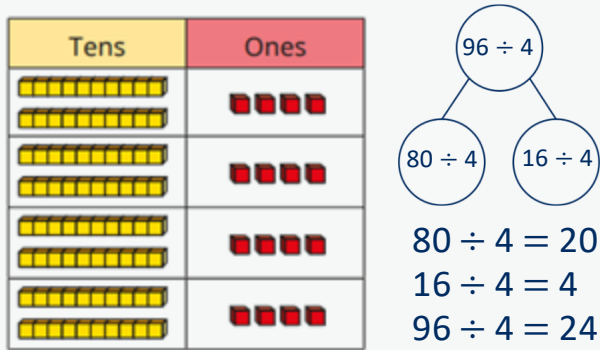
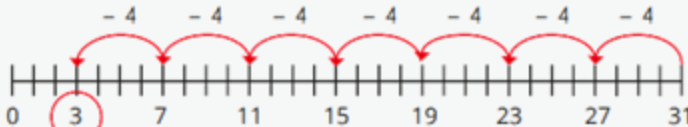
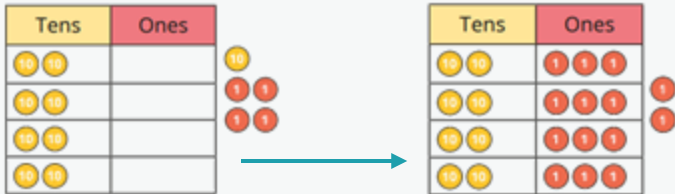
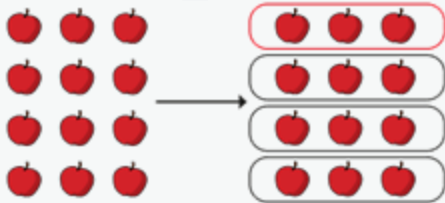
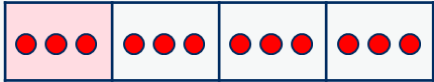
# Division

| <p><b>Year 3</b></p>                                                                                                                                     | <ul style="list-style-type: none"> <li>Recall and use division facts for the 3, 4 and 8 multiplication tables.</li> <li>Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</li> <li>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Progression of skills                                                                                                                                    | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Divide by 3</b></p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... groups of 3 in ...</p> <p><math>\dots \div 3 =</math></p>  <p><math>2 \times 3 = 6</math><br/><math>6 \div 3 = 2</math></p>                                                                                                       | <p>... has been shared equally into 3 equal groups.</p> <p><math>\dots \div 3 =</math></p>  <p><math>2 \times 3 = 6</math><br/><math>6 \div 3 = 2</math></p>            |
| <p><b>Divide by 4</b></p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... groups of 4 in ...</p> <p><math>\dots \div 4 =</math></p>  <p><math>2 \times 4 = 8</math><br/><math>8 \div 4 = 2</math></p>                                                                                                 | <p>... has been shared equally into 4 equal groups.</p> <p><math>\dots \div 4 =</math></p>  <p><math>2 \times 4 = 8</math><br/><math>8 \div 4 = 2</math></p>    |

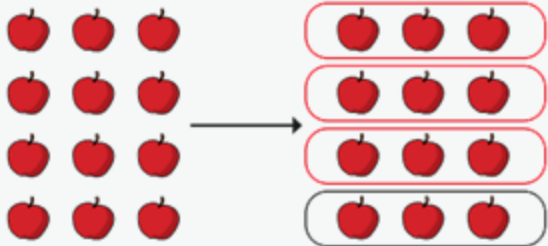
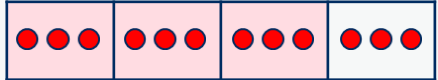
# Division

| Progression of skills                                                                                                                             | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                   |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
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| <b>Divide by 8</b><br><br>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts. | There are ... groups of 8 in ...<br>$\dots \div 8 =$<br><br>$2 \times 8 = 16$<br>$16 \div 8 = 2$<br><br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ... has been shared equally into 8 equal groups.<br>$\dots \div 8 =$<br><br><br><br>$2 \times 8 = 16$<br>$16 \div 8 = 2$ |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| <b>Related facts</b><br><br>Link to known times-table facts.                                                                                      | ... $\div$ ... is equal to ...,<br>so ... tens $\div$ ... is equal to ... tens.<br><br><br><br><br>$12 \div 3 = 4$<br>$120 \div 3 = 40$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                   |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| <b>Divide a 2-digit number by a 1-digit number - no exchange</b><br><br>Partition into tens and ones to divide and then recombine.                | ... tens divided by ... is equal to ... tens.<br>... ones divided by ... is equal to ... ones.<br><table data-bbox="580 1075 911 1302"><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table><br>$60 \div 2 = 30$<br>$4 \div 2 = 2$<br>$64 \div 2 = 32$<br><br><table data-bbox="1560 1075 1912 1302"><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                   | Tens | Ones |  |  |  |  |  |  |  |  | Tens | Ones |  |  |  |  |  |  |  |  |
| Tens                                                                                                                                              | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                   |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
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| Tens                                                                                                                                              | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                   |      |      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
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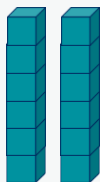
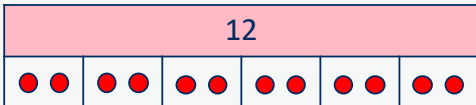
# Division

| Progression of skills                                                                                                                                                          | Key representations                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                    |
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| <p><b>Divide a 2-digit number by a 1-digit number - with remainders</b></p> <p>Encourage children to partition numbers flexibly to help them to divide more efficiently.</p>   | <p>... tens divided by ... is equal to ... tens.<br/>... ones divided by ... is equal to ... ones.</p>                                                                      | <p>There are ... groups of ...<br/>There are ... remaining.</p> <p><math>31 \div 4 = 7 \text{ r}3</math></p>  <p><math>94 \div 4 = 23 \text{ r}2</math></p>  |
| <p><b>Unit fractions of a set of objects</b></p> <p>Bar models are useful to show the link between division and fractions, for example, dividing by 3 and finding a third.</p> | <p>The whole is divided into ... equal parts.<br/>Each part is <math>\frac{1}{\square}</math> of the whole.</p>  <p><math>\frac{1}{4}</math> of 12 apples is 3 apples.</p> | <p>One ... of ... is ...</p> <p><math>\frac{1}{4}</math> of 12 is 3</p>  <p><math>\frac{1}{3}</math> of 36 is 12</p>                                      |

# Division

| Progression of skills                                                                                                                                   | Key representations                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                           |
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| <p><b>Non-unit fractions of a set of objects</b></p> <p>Bar models are a useful representation and show the links with division and multiplication.</p> | <p>The whole is divided into ... equal parts.<br/>Each part is <math>\frac{1}{\square}</math> of the whole.</p>  <p><math>\frac{3}{4}</math> of 12 apples is 9 apples.</p> | <p><math>\frac{1}{\square}</math> of ... is ..., so <math>\frac{\square}{\square}</math> of ... is ...</p> <p><math>\frac{3}{4}</math> of 12 is 9</p>  <p><math>\frac{2}{3}</math> of 36 is 24</p>  |

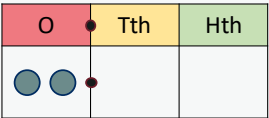
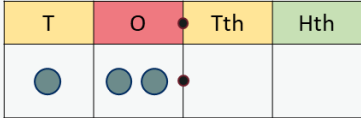
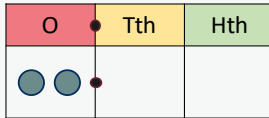
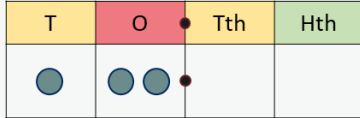
# Division

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| <p><b>Year 4</b></p>                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Recall division facts for multiplication tables up to <math>12 \times 12</math></li> <li>Use place value, known and derived facts to divide mentally, including: dividing by 1</li> <li>Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.</li> </ul>    |                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Progression of skills</b></p>                                                                                                                                                      | <p><b>Key representations</b></p>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Division facts to <math>12 \times 12</math></b></p> <p>Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.</p> | <p>There are ... groups of ... in ...<br/>... <math>\div</math> ... =</p>   <p><math>2 \times 6 = 12</math><br/><math>12 \div 6 = 2</math></p>  | <p>... has been shared equally into ... equal groups.<br/>... <math>\div</math> ... =</p>    <p><math>2 \times 6 = 12</math><br/><math>12 \div 6 = 2</math></p> |
| <p><b>Divide a number by 1 and itself</b></p> <p>Children may try to divide a number by zero and it should be highlighted that this is not possible.</p>                                 | <p>When I divide a number by 1, the number remains the same.</p> <p>5 shared between 1 is 5 </p> <p>There are 5 groups of 1 in 5</p>                                                                                         | <p>When I divide a number by itself, the answer is 1</p> <p>5 shared between 5 is 1</p>  <p>There is 1 group of 5 in 5</p>                                                                                                                     |

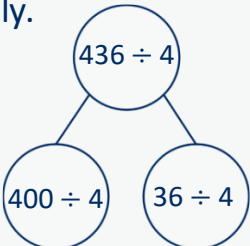
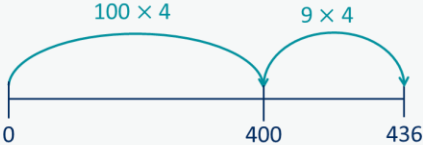
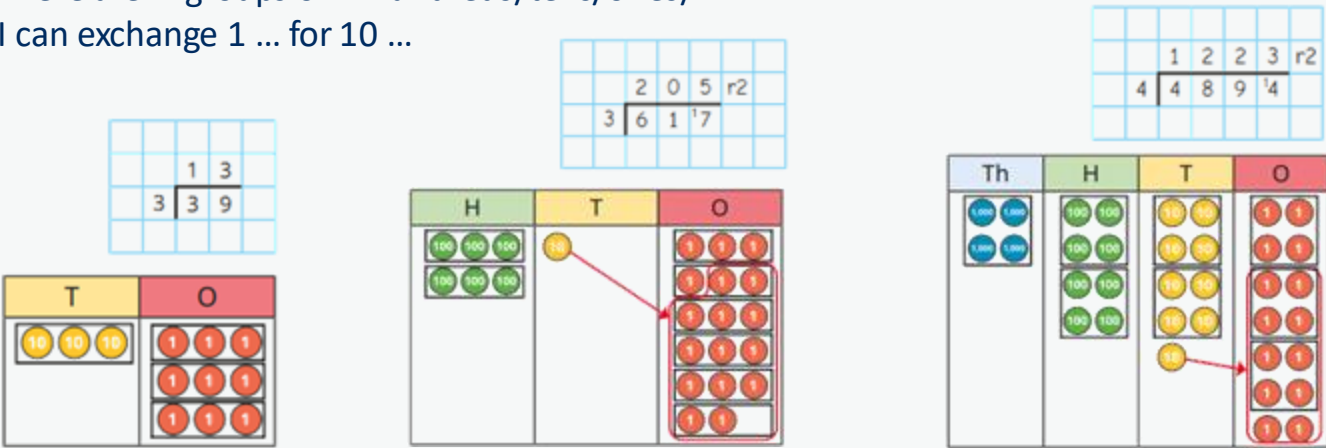
# Division

| Progression of skills                                                                                                                                                   | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|----|---|----|---|----|---|----|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|------|-----|----|---|-----|----|---|-----|----|---|-----|----|---|
| <b>Related facts</b><br><br>Link to known times-table facts.                                                                                                            | <p>... ÷ ... is equal to ...<br/>so ... tens ÷ ... is equal to ... tens<br/>and ... hundreds ÷ ... is equal to ... hundreds.</p> <div><div><div><div>1</div><div>1</div><div>1</div></div><div><div>1</div><div>1</div><div>1</div></div><div><div>1</div><div>1</div><div>1</div></div><div><div>1</div><div>1</div><div>1</div></div><div><div>1</div><div>1</div><div>1</div></div><div><div>1</div><div>1</div><div>1</div></div><div><div>1</div><div>1</div><div>1</div></div></div><div><div><div>10</div><div>10</div><div>10</div></div><div><div>10</div><div>10</div><div>10</div></div><div><div>10</div><div>10</div><div>10</div></div><div><div>10</div><div>10</div><div>10</div></div><div><div>10</div><div>10</div><div>10</div></div><div><div>10</div><div>10</div><div>10</div></div><div><div>10</div><div>10</div><div>10</div></div></div><div><div><div>100</div><div>100</div><div>100</div></div><div><div>100</div><div>100</div><div>100</div></div><div><div>100</div><div>100</div><div>100</div></div><div><div>100</div><div>100</div><div>100</div></div><div><div>100</div><div>100</div><div>100</div></div><div><div>100</div><div>100</div><div>100</div></div><div><div>100</div><div>100</div><div>100</div></div></div></div> <div><div><div><math>21 \div 7 = 3</math></div><div><math>210 \div 7 = 30</math></div><div><math>2,100 \div 7 = 300</math></div></div><div><div><math>21 \div 3 = 7</math></div><div><math>210 \div 3 = 70</math></div><div><math>2,100 \div 3 = 700</math></div></div></div> |      |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| <b>Divide a 2 or 3-digit number by a 1-digit number</b><br><br>Progress from divisions with no exchange, to divisions with exchange and then divisions with remainders. | <p>I can partition ... into ... tens and ... ones.</p> <div><div><div>84 ÷ 4</div><div>80 ÷ 4</div><div>4 ÷ 4</div></div><div><div><math>80 \div 4 = 20</math></div><div><math>4 \div 4 = 1</math></div><div><math>84 \div 4 = 21</math></div></div></div> <table><thead><tr><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td>20</td><td>1</td></tr><tr><td>20</td><td>1</td></tr><tr><td>20</td><td>1</td></tr><tr><td>20</td><td>1</td></tr></tbody></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Tens | Ones | 20 | 1 | 20 | 1 | 20 | 1 | 20 | 1 | <p>I cannot share the hundreds/tens equally, so I need to exchange 1 ... for 10 ...</p> <div><div><div>435 ÷ 3</div><div>300 ÷ 3</div><div>120 ÷ 3</div><div>15 ÷ 3</div></div><div><div><math>300 \div 3 = 100</math></div><div><math>120 \div 3 = 40</math></div><div><math>15 \div 3 = 5</math></div><div><math>435 \div 3 = 145</math></div></div></div> <table><thead><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td>100</td><td>10</td><td>1</td></tr><tr><td>100</td><td>10</td><td>1</td></tr><tr><td>100</td><td>10</td><td>1</td></tr><tr><td>100</td><td>10</td><td>1</td></tr></tbody></table> | Hundreds | Tens | Ones | 100 | 10 | 1 | 100 | 10 | 1 | 100 | 10 | 1 | 100 | 10 | 1 |
| Tens                                                                                                                                                                    | Ones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 20                                                                                                                                                                      | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 20                                                                                                                                                                      | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 20                                                                                                                                                                      | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 20                                                                                                                                                                      | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| Hundreds                                                                                                                                                                | Tens                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Ones |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 100                                                                                                                                                                     | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1    |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 100                                                                                                                                                                     | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1    |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 100                                                                                                                                                                     | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1    |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |
| 100                                                                                                                                                                     | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1    |      |    |   |    |   |    |   |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |      |      |     |    |   |     |    |   |     |    |   |     |    |   |

# Division

| Progression of skills                                                                                                     | Key representations                                                                                         |                                                                                                          |                                                                                                            |                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Divide by 10 and 100</b><br><br>Encourage children to notice that dividing by 100 is the same as dividing by 10 twice. | When I divide by 10, the digits move 1 place value column to the right.<br>... is one-tenth the size of ... |                                                                                                          |                                                                                                            |                                                                                                             |
|                                                                                                                           | <br>$2 \div 10 = 0.2$      | <br>$12 \div 10 = 1.2$ | <br>$2 \div 100 = 0.02$ | <br>$12 \div 100 = 0.12$ |

# Division

|                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                       |                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Year 5</b></p>                                                                                                               | <ul style="list-style-type: none"> <li>Divide numbers mentally drawing upon known facts.</li> <li>Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</li> <li>Divide whole numbers and those involving decimals by 10, 100 and 1,000</li> </ul> |                                                                                                                                       |                                                                                                                                                       |
| <p><b>Progression of skills</b></p>                                                                                                | <p><b>Key representations</b></p>                                                                                                                                                                                                                                                                                                                          |                                                                                                                                       |                                                                                                                                                       |
| <p><b>Mental strategies</b></p>                                                                                                    | <p>I can partition ... into ... and ... to help me to divide more easily.</p>                                                                                                                                                                                             | <p>I can show groups of ... on a number line.</p>  | <p>To divide by ..., I can divide by ... and then divide the result by ...</p> $436 \div 4 = 436 \div 2 \div 2$ $436 \div 2 = 218$ $218 \div 2 = 109$ |
| <p><b>Divide numbers up to 4 digits by a 1-digit number</b></p> <p>The short division method is introduced for the first time.</p> | <p>There are ... groups of ... hundreds/tens/ones/ in ...<br/>I can exchange 1 ... for 10 ...</p>                                                                                                                                                                       |                                                                                                                                       |                                                                                                                                                       |

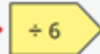
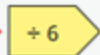
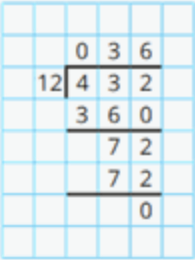
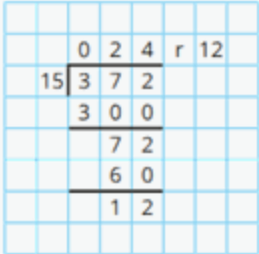
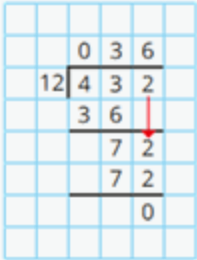
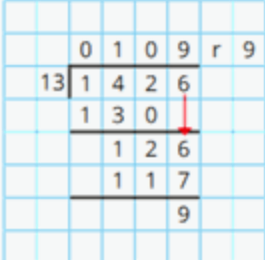
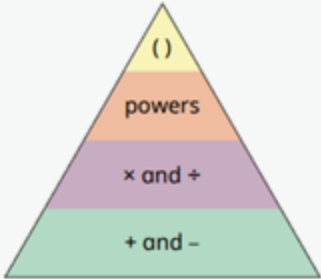
# Division

| Progression of skills                                                                                                                                                                                         | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |       |     |     |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-----|-----|-----|-------|-------|-------|-------|---|---|---|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|-----|-----|--|---|---|----|---|---|----|---|---|---|-----|-----|--|--|--|---|----|----|----|---|---|---|-----|-----|--|--|--|--|---|----|
| <p><b>Divide by 10, 100 and 1,000</b></p> <p>Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1,000 is the same as dividing by 10 three times.</p> | <p>To divide by 10/100/1,000, I move all the digits ... places to the right.<br/>... is one-tenth/one-hundredth/one-thousandth the size of ...</p> <table><tr><td>Th</td><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td>●</td><td>●●</td><td>●</td><td></td><td></td></tr></table> <table><tr><td>Th</td><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td></td><td>●</td><td>●●</td><td>●</td><td></td></tr></table> <table><tr><td>Th</td><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td></td><td></td><td>●</td><td>●●</td><td>●●</td></tr></table> <table><tr><td>Th</td><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td></td><td></td><td></td><td>●</td><td>●●</td></tr></table> <p><math>120 \div 10 = 12</math></p> <p><math>120 \div 100 = 1.2</math></p> <p><math>120 \div 1,000 = 0.12</math></p> | Th    | H     | T   | O   | Tth | Hth   |       | ●     | ●●    | ● |   |   | Th | H                                                                                                                                                                                                                                                                                                                                                                                                                       | T | O | Tth | Hth |  |   | ● | ●● | ● |   | Th | H | T | O | Tth | Hth |  |  |  | ● | ●● | ●● | Th | H | T | O | Tth | Hth |  |  |  |  | ● | ●● |
| Th                                                                                                                                                                                                            | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T     | O     | Tth | Hth |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
|                                                                                                                                                                                                               | ●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ●●    | ●     |     |     |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
| Th                                                                                                                                                                                                            | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T     | O     | Tth | Hth |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
|                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ●     | ●●    | ●   |     |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
| Th                                                                                                                                                                                                            | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T     | O     | Tth | Hth |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
|                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       | ●     | ●●  | ●●  |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
| Th                                                                                                                                                                                                            | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T     | O     | Tth | Hth |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
|                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |       | ●   | ●●  |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
| <p><b>Fraction of an amount</b></p> <p>Bar models support children to understand that to find a fraction of an amount, we divide by the denominator and multiply by the numerator.</p>                        | <p>To find <math>\frac{\square}{\square}</math> of ... , I need to divide by ... and multiply by ...</p> <table><tr><td>●●</td><td>●●</td><td>●●</td><td>●●</td><td>●●</td></tr></table> <table><tr><td>10 10</td><td>10 10</td><td>10 10</td><td>10 10</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td></tr></table> <p><math>\frac{1}{5}</math> of 20 =</p> <p><math>\frac{3}{5}</math> of 20 =</p> <p><math>\frac{1}{4}</math> of 84 =</p> <p><math>\frac{3}{4}</math> of 84 =</p>                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●●    | ●●    | ●●  | ●●  | ●●  | 10 10 | 10 10 | 10 10 | 10 10 | 1 | 1 | 1 | 1  | <p>If <math>\frac{1}{\square}</math> is ... , then the whole is ... <math>\times</math> ...</p> <table><tr><td colspan="5">?</td></tr><tr><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td></tr></table> <p><math>\frac{1}{5}</math> of ___ = 6</p> <table><tr><td colspan="7">?</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p><math>\frac{4}{7}</math> of ___ = 24</p> | ? |   |     |     |  | 6 | 6 | 6  | 6 | 6 | ?  |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
| ●●                                                                                                                                                                                                            | ●●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ●●    | ●●    | ●●  |     |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
| 10 10                                                                                                                                                                                                         | 10 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10 10 | 10 10 |     |     |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
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| 6                                                                                                                                                                                                             | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6     | 6     | 6   |     |     |       |       |       |       |   |   |   |    |                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |     |     |  |   |   |    |   |   |    |   |   |   |     |     |  |  |  |   |    |    |    |   |   |   |     |     |  |  |  |  |   |    |
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# Division

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| <p><b>Year 6</b></p>                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Perform mental calculations, including with mixed operations and large numbers.</li> <li>Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</li> <li>Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.</li> <li>Divide numbers by 10, 100 and 1,000 giving answers up to three decimal places.</li> <li>Use written division methods in cases where the answer has up to two decimal places.</li> <li>Associate a fraction with division and calculate decimal fraction equivalents.</li> <li>Divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math> ]</li> <li>Solve problems involving the calculation of percentages.</li> </ul> |
| <p><b>Progression of skills</b></p>                                                                                                                                                                         | <p><b>Key representations</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Short division</b></p> <p>Encourage children to interpret remainders in context, for example knowing that “4 remainder 1” could mean 4 complete boxes with 1 left over so 5 boxes will be needed.</p> | <p>There are ... groups of ... hundreds/tens/ones/ in ...<br/>I can exchange 1 ... for 10 ...</p> <div data-bbox="1203 858 1574 1158"> </div> <div data-bbox="1618 986 1918 1158"> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

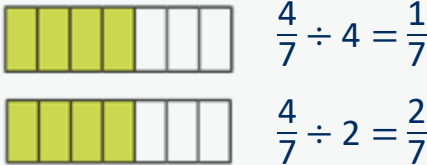
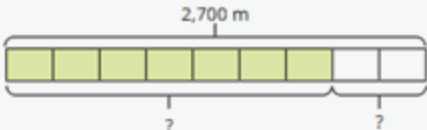
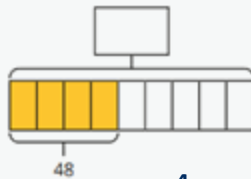
# Division

| Progression of skills                                                                                                                                                                 | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                          |
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| <p><b>Mental strategies</b></p> <p>Include partitioning and number line strategies outlined in Y5 as well as division using factors.</p>                                              | <p>To divide by ... , I can first divide by ... and then divide the answer by ...</p> <p><math>240 \div 60 = 240 \div 10 \div 6</math></p> <p>240 →  →  →  → </p> <p><math>480 \div 24 = 480 \div 4 \div 6</math></p> <p>480 →  →  →  → </p> |                                                                                                                                                                                                                          |
| <p><b>Long division</b></p> <p>The long division method is introduced for the first time. Two alternative methods are shown.</p>                                                      | <p><b>Method 1</b></p> <div>  <p>(12 × 30)</p> <p>(12 × 6)</p> </div> <div>  <p>(15 × 20)</p> <p>(15 × 4)</p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p><b>Method 2</b></p> <div>  </div> <div>  </div> |
| <p><b>Order of operations</b></p> <p>Calculations in brackets should be done first, then powers. Multiplication and division should be performed before addition and subtraction.</p> | <p>... has greater priority than ..., so the first part of the calculation I need to do is ...</p> <div>  </div> <div>  <p><math>(6 + 4) \div 2 = 5</math></p> </div> <div>  <p><math>6 + 4 \div 2 = 8</math></p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                          |

# Division

| Progression of skills                                                                                                                                                                              | Key representations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |      |  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| <b>Divide by 10, 100 and 1,000</b><br>Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1,000 is the same as dividing by 10 three times. | <p>To divide by ... , I move the digits ... places to the right.</p> <div><table><tr><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td><td>Thth</td></tr><tr><td>●●</td><td>●</td><td>●●</td><td></td><td></td><td></td></tr></table><div>↓<br/>+ 1,000</div><table><tr><td>H</td><td>T</td><td>O</td><td>Tth</td><td>Hth</td><td>Thth</td></tr><tr><td></td><td></td><td></td><td>●●</td><td>●</td><td>●●</td></tr></table></div> <div><math>312 \div 10 = 31.2</math><br/><math>312 \div 100 = 3.12</math><br/><math>312 \div 1,000 = 0.312</math></div> <div><math>906 \div 10 = 90.6</math><br/><math>906 \div 100 = 9.06</math><br/><math>906 \div 1,000 = 0.906</math></div>                                                                                                                      |           | H    | 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| <b>Divide decimals by integers</b><br><br>This is the first time children divide decimals by numbers other than 10, 100 or 1,000                                                                   | <p>I know that ... <math>\div</math> ... = ...,<br/>so I also know that ... <math>\div</math> ... = ...</p> <div><div><table><tr><td>10</td><td>1</td><td>1</td><td>1</td></tr><tr><td>10</td><td>1</td><td>1</td><td>1</td></tr><tr><td>10</td><td>1</td><td>1</td><td>1</td></tr></table><math>39 \div 3 = 13</math></div><div><table><tr><td>1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr><tr><td>1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr><tr><td>1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr></table><math>3.9 \div 3 = 1.3</math></div><div><table><tr><td>0.1</td><td>0.01</td><td>0.01</td><td>0.01</td></tr><tr><td>0.1</td><td>0.01</td><td>0.01</td><td>0.01</td></tr><tr><td>0.1</td><td>0.01</td><td>0.01</td><td>0.01</td></tr></table><math>0.39 \div 3 = 0.13</math></div></div> | 10        | 1    | 1   | 1    | 10  | 1   | 1    | 1  | 10 | 1  | 1 | 1 | 1 | 0.1 | 0.1 | 0.1 | 1   | 0.1 | 0.1  | 0.1 | 1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.01 | 0.01 | 0.01 | 0.1 | 0.01 | 0.01 | 0.01 | 0.1 | 0.01 | 0.01 | 0.01 | <p>I need to exchange 1 ... for 10 ...</p> <div><table><tr><td>O</td><td>Tth</td><td>Hth</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 0.01</td></tr><tr><td>1 1 1</td><td>0.3 0.3</td><td>0.01 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| Progression of skills                                                                                                                                                       | Key representations                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                       |
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| <p><b>Divide a fraction by an integer</b></p> <p>This is the first time children divide fractions by an integer.</p>                                                        | <p>... ones divided by 2 is ... ones so ... sevenths divided by 2 is ... sevenths.</p>  $\frac{4}{7} \div 4 = \frac{1}{7}$ $\frac{4}{7} \div 2 = \frac{2}{7}$ | <p>I am dividing by ... , so I can split each part into ... equal parts.</p>  $\frac{1}{3} \div 2 = \frac{1}{6}$                                                                                                         | <p>... is equivalent to ... so ... ÷ ... = ... ÷ ...</p>  $\frac{2}{3} = \frac{4}{6}$ <p>so <math>\frac{2}{3} \div 4 = \frac{4}{6} \div 4 = \frac{1}{6}</math></p> |
| <p><b>Fraction of an amount</b></p> <p>Children divide and multiply to find fractions of an amount. Bar models can still be used to support understanding where needed.</p> | <p>To find <math>\frac{1}{\square}</math> I divide by ...</p> <p><math>\frac{1}{2}</math> of 36 = <math>36 \div 2</math></p> <p><math>\frac{1}{12}</math> of 36 = <math>36 \div 12</math></p>                                                   | <p>If <math>\frac{1}{\square}</math> is equal to ..., then <math>\frac{\square}{\square}</math> are equal to ...</p>  <p><math>\frac{7}{9}</math> of 2,700 = <math>\frac{1}{9}</math> of 2,700 <math>\times 7</math></p> | <p>If <math>\frac{\square}{\square}</math> is equal to ..., then the whole is equal to ...</p>  <p><math>\frac{4}{9}</math> of ___ = 48</p>                        |

# Division

| Progression of skills                                                                                                                                                                                                                                                                                                                             | Key representations                                                                                                                                                                                                                                                                                                       |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                               |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|--|--|--|--|--|--|--|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <p><b>Calculate percentages</b></p> <p>Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.</p>                                                                                                                                                                             | <p>There are ... lots of ... % in 100%<br/>To find ... %, I need to divide by ...</p> <table border="1"><tr><td colspan="4">100%</td></tr><tr><td colspan="2">50%</td><td colspan="2">50%</td></tr><tr><td>25%</td><td>25%</td><td>25%</td><td>25%</td></tr></table> <p>50% of ... = ... ÷ 2<br/>25% of ... = ... ÷ 4</p> | 100% |     |     |     | 50% |     | 50% |     | 25% | 25% | 25% | 25% | <p>... % is made up of ... %, and ... %</p> <table border="1"><tr><td colspan="10">100%</td></tr><tr><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td></tr></table> <p>To find 30%, I can find 10% and then multiply it by 3<br/>To find 23%, I can use 10% × 2 and 1% × 3<br/>To find 99%, I can find 1%, then subtract from 100%</p> | 100% |  |  |  |  |  |  |  |  |  | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| 100%                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                           |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                               |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 50%                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                           | 50%  |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                               |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 25%                                                                                                                                                                                                                                                                                                                                               | 25%                                                                                                                                                                                                                                                                                                                       | 25%  | 25% |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                               |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 100%                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                           |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                               |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| 10%                                                                                                                                                                                                                                                                                                                                               | 10%                                                                                                                                                                                                                                                                                                                       | 10%  | 10% | 10% | 10% | 10% | 10% | 10% | 10% |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                               |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |
| <p><b>Calculations involving ratio</b></p> <p>Encourage children to see the multiplicative relationship between ratios. They will need to multiply or divide each value by the same number to keep the ratio equivalent. Double number lines and ratio tables help children to see both horizontal and vertical multiplicative relationships.</p> | <p>For every ... , there are ...</p> <p>For every 6 children on a school trip, there is 1 adult.</p> <div><div>adults</div><div>children</div></div> <p>The ratio of children to adults is 6 : 1</p>                                                                                                                      |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                               |      |  |  |  |  |  |  |  |  |  |     |     |     |     |     |     |     |     |     |     |