



***Power Maths*** calculation policy, UPPER KS2

## KEY STAGE 2

In upper Key Stage 2, children build on secure foundations in calculation, and develop fluency, accuracy and flexibility in their approach to the four operations. They work with whole numbers and adapt their skills to work with decimals, and they continue to develop their ability to select appropriate, accurate and efficient operations.

**Key language:** decimal, column methods, exchange, partition, mental method, ten thousand, hundred thousand, million, factor, multiple, prime number, square number, cube number

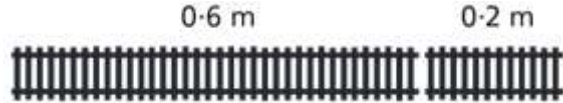
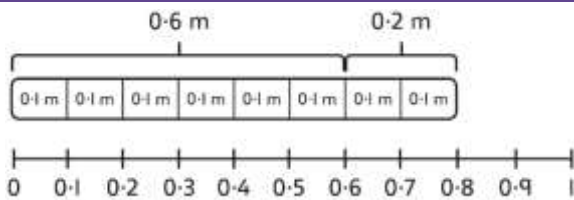
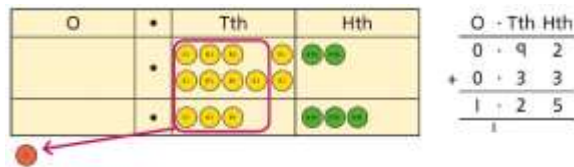
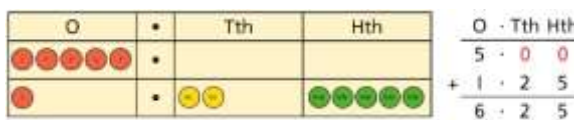
**Addition and subtraction:** Children build on their column methods to add and subtract numbers with up to seven digits, and they adapt the methods to calculate efficiently and effectively with decimals, ensuring understanding of place value at every stage. Children compare and contrast methods, and they select mental methods or jottings where appropriate and where these are more likely to be efficient or accurate when compared with formal column methods. Bar models are used to represent the calculations required to solve problems and may indicate where efficient methods can be chosen.

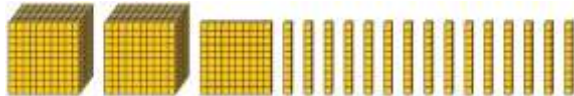
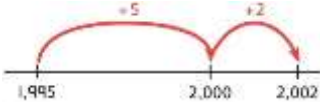
**Multiplication and division:** Building on their understanding, children develop methods to multiply up to 4-digit numbers by single-digit and 2-digit numbers. Children develop column methods with an understanding of place value, and they continue to use the key skill of unitising to multiply and divide by 10, 100 and 1,000. Written division methods are introduced and adapted for division by single-digit and 2-digit numbers and are understood alongside the area model and place value. In Year 6, children develop a secure understanding of how division is related to fractions. Multiplication and division of decimals are also introduced and refined in Year 6.

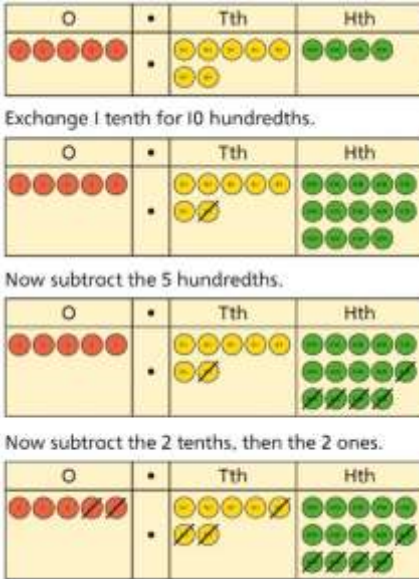
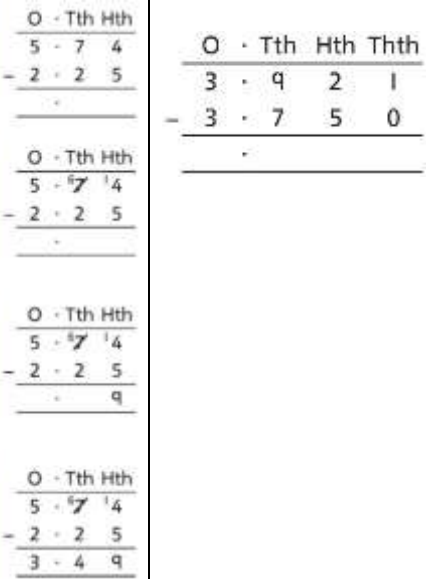
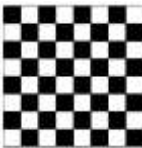
**Fractions:** Children find fractions of amounts, multiply a fraction by a whole number and by another fraction, divide a fraction by a whole number, and add and subtract fractions with different denominators. Children become more confident working with improper fractions and mixed numbers and can calculate with them. Understanding of decimals with up to 3 decimal places is built through place value and as fractions, and children calculate with decimals in the context of measure as well as in pure arithmetic. Children develop an understanding of percentages in relation to hundredths, and they understand how to work with common percentages: 50%, 25%, 10% and 1%.

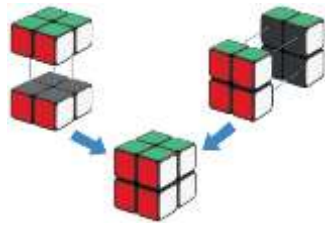
# Year 5

|                                           | Concrete                                                                                                                                                    | Pictorial                                                                                                                                                                                                                                                                                                                                                                | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Year 5 Addition</b>                    |                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Column addition with whole numbers</b> | <p>Use place value equipment to represent additions.</p> <p><i>Add a row of counters onto the place value grid to show <math>15,735 + 4,012</math>.</i></p> | <p>Represent additions, using place value equipment on a place value grid alongside written methods.</p> <p><i>I need to exchange 10 tens for a 100.</i></p> $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 2 \ 0 \ 1 \ 5 \ 3 \\ + 1 \ 4 \ 0 \ 1 \ 2 \\ \hline 3 \ 4 \ 1 \ 6 \ 5 \end{array}$                                                  | <p>Use column addition, including exchanges.</p> $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 1 \ 5 \ 7 \ 3 \ 5 \\ + 4 \ 0 \ 1 \ 2 \\ \hline 1 \ 9 \ 8 \ 4 \ 7 \end{array}$                                                                                                                                                                                                                                            |
| <b>Representing additions</b>             |                                                                                                                                                             | <p>Bar models represent addition of two or more numbers in the context of problem solving.</p> $\begin{array}{r} \text{Th} \text{ H} \text{ T} \text{ O} \\ 2 \ 6 \ 0 \ 0 \\ + 1 \ 4 \ 5 \ 0 \\ \hline 4 \ 0 \ 5 \ 0 \end{array} \quad \begin{array}{r} \text{Th} \text{ H} \text{ T} \text{ O} \\ 2 \ 6 \ 0 \ 0 \\ + 4 \ 0 \ 5 \ 0 \\ \hline 6 \ 6 \ 5 \ 0 \end{array}$ | <p>Use approximation to check whether answers are reasonable.</p> $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 2 \ 3 \ 4 \ 0 \ 5 \\ + 7 \ 8 \ 9 \ 2 \\ \hline 2 \ 0 \ 2 \ 9 \ 7 \end{array} \quad \begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 2 \ 3 \ 4 \ 0 \ 5 \\ + 7 \ 8 \ 9 \ 2 \\ \hline 3 \ 1 \ 2 \ 9 \ 7 \end{array}$ <p><i>I will use <math>23,000 + 8,000</math> to check.</i></p> |
| <b>Adding tenths</b>                      | Link measure with addition of decimals.                                                                                                                     | Use a bar model with a number line to add tenths.                                                                                                                                                                                                                                                                                                                        | Understand the link with adding fractions.                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                              |                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              | <p>Two lengths of fencing are 0.6 m and 0.2 m.<br/>How long are they when added together?</p>  |  <p><math>0.6 + 0.2 = 0.8</math><br/>6 tenths + 2 tenths = 8 tenths</p>                                                                                                                                                                                                                   | $\frac{6}{10} + \frac{2}{10} = \frac{8}{10}$ <p>6 tenths + 2 tenths = 8 tenths<br/><math>0.6 + 0.2 = 0.8</math></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Adding decimals using column addition</b> | <p>Use place value equipment to represent additions.</p> <p>Show <math>0.23 + 0.45</math> using place value counters.</p>                                                       | <p>Use place value equipment on a place value grid to represent additions.</p> <p>Represent exchange where necessary.</p>  <p>Include examples where the numbers of decimal places are different.</p>  | <p>Add using a column method, ensuring that children understand the link with place value.</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 0 \cdot 2 \quad 3 \\ + 0 \cdot 4 \quad 5 \\ \hline 0 \cdot 6 \quad 8 \end{array}$ <p>Include exchange where required, alongside an understanding of place value.</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 5 \cdot 0 \quad 0 \\ + 1 \cdot 2 \quad 5 \\ \hline 6 \cdot 2 \quad 5 \end{array}$ <p>Include additions where the numbers of decimal places are different.</p> $3.4 + 0.65 = ?$ $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 3 \cdot 4 \quad 0 \\ + 0 \cdot 6 \quad 5 \\ \hline \end{array}$ |
| <b>Year 5 Subtraction</b>                    |                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Column subtraction</b>                    | <p>Use place value equipment to understand where exchanges are required.</p>                                                                                                    | <p>Represent the stages of the calculation using place value equipment on a grid</p>                                                                                                                                                                                                                                                                                        | <p>Use column subtraction methods with exchange where required.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

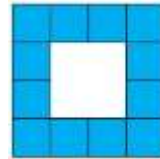
| with whole numbers                                | <div>2,250 – 1,070</div> <div></div> | <div>alongside the calculation, including exchanges where required.</div> <div>15,735 – 2,582 = 13,153</div> <div><table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>●●●●●</td><td>●●●●●</td><td>●●●●●</td><td>●●●●●</td></tr><tr><td></td><td></td><td>●●●●●</td><td>●●●●●</td><td>●●●●●</td></tr></table><p>Now subtract the 10s. Exchange 1 hundred for 10 tens.</p><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></td><td></td><td>●●●●●</td><td>●●●●●</td><td>●●●●●</td></tr></table><p>Subtract the 100s, 1,000s and 10,000s.</p><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></td><td></td><td>●●●●●</td><td>●●●●●</td><td>●●●●●</td></tr></table></div> | TTh                                                                                                                                                                                                                                 | Th    | H      | T      | O |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●●●●● | ●●●●● | ●●●●● | ●●●●● |   |   | ●●●●● | ●●●●● | ●●●●● | TTh | Th | H | T | O | ● | ●●●●● | ●●●●● | ●●●●● | ●●●●● |   |     | ●●●●● | ●●●●● | ●●●●● | TTh | Th | H | T | O | ● | ●●●●● | ●●●●● | ●●●●● | ●●●●● |   |  | ●●●●● | ●●●●● | ●●●●● | <div><table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>5</td><td>2</td><td>0</td><td>9</td><td>7</td></tr><tr><td>-</td><td>1</td><td>8</td><td>5</td><td>3</td></tr><tr><td></td><td>4</td><td>3</td><td>5</td><td>6</td></tr><tr><td></td><td></td><td></td><td>3</td><td></td></tr></table></div> <div>62,097 – 18,534 = 43,563</div> | TTh | Th | H | T | O | 5 | 2 | 0 | 9 | 7 | - | 1 | 8 | 5 | 3 |  | 4 | 3 | 5 | 6 |  |  |  | 3 |  |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|--------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|---|---|-------|-------|-------|-----|----|---|---|---|---|-------|-------|-------|-------|---|-----|-------|-------|-------|-----|----|---|---|---|---|-------|-------|-------|-------|---|--|-------|-------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--|--|--|---|--|
| TTh                                               | Th                                                                                                                    | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                   | O     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   | ●●●●●                                                                                                                 | ●●●●●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●●●●●                                                                                                                                                                                                                               | ●●●●● |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   |                                                                                                                       | ●●●●●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●●●●●                                                                                                                                                                                                                               | ●●●●● |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| TTh                                               | Th                                                                                                                    | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                   | O     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| ●                                                 | ●●●●●                                                                                                                 | ●●●●●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●●●●●                                                                                                                                                                                                                               | ●●●●● |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   |                                                                                                                       | ●●●●●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●●●●●                                                                                                                                                                                                                               | ●●●●● |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| TTh                                               | Th                                                                                                                    | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                   | O     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| ●                                                 | ●●●●●                                                                                                                 | ●●●●●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●●●●●                                                                                                                                                                                                                               | ●●●●● |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
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| TTh                                               | Th                                                                                                                    | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                   | O     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
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| -                                                 | 1                                                                                                                     | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5                                                                                                                                                                                                                                   | 3     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   | 4                                                                                                                     | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5                                                                                                                                                                                                                                   | 6     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3                                                                                                                                                                                                                                   |       |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| Checking strategies and representing subtractions |                                                                                                                       | <div>Bar models represent subtractions in problem contexts, including ‘find the difference’.</div> <div><div>Athletics Stadium</div><div>Hockey Centre</div><div>Velodrome</div><div><table><tr><td>75,450</td></tr><tr><td></td></tr><tr><td>42,300</td></tr><tr><td>15,735</td></tr><tr><td>?</td></tr></table></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 75,450                                                                                                                                                                                                                              |       | 42,300 | 15,735 | ? | <div>Children can explain the mistake made when the columns have not been ordered correctly.</div> <div><div>Bella's working</div><div>Correct method</div><div><table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>1</td><td>7</td><td>0</td><td>7</td><td>7</td></tr><tr><td>+</td><td>4</td><td>0</td><td>1</td><td>2</td></tr><tr><td></td><td>5</td><td>7</td><td>9</td><td>9</td></tr></table><table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>1</td><td>7</td><td>0</td><td>7</td><td>7</td></tr><tr><td>+</td><td>4</td><td>0</td><td>1</td><td>2</td></tr><tr><td></td><td>2</td><td>1</td><td>8</td><td>9</td></tr></table></div><div>Use approximation to check calculations.</div><div>I calculated 18,000 + 4,000 mentally to check my subtraction.</div></div> | TTh   | Th    | H     | T     | O | 1 | 7     | 0     | 7     | 7   | +  | 4 | 0 | 1 | 2 |       | 5     | 7     | 9     | 9 | TTh | Th    | H     | T     | O   | 1  | 7 | 0 | 7 | 7 | +     | 4     | 0     | 1     | 2 |  | 2     | 1     | 8     | 9                                                                                                                                                                                                                                                                                                                                                                   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| 75,450                                            |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                     |       |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                     |       |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| 42,300                                            |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                     |       |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| 15,735                                            |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                     |       |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| ?                                                 |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                     |       |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| TTh                                               | Th                                                                                                                    | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                   | O     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| 1                                                 | 7                                                                                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7                                                                                                                                                                                                                                   | 7     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| +                                                 | 4                                                                                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1                                                                                                                                                                                                                                   | 2     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   | 5                                                                                                                     | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9                                                                                                                                                                                                                                   | 9     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| TTh                                               | Th                                                                                                                    | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                   | O     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| 1                                                 | 7                                                                                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7                                                                                                                                                                                                                                   | 7     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| +                                                 | 4                                                                                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1                                                                                                                                                                                                                                   | 2     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
|                                                   | 2                                                                                                                     | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8                                                                                                                                                                                                                                   | 9     |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |
| Choosing efficient methods                        |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div>To subtract two large numbers that are close, children find the difference by counting on.</div> <div>2,002 – 1,995 = ?</div> <div></div> |       |        |        |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |       |       |   |   |       |       |       |     |    |   |   |   |   |       |       |       |       |   |     |       |       |       |     |    |   |   |   |   |       |       |       |       |   |  |       |       |       |                                                                                                                                                                                                                                                                                                                                                                     |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |   |  |

|                              |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                              | Use addition to check subtractions.<br><i>I calculated <math>7,546 - 2,355 = 5,191</math>.<br/>I will check using the inverse.</i>                                                                                                                                     |
| <b>Subtracting decimals</b>  | <p>Explore complements to a whole number by working in the context of length.</p>  <p><math>1 \text{ m} - \square \text{ m} = \square \text{ m}</math></p> <p><math>1 - 0.49 = ?</math></p> | <p>Use a place value grid to represent the stages of column subtraction, including exchanges where required.</p> <p><math>5.74 - 2.25 = ?</math></p>  <p>Exchange 1 tenth for 10 hundredths.</p> <p>Now subtract the 5 hundredths.</p> <p>Now subtract the 2 tenths, then the 2 ones.</p> | <p>Use column subtraction, with an understanding of place value, including subtracting numbers with different numbers of decimal places.</p> <p><math>3.921 - 3.75 = ?</math></p>  |
| <b>Year 5 Multiplication</b> |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        |
| <b>Understanding factors</b> | <p>Use cubes or counters to explore the meaning of 'square numbers'.</p> <p><i>25 is a square number because it is made from 5 rows of 5.</i></p> <p>Use cubes to explore cube numbers.</p>                                                                                  | <p>Use images to explore examples and non-examples of square numbers.</p>  <p><math>8 \times 8 = 64</math></p>                                                                                                                                                                           | <p>Understand the pattern of square numbers in the multiplication tables.</p> <p>Use a multiplication grid to circle each square number. Can children spot a pattern?</p>                                                                                              |



8 is a cube number.

$$8^2 = 64$$



12 is not a square number, because you cannot multiply a whole number by itself to make 12.

### Multiplying by 10, 100 and 1,000

Use place value equipment to multiply by 10, 100 and 1,000 by unitising.

|                                           |  |
|-------------------------------------------|--|
| $4 \times 1 = 4 \text{ ones} = 4$         |  |
| $4 \times 10 = 4 \text{ tens} = 40$       |  |
| $4 \times 100 = 4 \text{ hundreds} = 400$ |  |

Understand the effect of repeated multiplication by 10.



Understand how exchange relates to the digits when multiplying by 10, 100 and 1,000.

| H | T | O |
|---|---|---|
|   | 1 | 7 |

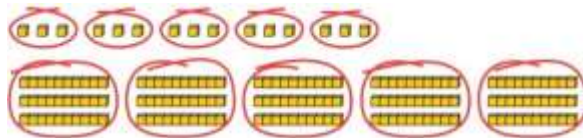
$$17 \times 10 = 170$$

$$17 \times 100 = 17 \times 10 \times 10 = 1,700$$

$$17 \times 1,000 = 17 \times 10 \times 10 \times 10 = 17,000$$

### Multiplying by multiples of 10, 100 and 1,000

Use place value equipment to explore multiplying by unitising.



5 groups of 3 ones is 15 ones.  
5 groups of 3 tens is 15 tens.

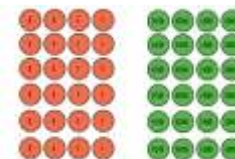
So, I know that 5 groups of 3 thousands would be 15 thousands.

Use place value equipment to represent how to multiply by multiples of 10, 100 and 1,000.



$$4 \times 3 = 12$$

$$4 \times 300 = 1,200$$



$$6 \times 4 = 24$$

$$6 \times 400 = 2,400$$

Use known facts and unitising to multiply.

$$5 \times 4 = 20$$

$$5 \times 40 = 200$$

$$5 \times 400 = 2,000$$

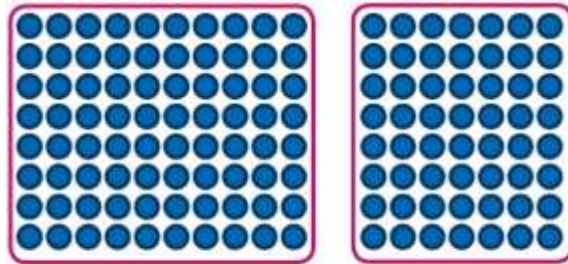
$$5 \times 4,000 = 20,000$$

$$5,000 \times 4 = 20,000$$

### Multiplying up to 4-digit numbers by a single digit

Explore how to use partitioning to multiply efficiently.

$$8 \times 17 = ?$$



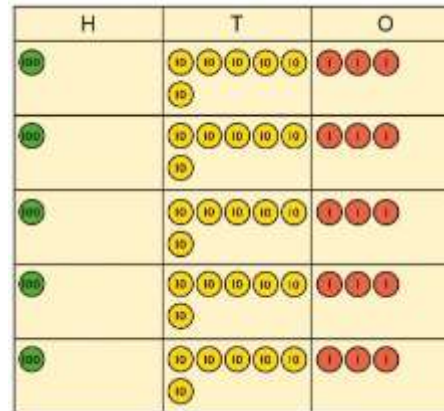
$$8 \times 10 = 80$$

$$8 \times 7 = 56$$

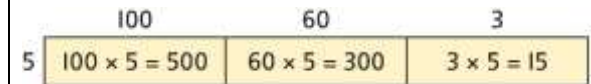
$$80 + 56 = 136$$

$$\text{So, } 8 \times 17 = 136$$

Represent multiplications using place value equipment and add the 1s, then 10s, then 100s, then 1,000s.



Use an area model and then add the parts.



Use a column multiplication, including any required exchanges.

$$\begin{array}{r} 136 \\ \times 5 \\ \hline 815 \end{array}$$

### Multiplying 2-digit numbers by 2-digit numbers

Partition one number into 10s and 1s, then add the parts.

$$23 \times 15 = ?$$



$$10 \times 15 = 150$$

$$10 \times 15 = 150$$



$$3 \times 15 = 45$$

There are 345 bottles of milk in total.

$$\begin{array}{r} \text{H} \text{ T} \text{ O} \\ 150 \\ 150 \\ + 45 \\ \hline 345 \end{array}$$

$$23 \times 15 = 345$$

Use an area model and add the parts.

$$28 \times 15 = ?$$

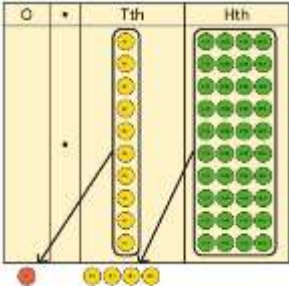


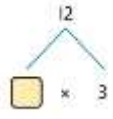
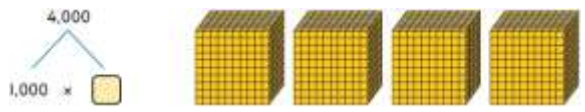
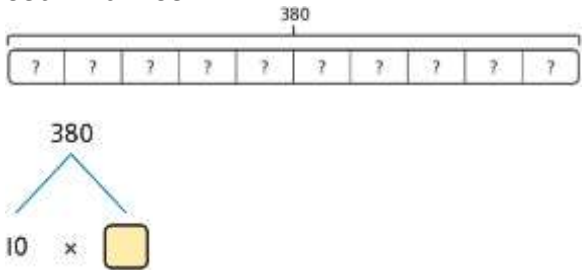
$$28 \times 15 = 420$$

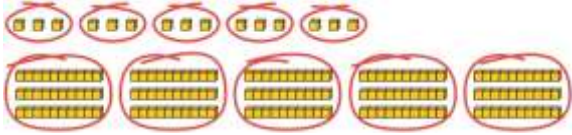
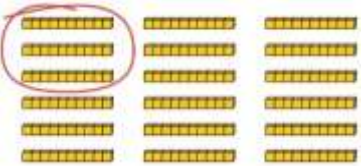
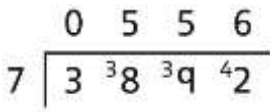
Use column multiplication, ensuring understanding of place value at each stage.

$$\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \\ 680 \\ \hline 918 \end{array}$$

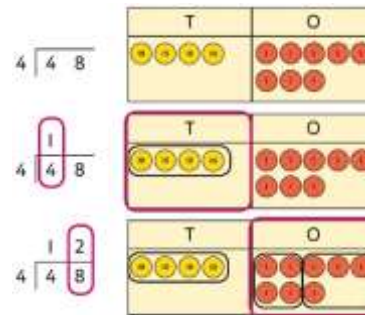
|                                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \\ 680 \\ \hline 918 \end{array}$ <p> <math>34 \times 7</math><br/> <math>34 \times 20</math><br/> <math>34 \times 27</math> </p> |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|----|--|--|--|---|--|--|--|----|---|---|---|---|---|---|---|---|---|---|--|---|---|---|--|---|---|--|--|---|---|--|--|---|--|--|--|---|---|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Multiplying up to 4-digits by 2-digits</b> |     | <p>Use the area model then add the parts.</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td></td><td>100</td><td>40</td><td>3</td></tr> <tr> <td>10</td><td></td><td></td><td></td></tr> <tr> <td>2</td><td></td><td></td><td></td></tr> </table> <p> <math>143 \times 12 = 1,716</math><br/>           There are 1,716 boxes of cereal in total.         </p> </div> <div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>4</td><td>0</td><td>0</td><td></td></tr> <tr><td>2</td><td>0</td><td>0</td><td></td></tr> <tr><td>8</td><td>0</td><td></td><td></td></tr> <tr><td>3</td><td>0</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td></tr> <tr><td>1</td><td>7</td><td>1</td><td>6</td></tr> </table> </div> </div> <p><math>143 \times 12 = 1,716</math></p> |                                                                                                                                                                                   | 100 | 40 | 3 | 10 |  |  |  | 2 |  |  |  | Th | H | T | O | 1 | 0 | 0 | 0 | 4 | 0 | 0 |  | 2 | 0 | 0 |  | 8 | 0 |  |  | 3 | 0 |  |  | 6 |  |  |  | 1 | 7 | 1 | 6 | <p>Use column multiplication, ensuring understanding of place value at each stage.</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <math display="block">\begin{array}{r} 143 \\ \times 12 \\ \hline 286 \\ 1430 \\ \hline 1716 \end{array}</math> <p> <math>143 \times 2</math><br/> <math>143 \times 10</math><br/> <math>143 \times 12</math> </p> </div> <div> <p>Progress to include examples that require multiple exchanges as understanding, confidence and fluency build.</p> <p> <math>1,274 \times 32 = ?</math><br/>           First multiply 1,274 by 2.         </p> <math display="block">\begin{array}{r} 1274 \\ \times 32 \\ \hline 2548 \end{array}</math> <p><math>1,274 \times 2</math></p> <p>Then multiply 1,274 by 30.</p> <math display="block">\begin{array}{r} 1274 \\ \times 32 \\ \hline 2548 \\ 38220 \\ \hline \end{array}</math> <p> <math>1,274 \times 2</math><br/> <math>1,274 \times 30</math> </p> <p>Finally, find the total.</p> </div> </div> |
|                                               | 100 | 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3                                                                                                                                                                                 |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 10                                            |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                   |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2                                             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                   |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Th                                            | H   | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | O                                                                                                                                                                                 |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1                                             | 0   | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0                                                                                                                                                                                 |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4                                             | 0   | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                   |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2                                             | 0   | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                   |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 8                                             | 0   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                   |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3                                             | 0   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                   |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 6                                             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                   |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1                                             | 7   | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6                                                                                                                                                                                 |     |    |   |    |  |  |  |   |  |  |  |    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |  |   |   |  |  |   |   |  |  |   |  |  |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                        | $  \begin{array}{r}  1274 \\  \times 32 \\  \hline  2548 \quad 1,274 \times 2 \\  3822 \quad 1,274 \times 30 \\  \hline  40768 \quad 1,274 \times 32 \\  \hline  1,274 \times 32 = 40,768  \end{array}  $                                                                                                                                       |
| <b>Multiplying decimals by 10, 100 and 1,000</b> | Use place value equipment to explore and understand the exchange of 10 tenths, 10 hundredths or 10 thousandths.                                                                                                                                                                                                                                                                         | Represent multiplication by 10 as exchange on a place value grid.<br><br>$0.14 \times 10 = 1.4$                                                      | Understand how this exchange is represented on a place value chart.<br><br>$2.5 \times 10 = 25$<br>$2.5 \times 100 = 250$<br>$2.5 \times 1,000 = 2,500$                                                                                                      |
| <b>Year 5 Division</b>                           |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                 |
| <b>Understanding factors and prime numbers</b>   | Use equipment to explore the factors of a given number.<br><br>$24 \div 3 = 8$<br>$24 \div 8 = 3$<br><i>8 and 3 are factors of 24 because they divide 24 exactly.</i><br>$24 \div 5 = 4 \text{ remainder } 4$<br> | Understand that prime numbers are numbers with exactly two factors.<br>$13 \div 1 = 13$<br>$13 \div 2 = 6 \text{ r } 1$<br>$13 \div 4 = 4 \text{ r } 1$<br><i>1 and 13 are the only factors of 13.</i><br><i>13 is a prime number.</i> | Understand how to recognise prime and composite numbers.<br><i>I know that 31 is a prime number because it can be divided by only 1 and itself without leaving a remainder.</i><br><i>I know that 33 is not a prime number as it can be divided by 1, 3, 11 and 33.</i><br><i>I know that 1 is not a prime number, as it has only 1 factor.</i> |

|                                                                                                       | <p>5 is not a factor of 24 because there is a remainder.</p>                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |   |   |   |   |   |   |   |
|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|---|---|---|---|
| <p><b>Understanding inverse operations and the link with multiplication, grouping and sharing</b></p> | <p>Use equipment to group and share and to explore the calculations that are present.</p> <p><i>I have 28 counters.</i></p> <p><i>I made 7 groups of 4. There are 28 in total.</i></p> <p><i>I have 28 in total. I shared them equally into 7 groups. There are 4 in each group.</i></p> <p><i>I have 28 in total. I made groups of 4. There are 7 equal groups.</i></p> | <p>Represent multiplicative relationships and explore the families of division facts.</p>  <p> <math>60 \div 4 = 15</math><br/> <math>60 \div 15 = 4</math> </p>                                                                                    | <p>Represent the different multiplicative relationships to solve problems requiring inverse operations.</p> <p> <math>12 \div 3 = \square</math><br/> <math>12 \div \square = 3</math><br/> <math>\square \times 3 = 12</math><br/> <math>\square \div 3 = 12</math> </p>  <p>Understand missing number problems for division calculations and know how to solve them using inverse operations.</p> <p> <math>22 \div ? = 2</math><br/> <math>22 \div 2 = ?</math><br/> <math>? \div 2 = 22</math><br/> <math>? \div 22 = 2</math> </p> |    |   |   |   |   |   |   |   |
| <p><b>Dividing whole numbers by 10, 100 and 1,000</b></p>                                             | <p>Use place value equipment to support unitising for division.</p> <p><math>4,000 \div 1,000</math></p>  <p>4,000 is 4 thousands.</p> <p><math>4 \times 1,000 = 4,000</math></p> <p>So, <math>4,000 \div 1,000 = 4</math></p>                                                         | <p>Use a bar model to support dividing by unitising.</p> <p><math>380 \div 10 = 38</math></p>  <p>380 is 38 tens.</p> <p> <math>38 \times 10 = 380</math><br/> <math>10 \times 38 = 380</math><br/>         So, <math>380 \div 10 = 38</math> </p> | <p>Understand how and why the digits change on a place value grid when dividing by 10, 100 or 1,000.</p> <table border="1"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>2</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p><math>3,200 \div 100 = ?</math></p> <p>3,200 is 3 thousands and 2 hundreds.</p> <p> <math>200 \div 100 = 2</math><br/> <math>3,000 \div 100 = 30</math><br/> <math>3,200 \div 100 = 32</math> </p> <p>So, the digits will move two places to the right.</p>                                        | Th | H | T | O | 3 | 2 | 0 | 0 |
| Th                                                                                                    | H                                                                                                                                                                                                                                                                                                                                                                        | T                                                                                                                                                                                                                                                                                                                                     | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |   |   |   |   |
| 3                                                                                                     | 2                                                                                                                                                                                                                                                                                                                                                                        | 0                                                                                                                                                                                                                                                                                                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |   |   |   |   |

|                                                                                 |                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Dividing by multiples of 10, 100 and 1,000</b></p>                        | <p>Use place value equipment to represent known facts and unitising.</p>  <p><i>15 ones put into groups of 3 ones. There are 5 groups.</i><br/> <math>15 \div 3 = 5</math></p> <p><i>15 tens put into groups of 3 tens. There are 5 groups.</i><br/> <math>150 \div 30 = 5</math></p> | <p>Represent related facts with place value equipment when dividing by unitising.</p>  <p><i>180 is 18 tens.</i><br/> <i>18 tens divided into groups of 3 tens. There are 6 groups.</i><br/> <math>180 \div 30 = 6</math></p>  <p><i>12 ones divided into groups of 4. There are 3 groups.</i><br/> <i>12 hundreds divided into groups of 4 hundreds. There are 3 groups.</i><br/> <math>1200 \div 400 = 3</math></p> | <p>Reason from known facts, based on understanding of unitising. Use knowledge of the inverse relationship to check.</p> <p><math>3,000 \div 5 = 600</math><br/> <math>3,000 \div 50 = 60</math><br/> <math>3,000 \div 500 = 6</math></p> <p><math>5 \times 600 = 3,000</math><br/> <math>50 \times 60 = 3,000</math><br/> <math>500 \times 6 = 3,000</math></p> |
| <p><b>Dividing up to four digits by a single digit using short division</b></p> | <p>Explore grouping using place value equipment.</p> <p><math>268 \div 2 = ?</math></p> <p><i>There is 1 group of 2 hundreds.</i><br/> <i>There are 3 groups of 2 tens.</i><br/> <i>There are 4 groups of 2 ones.</i></p>                                                                                                                                              | <p>Use place value equipment on a place value grid alongside short division. The model uses grouping. A sharing model can also be used, although the model would need adapting.</p>                                                                                                                                                                                                                                                                                                                                                                                                       | <p>Use short division for up to 4-digit numbers divided by a single digit.</p>  <p><math>3,892 \div 7 = 556</math></p>                                                                                                                                                      |

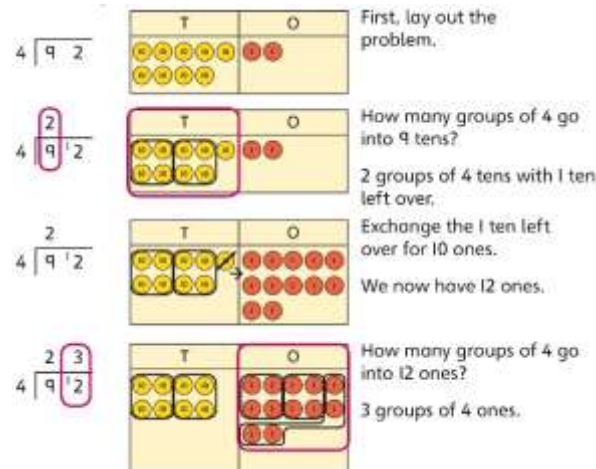
$$264 \div 2 = 132$$



Lay out the problem as a short division.

*There is 1 group of 4 in 4 tens.  
There are 2 groups of 4 in 8 ones.*

Work with divisions that require exchange.



Use multiplication to check.

$$556 \times 7 = ?$$

$$6 \times 7 = 42$$

$$50 \times 7 = 350$$

$$500 \times 7 = 3500$$

$$3,500 + 350 + 42 = 3,892$$

### Understanding remainders

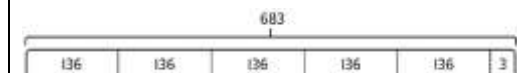
Understand remainders using concrete versions of a problem.

*80 cakes divided into trays of 6.*



Use short division and understand remainders as the last remaining 1s.

In problem solving contexts, represent divisions including remainders with a bar model.



80 cakes in total. They make 13 groups of 6, with 2 remaining.

6  $\overline{) 80}$

6  $\overline{) 80}$

6  $\overline{) 80}$

13 r 2

How many groups of 6 go into 8 tens?  
There is 1 group of 6 tens.  
There are 2 tens remaining.

How many groups of 6 go into 20 ones?  
There are 3 groups of 6 ones.  
There are 2 ones remaining.

$$683 = 136 \times 5 + 3$$

$$683 \div 5 = 136 \text{ r } 3$$

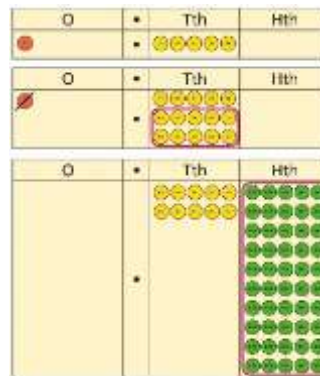
### Dividing decimals by 10, 100 and 1,000

Understand division by 10 using exchange.

2 ones are 20 tenths.

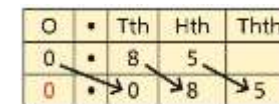
20 tenths divided by 10 is 2 tenths.

Represent division using exchange on a place value grid.

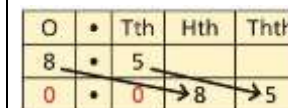


1.5 is 1 one and 5 tenths.  
This is equivalent to 10 tenths and 50 hundredths.  
10 tenths divided by 10 is 1 tenth.  
50 hundredths divided by 10 is 5 hundredths.

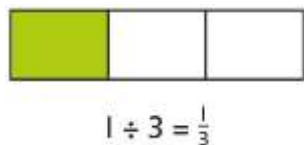
Understand the movement of digits on a place value grid.



$$0.85 \div 10 = 0.085$$

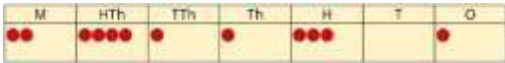
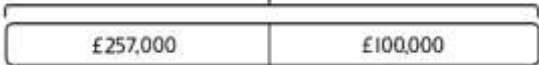


$$8.5 \div 100 = 0.085$$

|                                                                             |                                                                                                                                                                                                                                              |                                                                                                                                                                                               |                                                                                                                                                              |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                             |                                                                                                                                                                                                                                              | <p>1.5 divided by 10 is 1 tenth and 5 hundredths.<br/> <math>1.5 \div 10 = 0.15</math></p>                                                                                                    |                                                                                                                                                              |
| <p><b>Understanding the relationship between fractions and division</b></p> | <p>Use sharing to explore the link between fractions and division.</p> <p><i>1 whole shared between 3 people.<br/> Each person receives one-third.</i></p>  | <p>Use a bar model and other fraction representations to show the link between fractions and division.</p>  | <p>Use the link between division and fractions to calculate divisions.</p> $5 \div 4 = \frac{5}{4} = 1\frac{1}{4}$ $11 \div 4 = \frac{11}{4} = 2\frac{3}{4}$ |

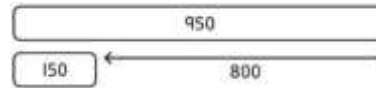
### Year 6

|                                           | Concrete                                                                                                                                                                                                                                                                                                                                      | Pictorial | Abstract |       |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|-------|----|---|---|---|----|------|---|---|-----|--|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|------|--|----|-------|-------|--|-----|-------|----|----|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year 6 Addition                           |                                                                                                                                                                                                                                                                                                                                               |           |          |       |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Comparing and selecting efficient methods | <p>Represent 7-digit numbers on a place value grid, and use this to support thinking and mental methods.</p> <table border="1"><thead><tr><th>M</th><th>HTh</th><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>●●</td><td>●●●●</td><td>●</td><td>●</td><td>●●●</td><td></td><td>●</td></tr></tbody></table> | M         | HTh      | TTh   | Th | H | T | O | ●● | ●●●● | ● | ● | ●●● |  | ● | <p>Discuss similarities and differences between methods, and choose efficient methods based on the specific calculation. Compare written and mental methods alongside place value representations.</p> <div><table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>●●●●</td><td></td><td>●●</td><td>●●●●●</td><td>●●●●●</td></tr><tr><td></td><td>●●●</td><td>●●●●●</td><td>●●</td><td>●●</td></tr></tbody></table><div><table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>4</td><td>0</td><td>2</td><td>6</td><td>5</td></tr><tr><td>+</td><td>3</td><td>5</td><td>2</td><td>2</td></tr><tr><td colspan="5"></td></tr></tbody></table></div></div> | TTh | Th | H | T | O | ●●●● |  | ●● | ●●●●● | ●●●●● |  | ●●● | ●●●●● | ●● | ●● | TTh | Th | H | T | O | 4 | 0 | 2 | 6 | 5 | + | 3 | 5 | 2 | 2 |  |  |  |  |  | <p>Use column addition where mental methods are not efficient. Recognise common errors with column addition.</p> <p>32,145 + 4,302 = ?</p> <div><table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>3</td><td>2</td><td>1</td><td>4</td><td>5</td></tr><tr><td>+</td><td>4</td><td>3</td><td>0</td><td>2</td></tr><tr><td>3</td><td>6</td><td>4</td><td>4</td><td>7</td></tr></tbody></table><table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>3</td><td>2</td><td>1</td><td>4</td><td>5</td></tr><tr><td>+</td><td>4</td><td>3</td><td>0</td><td>2</td></tr><tr><td>7</td><td>5</td><td>1</td><td>6</td><td>5</td></tr></tbody></table></div> <p>Which method has been completed accurately?</p> <p>What mistake has been made?</p> | TTh | Th | H | T | O | 3 | 2 | 1 | 4 | 5 | + | 4 | 3 | 0 | 2 | 3 | 6 | 4 | 4 | 7 | TTh | Th | H | T | O | 3 | 2 | 1 | 4 | 5 | + | 4 | 3 | 0 | 2 | 7 | 5 | 1 | 6 | 5 |
| M                                         | HTh                                                                                                                                                                                                                                                                                                                                           | TTh       | Th       | H     | T  | O |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●●                                        | ●●●●                                                                                                                                                                                                                                                                                                                                          | ●         | ●        | ●●●   |    | ● |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| TTh                                       | Th                                                                                                                                                                                                                                                                                                                                            | H         | T        | O     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●●●●                                      |                                                                                                                                                                                                                                                                                                                                               | ●●        | ●●●●●    | ●●●●● |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           | ●●●                                                                                                                                                                                                                                                                                                                                           | ●●●●●     | ●●       | ●●    |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| TTh                                       | Th                                                                                                                                                                                                                                                                                                                                            | H         | T        | O     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4                                         | 0                                                                                                                                                                                                                                                                                                                                             | 2         | 6        | 5     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| +                                         | 3                                                                                                                                                                                                                                                                                                                                             | 5         | 2        | 2     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           |                                                                                                                                                                                                                                                                                                                                               |           |          |       |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| TTh                                       | Th                                                                                                                                                                                                                                                                                                                                            | H         | T        | O     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3                                         | 2                                                                                                                                                                                                                                                                                                                                             | 1         | 4        | 5     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| +                                         | 4                                                                                                                                                                                                                                                                                                                                             | 3         | 0        | 2     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3                                         | 6                                                                                                                                                                                                                                                                                                                                             | 4         | 4        | 7     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| TTh                                       | Th                                                                                                                                                                                                                                                                                                                                            | H         | T        | O     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3                                         | 2                                                                                                                                                                                                                                                                                                                                             | 1         | 4        | 5     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| +                                         | 4                                                                                                                                                                                                                                                                                                                                             | 3         | 0        | 2     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7                                         | 5                                                                                                                                                                                                                                                                                                                                             | 1         | 6        | 5     |    |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |      |  |    |       |       |  |     |       |    |    |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

|                                                                      |                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                          | Column methods are also used for decimal additions where mental methods are not efficient.<br><br><table border="1"><thead><tr><th></th><th>H</th><th>T</th><th>O</th><th>Tth</th><th>Hth</th></tr></thead><tbody><tr><td></td><td>1</td><td>4</td><td>0</td><td>0</td><td>9</td></tr><tr><td>+</td><td></td><td>4</td><td>9</td><td>8</td><td>9</td></tr><tr><td></td><td>1</td><td>8</td><td>9</td><td>8</td><td>8</td></tr></tbody></table> |     | H   | T | O | Tth | Hth |  | 1 | 4 | 0 | 0 | 9 | + |  | 4 | 9 | 8 | 9 |  | 1 | 8 | 9 | 8 | 8 |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---|---|-----|-----|--|---|---|---|---|---|---|--|---|---|---|---|--|---|---|---|---|---|
|                                                                      | H                                                                                                                                                                                                                                                                                                                                                                            | T                                                                                                                                                                                                                                                                                                                                                                                                                                                          | O                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Tth | Hth |   |   |     |     |  |   |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |
|                                                                      | 1                                                                                                                                                                                                                                                                                                                                                                            | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0   | 9   |   |   |     |     |  |   |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |
| +                                                                    |                                                                                                                                                                                                                                                                                                                                                                              | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8   | 9   |   |   |     |     |  |   |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |
|                                                                      | 1                                                                                                                                                                                                                                                                                                                                                                            | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8   | 8   |   |   |     |     |  |   |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |
| <b>Selecting mental methods for larger numbers where appropriate</b> | <p>Represent 7-digit numbers on a place value grid, and use this to support thinking and mental methods.</p> <br>$2,411,301 + 500,000 = ?$<br><br><i>This would be 5 more counters in the HTh place.</i><br><br><i>So, the total is 2,911,301.</i><br><br>$2,411,301 + 500,000 = 2,911,301$ | <p>Use a bar model to support thinking in addition problems.</p> $257,000 + 99,000 = ?$<br><br><br><i>I added 100 thousands then subtracted 1 thousand.</i><br><br>$257 \text{ thousands} + 100 \text{ thousands} = 357 \text{ thousands}$<br><br>$257,000 + 100,000 = 357,000$<br>$357,000 - 1,000 = 356,000$<br><br><i>So, <math>257,000 + 99,000 = 356,000</math></i> | <p>Use place value and unitising to support mental calculations with larger numbers.</p> $195,000 + 6,000 = ?$<br><br>$195 + 5 + 1 = 201$<br><br>$195 \text{ thousands} + 6 \text{ thousands} = 201 \text{ thousands}$<br><br><i>So, <math>195,000 + 6,000 = 201,000</math></i>                                                                                                                                                                                              |     |     |   |   |     |     |  |   |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |
| <b>Understanding order of operations in calculations</b>             | <p>Use equipment to model different interpretations of a calculation with more than one operation. Explore different results.</p> $3 \times 5 - 2 = ?$                                                                                                                                                                                                                       | <p>Model calculations using a bar model to demonstrate the correct order of operations in multi-step calculations.</p>                                                                                                                                                                                                                                                                                                                                     | <p>Understand the correct order of operations in calculations without brackets.</p><br><br><p>Understand how brackets affect the order of operations in a calculation.</p>                                                                                                                                                                                                                                                                                                   |     |     |   |   |     |     |  |   |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |

|                                           | <p><math>3 \times (5 - 2)</math><br/><math>\downarrow \quad \downarrow</math><br/><math>3 \times 3 = 9</math></p> <p><math>3 \times 5 - 2</math><br/><math>\downarrow \quad \downarrow</math><br/><math>15 - 2 = 13</math></p>                                                | <p>cab<br/>trailer</p> <p>This can be written as: <math>16 \times 4 + 16 \times 6</math></p> <p><math>16 \times 4 + 16 \times 6</math><br/><math>64 + 96 = 160</math></p> | $4 + 6 \times 16$<br>$4 + 96 = 100$<br><br>$(4 + 6) \times 16$<br>$10 \times 16 = 160$ |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----|---|----|--------|--------|--------|--|---|----|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|----|--------|--------|--------|--|---|----|------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year 6 Subtraction                        |                                                                                                                                                                                                                                                                               |                                                                                                                                                                           |                                                                                        |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Comparing and selecting efficient methods | <p>Use counters on a place value grid to represent subtractions of larger numbers.</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><tr><td></td><td>●</td><td>●●</td><td>●●●●</td></tr></table> | Th                                                                                                                                                                        | H                                                                                      | T   | O | ●● | ●●●●●● | ●●●●●● | ●●●●●● |  | ● | ●● | ●●●● | <p>Compare subtraction methods alongside place value representations.</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><tr><td></td><td>●</td><td>●●</td><td>●●●●</td></tr></table> <table><tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td>2</td><td>6</td><td>7</td><td>9</td></tr><tr><td>-</td><td>5</td><td>3</td><td>4</td></tr><tr><td>2</td><td>1</td><td>4</td><td>5</td></tr></table> <p>Use a bar model to represent calculations, including 'find the difference' with two bars as comparison.</p> | Th | H | T | O | ●● | ●●●●●● | ●●●●●● | ●●●●●● |  | ● | ●● | ●●●● | Th | H | T | O | 2 | 6 | 7 | 9 | - | 5 | 3 | 4 | 2 | 1 | 4 | 5 | <p>Compare and select methods. Use column subtraction when mental methods are not efficient. Use two different methods for one calculation as a checking strategy.</p> <table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>1</td><td>5</td><td>5</td><td>8</td></tr><tr><td>-</td><td>1</td><td>5</td><td>8</td></tr><tr><td></td><td>3</td><td>9</td><td>4</td></tr></table> <p>Use column subtraction for decimal problems, including in the context of measure.</p> <table><tr><th>H</th><th>T</th><th>O</th><th>Tth</th><th>Hth</th></tr><tr><td>3</td><td>0</td><td>9</td><td>6</td><td>0</td></tr><tr><td>-</td><td>2</td><td>0</td><td>6</td><td>4</td></tr><tr><td>1</td><td>0</td><td>3</td><td>2</td><td>0</td></tr></table> | Th | H | T | O | 1 | 5 | 5 | 8 | - | 1 | 5 | 8 |  | 3 | 9 | 4 | H | T | O | Tth | Hth | 3 | 0 | 9 | 6 | 0 | - | 2 | 0 | 6 | 4 | 1 | 0 | 3 | 2 | 0 |
| Th                                        | H                                                                                                                                                                                                                                                                             | T                                                                                                                                                                         | O                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●●                                        | ●●●●●●                                                                                                                                                                                                                                                                        | ●●●●●●                                                                                                                                                                    | ●●●●●●                                                                                 |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           | ●                                                                                                                                                                                                                                                                             | ●●                                                                                                                                                                        | ●●●●                                                                                   |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Th                                        | H                                                                                                                                                                                                                                                                             | T                                                                                                                                                                         | O                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●●                                        | ●●●●●●                                                                                                                                                                                                                                                                        | ●●●●●●                                                                                                                                                                    | ●●●●●●                                                                                 |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           | ●                                                                                                                                                                                                                                                                             | ●●                                                                                                                                                                        | ●●●●                                                                                   |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Th                                        | H                                                                                                                                                                                                                                                                             | T                                                                                                                                                                         | O                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2                                         | 6                                                                                                                                                                                                                                                                             | 7                                                                                                                                                                         | 9                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -                                         | 5                                                                                                                                                                                                                                                                             | 3                                                                                                                                                                         | 4                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2                                         | 1                                                                                                                                                                                                                                                                             | 4                                                                                                                                                                         | 5                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Th                                        | H                                                                                                                                                                                                                                                                             | T                                                                                                                                                                         | O                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                                         | 5                                                                                                                                                                                                                                                                             | 5                                                                                                                                                                         | 8                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -                                         | 1                                                                                                                                                                                                                                                                             | 5                                                                                                                                                                         | 8                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           | 3                                                                                                                                                                                                                                                                             | 9                                                                                                                                                                         | 4                                                                                      |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| H                                         | T                                                                                                                                                                                                                                                                             | O                                                                                                                                                                         | Tth                                                                                    | Hth |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3                                         | 0                                                                                                                                                                                                                                                                             | 9                                                                                                                                                                         | 6                                                                                      | 0   |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -                                         | 2                                                                                                                                                                                                                                                                             | 0                                                                                                                                                                         | 6                                                                                      | 4   |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                                         | 0                                                                                                                                                                                                                                                                             | 3                                                                                                                                                                         | 2                                                                                      | 0   |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Subtracting mentally with larger numbers  |                                                                                                                                                                                                                                                                               | <p>Use a bar model to show how unitising can support mental calculations.</p>                                                                                             | <p>Subtract efficiently from powers of 10.</p> <p><math>10,000 - 500 = ?</math></p>    |     |   |    |        |        |        |  |   |    |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |   |    |        |        |        |  |   |    |      |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

$950,000 - 150,000$   
That is 950 thousands – 150 thousands

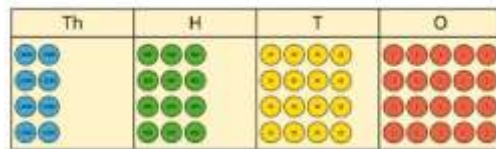


So, the difference is 800 thousands.  
 $950,000 - 150,000 = 800,000$

## Year 6 Multiplication

**Multiplying up to a 4-digit number by a single digit number**

Use equipment to explore multiplications.



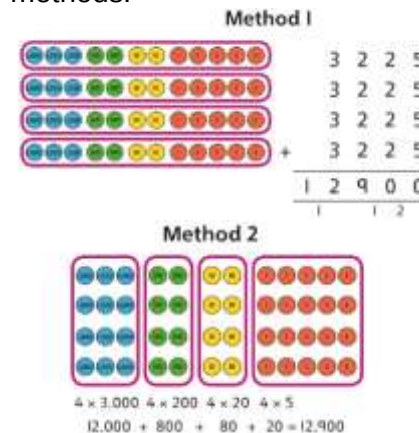
4 groups of 2,345

This is a multiplication:

$$4 \times 2,345$$

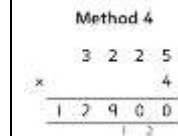
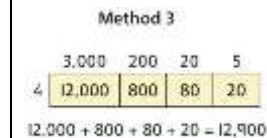
$$2,345 \times 4$$

Use place value equipment to compare methods.



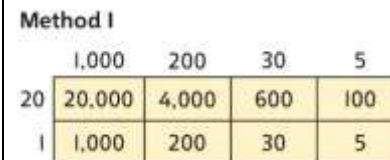
Understand area model and short multiplication.

Compare and select appropriate methods for specific multiplications.

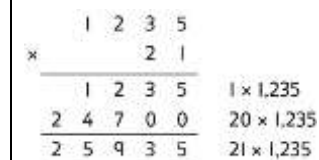


**Multiplying up to a 4-digit number by a 2-digit number**

Use an area model alongside written multiplication.



Use compact column multiplication with understanding of place value at all stages.



|   |   |   |   |   |            |
|---|---|---|---|---|------------|
|   | 1 | 2 | 3 | 5 |            |
| x |   |   | 2 | 1 |            |
|   |   |   | 5 |   | 1 × 5      |
|   |   | 3 | 0 |   | 1 × 30     |
|   | 2 | 0 | 0 |   | 1 × 200    |
|   | 1 | 0 | 0 | 0 | 1 × 1,000  |
|   | 1 | 0 | 0 |   | 20 × 5     |
|   | 6 | 0 | 0 |   | 20 × 30    |
|   | 4 | 0 | 0 | 0 | 20 × 200   |
|   | 2 | 0 | 0 | 0 | 20 × 1,000 |
|   | 2 | 5 | 9 | 3 | 5          |
|   |   |   |   |   | 21 × 1,235 |

**Using knowledge of factors and partitions to compare methods for multiplications**

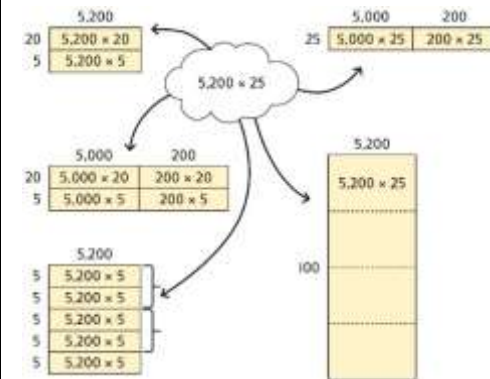
Use equipment to understand square numbers and cube numbers.



$$5 \times 5 = 5^2 = 25$$

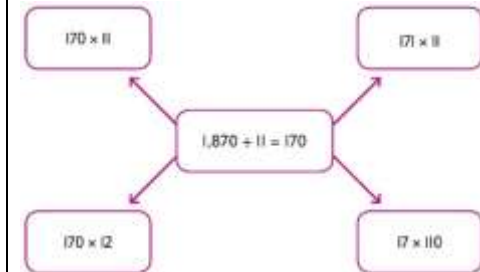
$$5 \times 5 \times 5 = 5^3 = 25 \times 5 = 125$$

Compare methods visually using an area model. Understand that multiple approaches will produce the same answer if completed accurately.



Represent and compare methods using a bar model.

Use a known fact to generate families of related facts.



Use factors to calculate efficiently.

$$15 \times 16$$

$$= 3 \times 5 \times 2 \times 8$$

$$= 3 \times 8 \times 2 \times 5$$

$$= 24 \times 10$$

$$= 240$$

**Multiplying by 10, 100 and 1,000**

Use place value equipment to explore exchange in decimal multiplication.

Understand how the exchange affects decimal numbers on a place value grid.

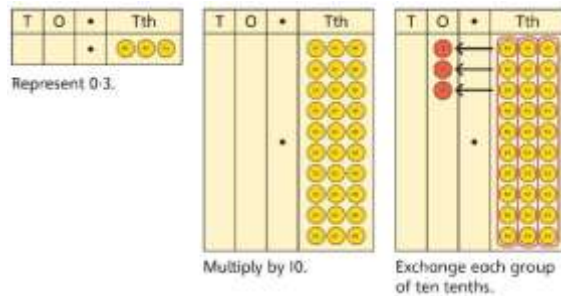
Use knowledge of multiplying by 10, 100 and 1,000 to multiply by multiples of 10, 100 and 1,000.

$$8 \times 100 = 800$$

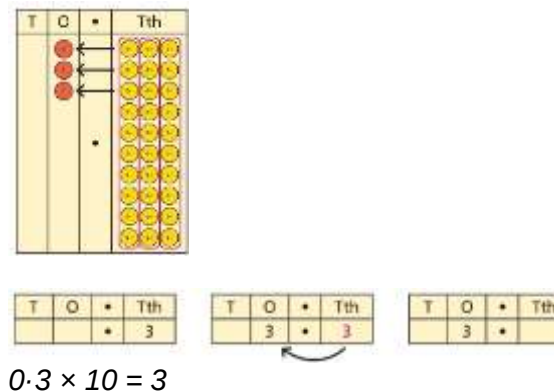
$$8 \times 300 = 800 \times 3$$

$$= 2,400$$

$$2.5 \times 10 = 25$$



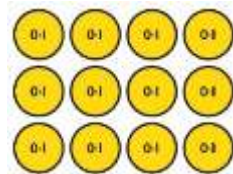
$0.3 \times 10 = ?$   
 $0.3$  is 3 tenths.  
 $10 \times 3$  tenths are 30 tenths.  
 30 tenths are equivalent to 3 ones.



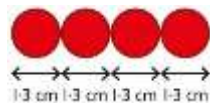
$$2.5 \times 20 = 2.5 \times 10 \times 2 = 50$$

## Multiplying decimals

Explore decimal multiplications using place value equipment and in the context of measures.



3 groups of 4 tenths is 12 tenths.  
 4 groups of 3 tenths is 12 tenths.



$$4 \times 1 \text{ cm} = 4 \text{ cm}$$

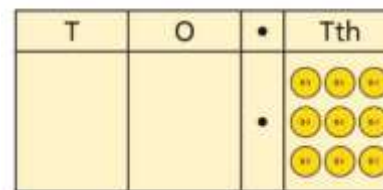
$$4 \times 0.3 \text{ cm} = 1.2 \text{ cm}$$

$$4 \times 1.3 = 4 + 1.2 = 5.2 \text{ cm}$$

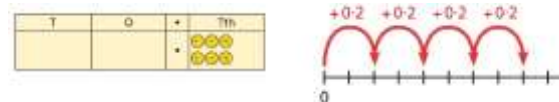
Represent calculations on a place value grid.

$$3 \times 3 = 9$$

$$3 \times 0.3 = 0.9$$



Understand the link between multiplying decimals and repeated addition.



Use known facts to multiply decimals.

$$4 \times 3 = 12$$

$$4 \times 0.3 = 1.2$$

$$4 \times 0.03 = 0.12$$

$$20 \times 5 = 100$$

$$20 \times 0.5 = 10$$

$$20 \times 0.05 = 1$$

Find families of facts from a known multiplication.

I know that  $18 \times 4 = 72$ .

This can help me work out:

$$1.8 \times 4 = ?$$

$$18 \times 0.4 = ?$$

$$180 \times 0.4 = ?$$

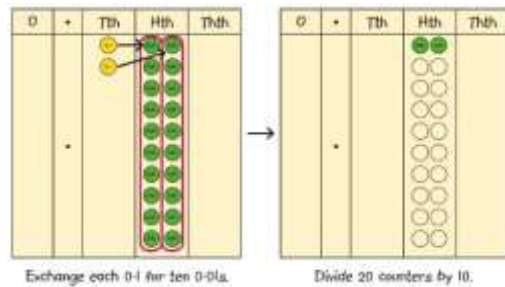
$$18 \times 0.04 = ?$$

Use a place value grid to understand the effects of multiplying decimals.

|                               |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         | <table><tr><th>H</th><th>T</th><th>O</th><th>•</th><th>Tth</th><th>Hth</th></tr><tr><td></td><td></td><td>6</td><td>•</td><td></td><td></td></tr><tr><td></td><td></td><td>0</td><td>•</td><td>6</td><td></td></tr><tr><td></td><td></td><td></td><td>•</td><td></td><td></td></tr></table> <div><math>2 \times 3</math></div> <div><math>0.2 \times 3</math></div> <div><math>0.02 \times 3</math></div>                                                                                                                                                                                                                                                                                                                                         | H   | T   | O  | •  | Tth | Hth |   |   | 6 | •  |    |    |    |    | 0  | •  | 6  |    |    |    |    | •  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----|----|-----|-----|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| H                             | T                                                                                                                                                                                                                                             | O                                                                                                                                                                                                                                                                                                                                                                       | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Tth | Hth |    |    |     |     |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                               |                                                                                                                                                                                                                                               | 6                                                                                                                                                                                                                                                                                                                                                                       | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |     |    |    |     |     |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                               |                                                                                                                                                                                                                                               | 0                                                                                                                                                                                                                                                                                                                                                                       | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6   |     |    |    |     |     |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                               |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |     |    |    |     |     |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Year 6<br>Division            |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |    |    |     |     |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Understanding<br>factors      | <p>Use equipment to explore different factors of a number.</p> <div><div><p><math>24 \div 4 = 6</math></p></div><div><p><math>30 \div 4 = 7 \text{ remainder } 2</math></p></div></div> <p>4 is a factor of 24 but is not a factor of 30.</p> | <p>Recognise prime numbers as numbers having exactly two factors. Understand the link with division and remainders.</p> <div><div><p><math>17 \div 2 = 8 \text{ r } 1</math></p></div><div><p><math>17 \div 3 = 5 \text{ r } 2</math></p></div><div><p><math>17 \div 4 = 4 \text{ r } 1</math></p></div><div><p><math>17 \div 5 = 3 \text{ r } 2</math></p></div></div> | <p>Recognise and know primes up to 100. Understand that 2 is the only even prime, and that 1 is not a prime number.</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><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 |
| 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  |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Dividing by a<br>single digit | <p>Use equipment to make groups from a total.</p> <div><p>There are 78 in total.<br/>There are 6 groups of 13.<br/>There are 13 groups of 6.</p></div>                                                                                        | <div><div><p>How many groups of 6 are in 100?</p><div><math>6 \overline{) 100}</math></div></div><div><p>How many groups of 6 are in 13 tens?</p><div><math>6 \overline{) 130}</math></div></div><div><p>How many groups of 6 are in 12 ones?</p><div><math>6 \overline{) 12}</math></div></div></div>                                                                  | <p>Use short division to divide by a single digit.</p> <div><div><math>6 \overline{) 100}</math></div><div><math>6 \overline{) 130}</math></div><div><math>6 \overline{) 12}</math></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |    |    |     |     |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

|                                                         |                                                                                                                          |                                                                                                                                                                                                   |                                                                                                                                                                                                                     |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                         |                                                                                                                          |                                                                                                                                                                                                   | <p>Use an area model to link multiplication and division.</p>                                                                                                                                                       |
| <b>Dividing by a 2-digit number using factors</b>       | <p>Understand that division by factors can be used when dividing by a number that is not prime.</p>                      | <p>Use factors and repeated division.</p> <p><math>1,260 \div 14 = ?</math></p> <p><math>1,260 \div 2 = 630</math></p> <p><math>630 \div 7 = 90</math></p> <p><math>1,260 \div 14 = 90</math></p> | <p>Use factors and repeated division where appropriate.</p> <p><math>2,100 \div 12 = ?</math></p>                                                                                                                   |
| <b>Dividing by a 2-digit number using long division</b> | <p>Use equipment to build numbers from groups.</p> <p><i>182 divided into groups of 13.<br/>There are 14 groups.</i></p> | <p>Use an area model alongside written division to model the process.</p> <p><math>377 \div 13 = ?</math></p> <p><math>377 \div 13 = 29</math></p>                                                | <p>Use long division where factors are not useful (for example, when dividing by a 2-digit prime number).<br/>Write the required multiples to support the division process.</p> <p><math>377 \div 13 = ?</math></p> |

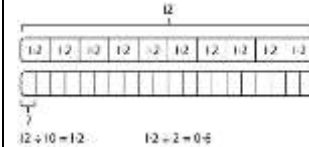
|                                                                                                          |                                                                                                                                |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                          |                                                                                                                                |                                                                                                                                                                                                                                                                                                   | <div> <math display="block">  \begin{array}{r}  13 \overline{) 377} \\  - 130 \quad 10 \\  \hline  247 \\  - 130 \quad 10 \\  \hline  117 \\  - 117 \quad 9 \\  \hline  0 \quad 29  \end{array}  </math> </div> <div> <math display="block">377 \div 13 = 29</math> </div> <div> <p>A slightly different layout may be used, with the division completed above rather than at the side.</p> </div> <div> <math display="block">  \begin{array}{r}  3 \\  21 \overline{) 798} \\  - 630 \\  \hline  168  \end{array}  </math> </div> <div> <math display="block">  \begin{array}{r}  38 \\  21 \overline{) 798} \\  - 630 \\  \hline  168 \\  - 168 \\  \hline  0  \end{array}  </math> </div> <div> <p>Divisions with a remainder explored in problem-solving contexts.</p> </div> |
| <div> <p><b>Dividing by 10, 100 and 1,000</b></p> </div> | <div> <p>Use place value equipment to explore division as exchange.</p> </div> | <div> <p>Represent division to show the relationship with multiplication. Understand the effect of dividing by 10, 100 and 1,000 on the digits on a place value grid.</p> </div> <div> </div> | <div> <p>Use knowledge of factors to divide by multiples of 10, 100 and 1,000.</p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



$0.2$  is 2 tenths.  
 2 tenths is equivalent to 20 hundredths.  
 20 hundredths divided by 10 is 2 hundredths.

Understand how to divide using division by 10, 100 and 1,000.

$$12 \div 20 = ?$$



$$40 \div 50 = \square$$

$$40 \rightarrow \boxed{\div 10} \rightarrow \boxed{\div 5} \rightarrow ?$$

$$40 \rightarrow \boxed{\div 5} \rightarrow \boxed{\div 10} \rightarrow ?$$

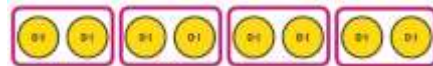
$$40 \div 5 = 8$$

$$8 \div 10 = 0.8$$

$$\text{So, } 40 \div 50 = 0.8$$

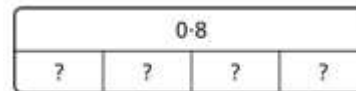
## Dividing decimals

Use place value equipment to explore division of decimals.



8 tenths divided into 4 groups. 2 tenths in each group.

Use a bar model to represent divisions.



$$4 \times 2 = 8$$

$$8 \div 4 = 2$$

$$\text{So, } 4 \times 0.2 = 0.8$$

$$0.8 \div 4 = 0.2$$

Use short division to divide decimals with up to 2 decimal places.

$$\begin{array}{r} 8 \overline{) 4.24} \\ 0 \end{array}$$

$$\begin{array}{r} 8 \overline{) 4.24} \\ 4 \phantom{0} \phantom{0} \phantom{0} \end{array}$$

$$\begin{array}{r} 8 \overline{) 4.24} \\ 4 \phantom{0} \phantom{0} \phantom{0} \end{array}$$

$$\begin{array}{r} 8 \overline{) 4.24} \\ 4 \phantom{0} \phantom{0} \phantom{0} \end{array}$$

$$\begin{array}{r} 8 \overline{) 4.24} \\ 4 \phantom{0} \phantom{0} \phantom{0} \end{array}$$

$$\begin{array}{r} 8 \overline{) 4.24} \\ 4 \phantom{0} \phantom{0} \phantom{0} \end{array}$$

$$\begin{array}{r} 8 \overline{) 4.24} \\ 4 \phantom{0} \phantom{0} \phantom{0} \end{array}$$