



# Hilton Spencer Academy

## ***Power Maths White Rose Edition 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.

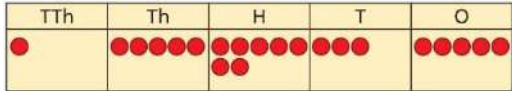
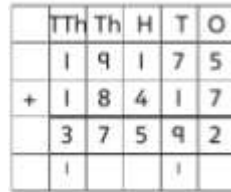
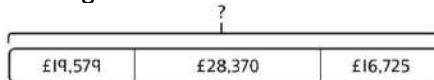
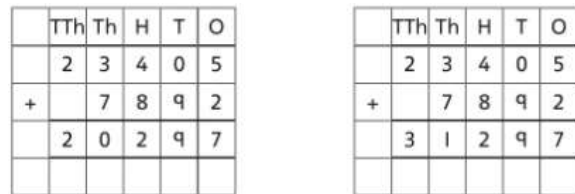
Written division methods are introduced and adapted for division by single-digit and 2-digit numbers and are understood alongside the area model and place value. In Year 6, children develop a secure understanding of how division is related to fractions.

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>  | <p>Use column addition, including exchanges.</p>                                                                                    |
| <b>Representing additions</b>             |                                                                                                                                                                                                                                              | <p>Bar models represent addition of two or more numbers in the context of problem solving.</p>                                                                                                                                                 | <p>Use approximation to check whether answers are reasonable.</p>  <p><i>I will use <math>23,000 + 8,000</math> to check.</i></p> |

|                                              |                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                             |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
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|                                              |                                                                                                                                                                                             | <div><div>Jen<div>£2,600</div></div><div>Holly<div>£2,600</div><div>£1,450</div></div><div>£4,050</div></div> <div><table><tr><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>2</td><td>6</td><td>0</td><td>0</td></tr><tr><td>+</td><td>1</td><td>4</td><td>5</td><td>0</td></tr><tr><td></td><td>4</td><td>0</td><td>5</td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table><table><tr><td></td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>2</td><td>6</td><td>0</td><td>0</td></tr><tr><td>+</td><td>4</td><td>0</td><td>5</td><td>0</td></tr><tr><td></td><td>6</td><td>6</td><td>5</td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></div> |                                                                                                                                                                                                                                                                             | Th | H | T | O |  | 2 | 6 | 0 | 0 | + | 1 | 4 | 5 | 0 |  | 4 | 0 | 5 | 0 |  |  |  |  |  |  | Th | H | T | O |  | 2 | 6 | 0 | 0 | + | 4 | 0 | 5 | 0 |  | 6 | 6 | 5 | 0 |  |  |  |  |  |  |
|                                              | Th                                                                                                                                                                                          | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                                                           | O  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
|                                              | 2                                                                                                                                                                                           | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                                                                                                                                                                                                                           | 0  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
| +                                            | 1                                                                                                                                                                                           | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5                                                                                                                                                                                                                                                                           | 0  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
|                                              | 4                                                                                                                                                                                           | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5                                                                                                                                                                                                                                                                           | 0  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
|                                              |                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                             |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
|                                              | Th                                                                                                                                                                                          | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | T                                                                                                                                                                                                                                                                           | O  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
|                                              | 2                                                                                                                                                                                           | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                                                                                                                                                                                                                           | 0  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
| +                                            | 4                                                                                                                                                                                           | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5                                                                                                                                                                                                                                                                           | 0  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
|                                              | 6                                                                                                                                                                                           | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5                                                                                                                                                                                                                                                                           | 0  |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
|                                              |                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                             |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
| <b>Adding tenths</b>                         | <p>Link measure with addition of decimals.</p> <p>Two lengths of fencing are 0.6 m and 0.2 m.</p> <p>How long are they when added together?</p> <div><div>0.6 m</div><div>0.2 m</div></div> | <p>Use a bar model with a number line to add tenths.</p> <div><div>0.6 m</div><div>0.2 m</div></div> <div><div>0.1 m</div><div>0.1 m</div><div>0.1 m</div><div>0.1 m</div><div>0.1 m</div><div>0.1 m</div><div>0.1 m</div><div>0.1 m</div></div> <div><div>0</div><div>0.1</div><div>0.2</div><div>0.3</div><div>0.4</div><div>0.5</div><div>0.6</div><div>0.7</div><div>0.8</div><div>0.9</div><div>1</div></div> <div><div>0.6 + 0.2 = 0.8</div><div>6 tenths + 2 tenths = 8 tenths</div></div>                                                                                                                                                                                                                                                       | <p>Understand the link with adding fractions.</p> <div><div>6</div><div>2</div><div>8</div></div> <div><div>10</div><div>10</div><div>10</div></div> <div><div>6 tenths + 2 tenths = 8 tenths</div><div>0.6 + 0.2 = 0.8</div></div>                                         |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |
| <b>Adding decimals using column addition</b> | <p>Use place value equipment to represent additions.</p> <p>Show 0.23 + 0.45 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>Add using a column method, ensuring that children understand the link with place value.</p> <div><div>O · Tth Hth</div><div>0 · 2 3</div><div>+ 0 · 4 5</div><div>0 · 6 8</div></div> <p>Include exchange where required, alongside an understanding of place value.</p> |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |    |   |   |   |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |

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|                                       |                                                                                                                                                              | <table><tr><td>O</td><td>•</td><td>Tth</td><td>Hth</td></tr><tr><td></td><td>•</td><td><div><div>0.92</div></div></td><td><div><div>0.33</div></div></td></tr><tr><td></td><td>•</td><td><div><div>1.25</div></div></td><td><div><div>0.33</div></div></td></tr></table> <p>Include examples where the numbers of decimal places are different.</p> <table><tr><td>O</td><td>•</td><td>Tth</td><td>Hth</td></tr><tr><td><div><div>5.25</div></div></td><td>•</td><td><div><div>1.25</div></div></td><td><div><div>6.25</div></div></td></tr></table> <div><div><div>O · Tth Hth</div><div>0 · 9 2</div><div>+ 0 · 3 3</div><div>1 · 2 5</div><div>1</div></div><div><div>O · Tth Hth</div><div>5 · 0 0</div><div>+ 1 · 2 5</div><div>6 · 2 5</div></div></div>                                                                                                                     | O                          | •  | Tth | Hth |   | •                            | <div><div>0.92</div></div>  | <div><div>0.33</div></div> |  | • | <div><div>1.25</div></div> | <div><div>0.33</div></div> | O | • | Tth | Hth                          | <div><div>5.25</div></div>  | • | <div><div>1.25</div></div> | <div><div>6.25</div></div> | <div><div><div>O · Tth Hth</div><div>0 · 9 2</div><div>+ 0 · 3 3</div><div>1 · 2 5</div><div>1</div></div><div><div>O · Tth Hth</div><div>3 · 4 0</div><div>+ 0 · 6 5</div><div>4 · 0 5</div></div></div> <p>Include additions where the numbers of decimal places are different.</p> <p>3.4 + 0.65 = ?</p> <div><div><div>O · Tth Hth</div><div>3 · 4 0</div><div>+ 0 · 6 5</div><div>4 · 0 5</div></div></div> |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| O                                     | •                                                                                                                                                            | Tth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Hth                        |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                       | •                                                                                                                                                            | <div><div>0.92</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div><div>0.33</div></div> |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                       | •                                                                                                                                                            | <div><div>1.25</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div><div>0.33</div></div> |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| O                                     | •                                                                                                                                                            | Tth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Hth                        |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <div><div>5.25</div></div>            | •                                                                                                                                                            | <div><div>1.25</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div><div>6.25</div></div> |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Year 5 Subtraction                    |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Column subtraction with whole numbers | <p>Use place value equipment to understand where exchanges are required.</p> <p>2,250 – 1,070 = ?</p> <div><div><div>2,250</div><div>1,070</div></div></div> | <p>Represent the stages of the calculation using place value equipment on a grid alongside the calculation, including exchanges where required.</p> <p>15,735 – 2,582 = 13,153</p> <table><tr><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td><div><div>15,735</div></div></td><td><div><div>2,582</div></div></td><td></td><td></td><td></td></tr></table> <p>Now subtract the 10s.<br/>Exchange 1 hundred for 10 tens.</p> <table><tr><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td><div><div>15,735</div></div></td><td><div><div>2,582</div></div></td><td></td><td></td><td></td></tr></table> <p>Subtract the 100s, 1,000s and 10,000s.</p> <table><tr><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td><div><div>15,735</div></div></td><td><div><div>2,582</div></div></td><td></td><td></td><td></td></tr></table> | TTh                        | Th | H   | T   | O | <div><div>15,735</div></div> | <div><div>2,582</div></div> |                            |  |   | TTh                        | Th                         | H | T | O   | <div><div>15,735</div></div> | <div><div>2,582</div></div> |   |                            |                            | TTh                                                                                                                                                                                                                                                                                                                                                                                                              | Th | H | T | O | <div><div>15,735</div></div> | <div><div>2,582</div></div> |  |  |  | <p>Use column subtraction methods with exchange where required.</p> <table><tr><td></td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td><div><div>62,597</div></div></td><td><div><div>18,034</div></div></td><td></td><td></td><td></td></tr><tr><td>-</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p>62,597 – 18,034 = 44,563</p> |  | TTh | Th | H | T | O |  | <div><div>62,597</div></div> | <div><div>18,034</div></div> |  |  |  | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TTh                                   | Th                                                                                                                                                           | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | T                          | O  |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <div><div>15,735</div></div>          | <div><div>2,582</div></div>                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TTh                                   | Th                                                                                                                                                           | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | T                          | O  |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <div><div>15,735</div></div>          | <div><div>2,582</div></div>                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TTh                                   | Th                                                                                                                                                           | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | T                          | O  |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <div><div>15,735</div></div>          | <div><div>2,582</div></div>                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                       | TTh                                                                                                                                                          | Th                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | H                          | T  | O   |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                       | <div><div>62,597</div></div>                                                                                                                                 | <div><div>18,034</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -                                     |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                       |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                       |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |    |     |     |   |                              |                             |                            |  |   |                            |                            |   |   |     |                              |                             |   |                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |   |                              |                             |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |     |    |   |   |   |  |                              |                              |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

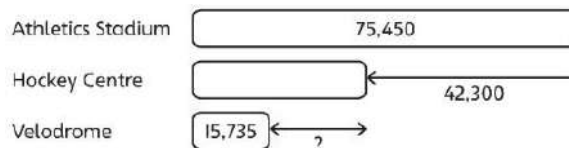
|   | T | Th | H | T | O |
|---|---|----|---|---|---|
|   | 1 | 5  | 7 | 3 | 5 |
| - |   | 2  | 5 | 8 | 2 |
|   |   |    |   |   | 3 |
|   |   |    |   |   |   |

|   | T | Th | H            | T | O |
|---|---|----|--------------|---|---|
|   | 1 | 5  | <del>7</del> | 3 | 5 |
| - |   | 2  | 5            | 8 | 2 |
|   |   |    |              | 5 | 3 |
|   |   |    |              |   |   |

|   | T | Th | H            | T | O |
|---|---|----|--------------|---|---|
|   | 1 | 5  | <del>7</del> | 3 | 5 |
| - |   | 2  | 5            | 8 | 2 |
|   | 1 | 3  | 1            | 5 | 3 |
|   |   |    |              |   |   |

### Checking strategies and representing subtractions

Bar models represent subtractions in problem contexts, including 'find the difference'.



Children can explain the mistake made when the columns have not been ordered correctly.

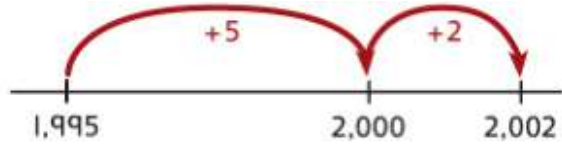
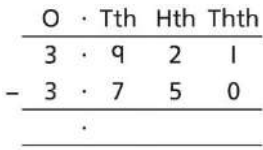
Use approximation to check calculations.

Bella's working

|   | T | Th | H | T | O |
|---|---|----|---|---|---|
|   | 1 | 7  | 8 | 7 | 7 |
| + | 4 | 0  | 1 | 2 |   |
|   | 5 | 7  | 9 | 9 | 7 |
|   |   |    |   |   |   |

Correct method

|   | T | Th | H | T | O |
|---|---|----|---|---|---|
|   | 1 | 7  | 8 | 7 | 7 |
| + |   | 4  | 0 | 1 | 2 |
|   | 2 | 1  | 8 | 8 | 9 |
|   |   |    |   |   |   |

|                                   |                                                                                                                                                                                                                                                                   |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                                                                                                                                                                                                                                                                   |                                                                                                                                                      | <p><i>I calculated <math>18,000 + 4,000</math> mentally to check my subtraction.</i></p>                                                                                                                                                                                                                                                                                  |
| <b>Choosing efficient methods</b> |                                                                                                                                                                                                                                                                   |                                                                                                                                                      | <p>To subtract two large numbers that are close, children find the difference by counting on.</p> <p><math>2,002 - 1,995 = ?</math></p>  <p>Use addition to check subtractions.</p> <p><i>I calculated <math>7,546 - 2,355 = 5,191</math>.<br/>I will check using the inverse.</i></p> |
| <b>Subtracting decimals</b>       | <p>Explore complements to a whole number by working in the context of length.</p>  <p>1 m - <input type="text"/> m = <input type="text"/> m</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>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>                                                                                                    |

| O                          | Tth                        | Hth                        |
|----------------------------|----------------------------|----------------------------|
| 5<br>•<br>•<br>•<br>•<br>• | 7<br>•<br>•<br>•<br>•<br>• | 4<br>•<br>•<br>•<br>•<br>• |

Exchange 1 tenth for 10 hundredths.

| O                          | Tth                        | Hth                        |
|----------------------------|----------------------------|----------------------------|
| 5<br>•<br>•<br>•<br>•<br>• | 7<br>•<br>•<br>•<br>•<br>• | 4<br>•<br>•<br>•<br>•<br>• |

Now subtract the 5 hundredths.

| O                          | Tth                        | Hth                        |
|----------------------------|----------------------------|----------------------------|
| 5<br>•<br>•<br>•<br>•<br>• | 7<br>•<br>•<br>•<br>•<br>• | 4<br>•<br>•<br>•<br>•<br>• |

Now subtract the 2 tenths, then the 2 ones.

| O                          | Tth                        | Hth                        |
|----------------------------|----------------------------|----------------------------|
| 5<br>•<br>•<br>•<br>•<br>• | 7<br>•<br>•<br>•<br>•<br>• | 4<br>•<br>•<br>•<br>•<br>• |

$$\begin{array}{r} 5 \cdot 7 \cdot 4 \\ - 2 \cdot 2 \cdot 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \cdot 7 \cdot 4 \\ - 2 \cdot 2 \cdot 5 \\ \hline 3 \cdot 4 \cdot 9 \end{array}$$

$$\begin{array}{r} 5 \cdot 7 \cdot 4 \\ - 2 \cdot 2 \cdot 5 \\ \hline 3 \cdot 4 \cdot 9 \end{array}$$

## Year 5 Multiplication

### Understanding factors

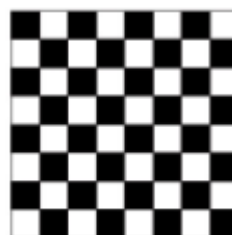
Use cubes or counters to explore the meaning of 'square numbers'.

25 is a square number because it is made from 5 rows of 5.



Use cubes to explore cube numbers.

Use images to explore examples and non-examples of square numbers.

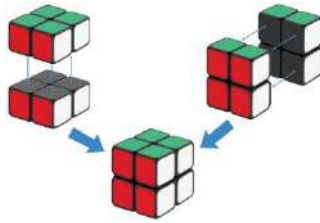
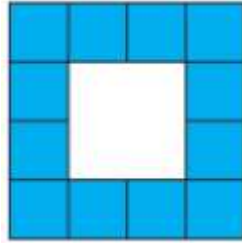
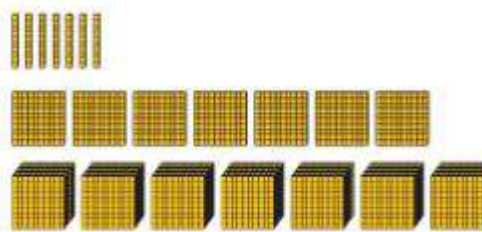
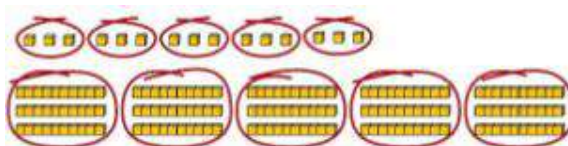


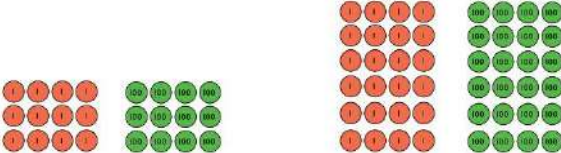
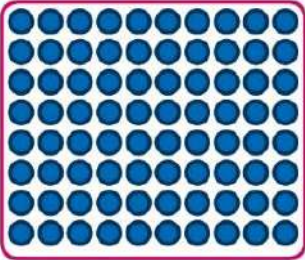
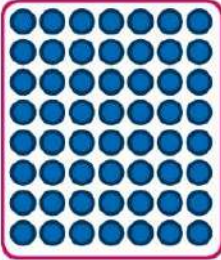
$$8 \times 8 = 64$$

$$8^2 = 64$$

Understand the pattern of square numbers in the multiplication tables.

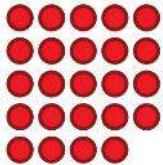
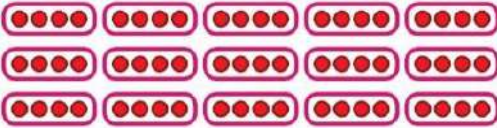
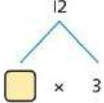
Use a multiplication grid to circle each square number. Can children spot a pattern?

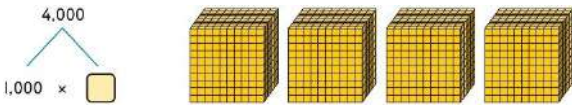
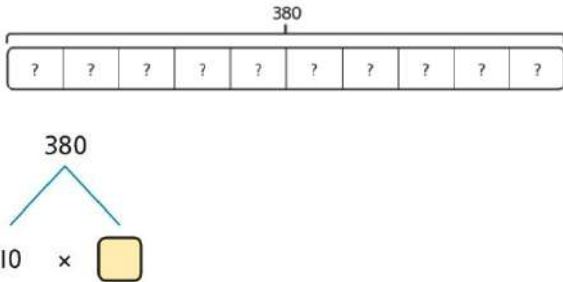
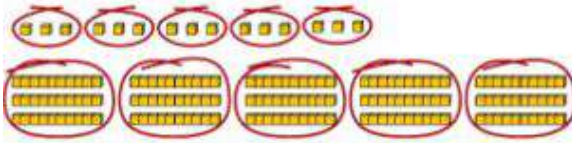
|                                                      |  <p>8 is a cube number.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  <p>12 is not a square number, because you cannot multiply a whole number by itself to make 12.</p> |                                                                                                                                                                                                                  |                                     |                                                                                   |                                           |                                                                                   |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |  |   |   |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--|---|---|
| <b>Multiplying by 10, 100 and 1,000</b>              | <p>Use place value equipment to multiply by 10, 100 and 1,000 by unitising.</p> <table border="1"><tr><td><math>4 \times 1 = 4 \text{ ones} = 4</math></td><td></td></tr><tr><td><math>4 \times 10 = 4 \text{ tens} = 40</math></td><td></td></tr><tr><td><math>4 \times 100 = 4 \text{ hundreds} = 400</math></td><td></td></tr></table> | $4 \times 1 = 4 \text{ ones} = 4$                                                                                                                                                     |                                                                                                                                 | $4 \times 10 = 4 \text{ tens} = 40$ |  | $4 \times 100 = 4 \text{ hundreds} = 400$ |  | <p>Understand the effect of repeated multiplication by 10.</p>  <p><math>7 \times 10 = 70</math></p> <p><math>7 \times 100 = 7,000</math></p> <p><math>7 \times 1,000 = 70,000</math></p> | <p>Understand how exchange relates to the digits when multiplying by 10, 100 and 1,000.</p> <table border="1"><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>I</td><td>7</td></tr></table> <p><math>17 \times 10 = 170</math></p> <p><math>17 \times 100 = 17 \times 10 \times 10 = 1,700</math></p> <p><math>17 \times 1,000 = 17 \times 10 \times 10 \times 10 = 17,000</math></p> | H | T | O |  | I | 7 |
| $4 \times 1 = 4 \text{ ones} = 4$                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                       |                                                                                                                                                                                                                  |                                     |                                                                                   |                                           |                                                                                   |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |  |   |   |
| $4 \times 10 = 4 \text{ tens} = 40$                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                       |                                                                                                                                                                                                                  |                                     |                                                                                   |                                           |                                                                                   |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |  |   |   |
| $4 \times 100 = 4 \text{ hundreds} = 400$            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                       |                                                                                                                                                                                                                  |                                     |                                                                                   |                                           |                                                                                   |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |  |   |   |
| H                                                    | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | O                                                                                                                                                                                     |                                                                                                                                                                                                                  |                                     |                                                                                   |                                           |                                                                                   |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |  |   |   |
|                                                      | I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7                                                                                                                                                                                     |                                                                                                                                                                                                                  |                                     |                                                                                   |                                           |                                                                                   |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |  |   |   |
| <b>Multiplying by multiples of 10, 100 and 1,000</b> | <p>Use place value equipment to explore multiplying by unitising.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Use place value equipment to represent how to multiply by multiples of 10, 100 and 1,000.</p>                                                                                      | <p>Use known facts and unitising to multiply.</p> <p><math>5 \times 4 = 20</math></p> <p><math>5 \times 40 = 200</math></p> <p><math>5 \times 400 = 2,000</math></p> <p><math>5 \times 4,000 = 20,000</math></p> |                                     |                                                                                   |                                           |                                                                                   |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |   |  |   |   |

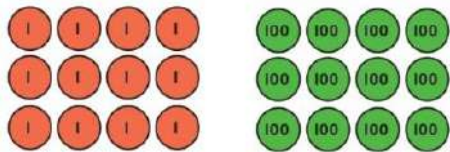
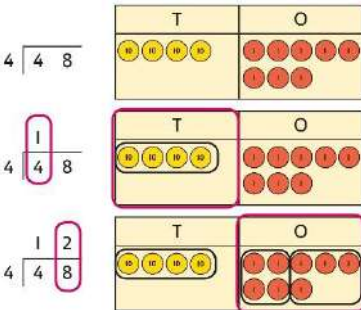
|                                                            | <p>5 groups of 3 ones is 15 ones.<br/>5 groups of 3 tens is 15 tens.</p> <p>So, I know that 5 groups of 3 thousands would be 15 thousands.</p>                                                                                                                                                                                                                                                                                                             | <div><div></div><div><math>4 \times 3 = 12</math><br/><math>4 \times 300 = 1,200</math></div><div><math>6 \times 4 = 24</math><br/><math>6 \times 400 = 2,400</math></div></div>                                                                                                                      | $5,000 \times 4 = 20,000$                                                              |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----|----|---|---|----------------------|---------------------|-------------------|
| <b>Multiplying up to 4-digit numbers by a single digit</b> | <p>Explore how to use partitioning to multiply efficiently.</p> <p><math>8 \times 17 = ?</math></p> <div><div><p><math>8 \times 10 = 80</math></p></div><div><p><math>8 \times 7 = 56</math></p></div></div> <p><math>80 + 56 = 136</math></p> <p>So, <math>8 \times 17 = 136</math></p> | <p>Represent multiplications using place value equipment and add the 1s, then 10s, then 100s, then 1,000s.</p> <table><thead><tr><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></tbody></table> | H                                                                                      | T | O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <p>Use an area model and then add the parts.</p> <table><thead><tr><th></th><th>100</th><th>60</th><th>3</th></tr></thead><tbody><tr><td>5</td><td><math>100 \times 5 = 500</math></td><td><math>60 \times 5 = 300</math></td><td><math>3 \times 5 = 15</math></td></tr></tbody></table> <p>Use a column multiplication, including any required exchanges.</p> $\begin{array}{r} 136 \\ \times 8 \\ \hline 816 \\ 23 \end{array}$ |  | 100 | 60 | 3 | 5 | $100 \times 5 = 500$ | $60 \times 5 = 300$ | $3 \times 5 = 15$ |
| H                                                          | T                                                                                                                                                                                                                                                                                                                                                                                                                                                          | O                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                        |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                        |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                        |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                        |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                        |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                        |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
|                                                            | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 60                                                                                                                                                                                                                                                                                                                                                                                      | 3                                                                                      |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
| 5                                                          | $100 \times 5 = 500$                                                                                                                                                                                                                                                                                                                                                                                                                                       | $60 \times 5 = 300$                                                                                                                                                                                                                                                                                                                                                                     | $3 \times 5 = 15$                                                                      |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |
| <b>Multiplying 2-digit numbers by 2-digit numbers</b>      | <p>Partition one number into 10s and 1s, then add the parts.</p> <p><math>23 \times 15 = ?</math></p>                                                                                                                                                                                                                                                                                                                                                      | <p>Use an area model and add the parts.</p> <p><math>28 \times 15 = ?</math></p>                                                                                                                                                                                                                                                                                                        | <p>Use column multiplication, ensuring understanding of place value at each stage.</p> |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |     |    |   |   |                      |                     |                   |

|                                                              |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                              | <div><div><div><p>10 × 15 = 150</p><p>10 × 15 = 150</p><p>3 × 15 = 45</p><p>There are 345 bottles of milk in total.</p></div><div><p>23 × 15 = 345</p></div></div></div> | <div><div><div><div><div>20 m</div><div>8 m</div></div><div><div>10 m</div><div>5 m</div></div><div><div>20 × 10 = 200 m<sup>2</sup></div><div>8 × 10 = 80 m<sup>2</sup></div></div><div><div>20 × 5 = 100 m<sup>2</sup></div><div>8 × 5 = 40 m<sup>2</sup></div></div></div><div><p>28 × 15 = 420</p></div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <div><div><div><div><div>H</div><div>T</div><div>O</div></div><div><div>2</div><div>0</div><div>0</div></div><div><div>1</div><div>0</div><div>0</div></div><div><div>8</div><div>0</div><div></div></div><div><div>+</div><div>4</div><div>0</div></div><div><div>4</div><div>2</div><div>0</div></div><div><div>1</div><div></div><div></div></div></div></div><div><div><div>3</div><div>4</div></div><div><div>2</div><div>7</div></div><div><div>×</div></div><div><div>2</div><div>3</div><div>8</div></div><div><div>2</div><div>3</div><div>8</div></div><div><div>34 × 7</div></div><div><div>34 × 20</div></div><div><div>34 × 27</div></div></div></div>                                                                 |
| <div><div>Multiplying up to 4-digits by 2-digits</div></div> |                                                                                                                                                                          | <div><div><div><div>Use the area model then add the parts.</div><div><div><div><div>100</div><div>40</div><div>3</div></div><div><div>10</div><div>2</div></div><div><div></div><div></div></div></div><div><p>143 × 12 = 1,716</p><p>There are 1,716 boxes of cereal in total.</p></div><div><p>143 × 12 = 1,716</p></div></div></div><div><div><div><div>Th</div><div>H</div><div>T</div><div>O</div></div><div><div>1</div><div>0</div><div>0</div><div>0</div></div><div><div>4</div><div>0</div><div>0</div><div></div></div><div><div>2</div><div>0</div><div>0</div><div></div></div><div><div>8</div><div>0</div><div></div><div></div></div><div><div>3</div><div>0</div><div></div><div></div></div><div><div>+</div><div>6</div><div></div><div></div></div><div><div>1</div><div>7</div><div>1</div><div>6</div></div><div><div>1</div><div></div><div></div><div></div></div></div></div></div></div> | <div><div><div><div>Use column multiplication, ensuring understanding of place value at each stage.</div><div><div><div><div>1</div><div>4</div><div>3</div></div><div><div>1</div><div>2</div></div><div><div>×</div></div><div><div>2</div><div>8</div><div>6</div></div><div><div>1</div><div>4</div><div>3</div><div>0</div></div><div><div>1</div><div>7</div><div>1</div><div>6</div></div></div><div><div>143 × 2</div><div>143 × 10</div><div>143 × 12</div></div></div></div><div><div><div>Progress to include examples that require multiple exchanges as understanding, confidence and fluency build.</div><div><div><div>1,274 × 32 = ?</div><div>First multiply 1,274 by 2.</div></div></div></div></div></div></div> |

|                                                  |                                                                                                                 |                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                  |                                                                                                                 |                                                                                                 | $\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 2 \\ \hline 2\ 5\ 4\ 8 \end{array}$ <p><math>1,274 \times 2</math></p> <p>Then multiply 1,274 by 30.</p> $\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 2 \\ \hline 2\ 5\ 4\ 8 \quad 1,274 \times 2 \\ 3\ 8\ 2\ 2\ 0 \quad 1,274 \times 30 \\ \hline \end{array}$ <p>Finally, find the total.</p> $\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 2 \\ \hline 2\ 5\ 4\ 8 \quad 1,274 \times 2 \\ 3\ 8\ 2\ 2\ 0 \quad 1,274 \times 30 \\ \hline 4\ 0\ 7\ 6\ 8 \end{array}$ <p><math>1,274 \times 32 = 40,768</math></p> |
| <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>                           |                                                                                                                 |                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Understanding factors and prime numbers</b></p>                                                 | <p>Use equipment to explore the factors of a given number.</p>  <p><math>24 \div 3 = 8</math><br/> <math>24 \div 8 = 3</math></p> <p><i>8 and 3 are factors of 24 because they divide 24 exactly.</i></p> <p><math>24 \div 5 = 4</math> remainder 4.</p>  <p><i>5 is not a factor of 24 because there is a remainder.</i></p> | <p>Understand that prime numbers are numbers with exactly two factors.</p> <p><math>13 \div 1 = 13</math><br/> <math>13 \div 2 = 6 \text{ r } 1</math><br/> <math>13 \div 4 = 4 \text{ r } 1</math></p>  <p><i>1 and 13 are the only factors of 13. 13 is a prime number.</i></p> | <p>Understand how to recognise prime and composite numbers.</p> <p><i>I know that 31 is a prime number because it can be divided by only 1 and itself without leaving a remainder.</i></p> <p><i>I know that 33 is not a prime number as it can be divided by 1, 3, 11 and 33.</i></p> <p><i>I know that 1 is not a prime number, as it has only 1 factor.</i></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></p> |

|                                                    |                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                             | $? \div 2 = 22$<br>$? \div 22 = 2$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |   |   |   |   |   |   |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|---|---|---|---|
| <b>Dividing whole numbers by 10, 100 and 1,000</b> | <p>Use place value equipment to support unitising for division.</p> <p><math>4,000 \div 1,000</math></p>  <p><math>4,000</math> 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><math>380</math> is 38 tens.</p> <p><math>38 \times 10 = 380</math></p> <p><math>10 \times 38 = 380</math></p> <p>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><math>3,200</math> is 3 thousands and 2 hundreds.</p> <p><math>200 \div 100 = 2</math></p> <p><math>3,000 \div 100 = 30</math></p> <p><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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |
| <b>Dividing by multiples of 10, 100 and 1,000</b>  | <p>Use place value equipment to represent known facts and unitising.</p>  <p>15 ones put into groups of 3 ones. There are 5 groups.</p> <p><math>15 \div 3 = 5</math></p> <p>15 tens put into groups of 3 tens. There are 5 groups.</p>    | <p>Represent related facts with place value equipment when dividing by unitising.</p>  <p>180 is 18 tens.</p> <p>18 tens divided into groups of 3 tens. There are 6 groups.</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></p> <p><math>3,000 \div 50 = 60</math></p> <p><math>3,000 \div 500 = 6</math></p> <p><math>5 \times 600 = 3,000</math></p> <p><math>50 \times 60 = 3,000</math></p> <p><math>500 \times 6 = 3,000</math></p>                                                                                                                                                                                                                  |    |   |   |   |   |   |   |   |

|                                                                          |                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          | $150 \div 30 = 5$                                                                                                                                                                                                     | $180 \div 30 = 6$<br><br><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>$1200 \div 400 = 3$                                                |                                                                                                                                                                                                                                                                                                                                                  |
| <b>Dividing up to four digits by a single digit using short division</b> | <p>Explore grouping using place value equipment.</p> $268 \div 2 = ?$<br><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><br>$264 \div 2 = 134$ | <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> <br><p>Lay out the problem as a short division.</p> | <p>Use short division for up to 4-digit numbers divided by a single digit.</p> $\begin{array}{r} 0 \ 5 \ 5 \ 6 \\ 7 \overline{) 3 \ 8 \ 9 \ 2} \end{array}$<br>$3,892 \div 7 = 556$<br><p>Use multiplication to check.</p> $556 \times 7 = ?$<br>$6 \times 7 = 42$<br>$50 \times 7 = 350$<br>$500 \times 7 = 3500$<br>$3,500 + 350 + 42 = 3,892$ |

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

Work with divisions that require exchange.

First, lay out the problem.

How many groups of 4 go into 9 tens?

2 groups of 4 tens with 1 ten left over.

Exchange the 1 ten left over for 10 ones.

We now have 12 ones.

How many groups of 4 go into 12 ones?

3 groups of 4 ones.

## Understanding remainders

Understand remainders using concrete versions of a problem.

80 cakes divided into trays of 6.



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

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

Lay out the problem as short division.

How many groups of 6 go into 8 tens?

There is 1 group of 6 tens.

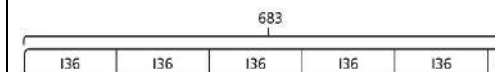
There are 2 tens remaining.

How many groups of 6 go into 20 ones?

There are 3 groups of 6 ones.

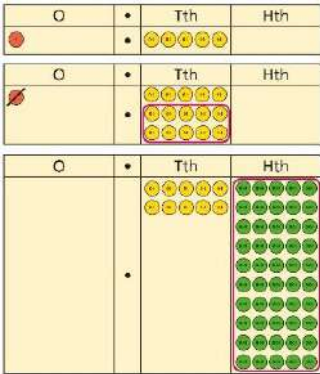
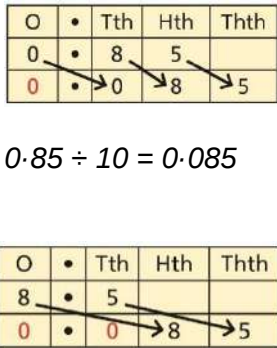
There are 2 ones remaining.

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

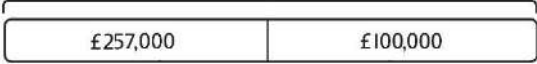
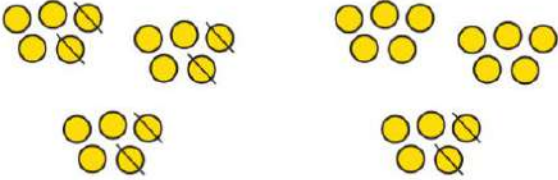
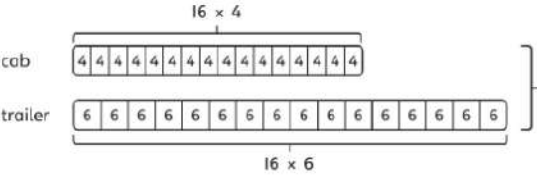


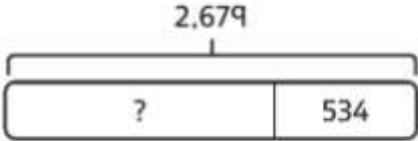
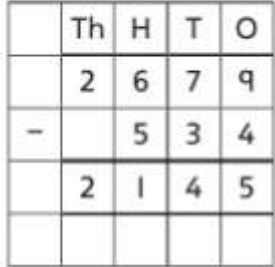
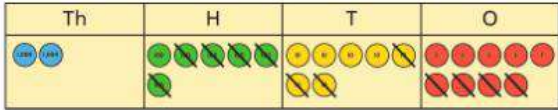
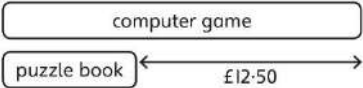
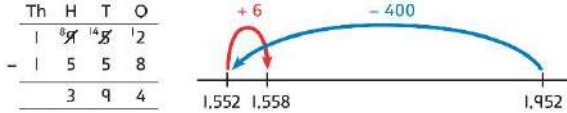
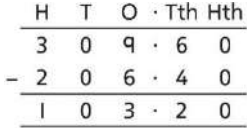
$$683 = 136 \times 5 + 3$$

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

|                                                                      |                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                      |                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                       |
| <b>Dividing decimals by 10, 100 and 1,000</b>                        | <p>Understand division by 10 using exchange.</p> <p><i>2 ones are 20 tenths.</i></p> <p><i>20 tenths divided by 10 is 2 tenths.</i></p>                           | <p>Represent division using exchange on a place value grid.</p>  <p><i>1.5 is 1 one and 5 tenths.</i><br/> <i>This is equivalent to 10 tenths and 50 hundredths.</i><br/> <i>10 tenths divided by 10 is 1 tenth.</i><br/> <i>50 hundredths divided by 10 is 5 hundredths.</i><br/> <i>1.5 divided by 10 is 1 tenth and 5 hundredths.</i><br/> <math>1.5 \div 10 = 0.15</math></p> | <p>Understand the movement of digits on a place value grid.</p>  <p><math>0.85 \div 10 = 0.085</math></p> <p><math>8.5 \div 100 = 0.085</math></p> |
| <b>Understanding the relationship between fractions and division</b> | <p>Use sharing to explore the link between fractions and division.</p> <p><i>1 whole shared between 3 people.</i><br/> <i>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> <p><math>5 \div 4 = \frac{5}{4} = 1\frac{1}{4}</math></p> <p><math>11 \div 4 = \frac{11}{4} = 2\frac{3}{4}</math></p>                                      |

|                                           |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                       |          |     |     |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------|-----|-----|---|---|---|----|------|---|---|-----|--|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----|----|---|---|---|--|---|---|---|---|---|---|--|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|                                           | <div><div></div><div></div></div> | <div><div><div></div><div></div><div></div></div><div><math>1 \div 3 = \frac{1}{3}</math></div></div> |          |     |     |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Year 6                                    |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                       |          |     |     |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           | Concrete                                                                                                                                                                                                                                                                                                                                                              | Pictorial                                                                                             | Abstract |     |     |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Year 6 Addition                           |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                       |          |     |     |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Comparing and selecting efficient methods | <div>Represent 7-digit numbers on a place value grid and use this to support thinking and mental methods.</div> <div><table><tr><td>M</td><td>HTh</td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td>●●</td><td>●●●●</td><td>●</td><td>●</td><td>●●●</td><td></td><td>●</td></tr></table></div>                                                    | M                                                                                                     | HTh      | TTh | Th  | H | T | O | ●● | ●●●● | ● | ● | ●●● |  | ● | <div>Discuss similarities and differences between methods, and choose efficient methods based on the specific calculation. Compare written and mental methods alongside place value representations.</div> <div><div><div>?</div><div>1</div><div>40,365</div><div>3,572</div></div><div><table><tr><td></td><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>4</td><td>0</td><td>3</td><td>6</td><td>5</td></tr><tr><td>+</td><td></td><td>3</td><td>5</td><td>7</td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div></div> <div>Use bar model and number line representations to model addition in problem-solving and measure contexts.</div> <div><div><div>+1 hour</div><div>+8 minutes</div><div>12:05</div><div>13:05</div><div>13:13</div></div></div> |  | TTh | Th | H | T | O |  | 4 | 0 | 3 | 6 | 5 | + |  | 3 | 5 | 7 | 2 |  |  |  |  |  |  |  |  |  |  |  |  | <div>Use column addition where mental methods are not efficient. Recognise common errors with column addition.</div> <div><div><math>32,145 + 4,302 = ?</math></div><div><table><tr><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><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></table><table><tr><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><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></table></div><div>Which method has been completed accurately?</div><div>What mistake has been made?</div><div>Column methods are also used for decimal additions where mental methods are not efficient.</div><div><table><tr><td>H</td><td>T</td><td>O</td><td>·</td><td>Tth</td><td>Hth</td></tr><tr><td>1</td><td>4</td><td>0</td><td>·</td><td>0</td><td>9</td></tr><tr><td>+</td><td>4</td><td>9</td><td>·</td><td>8</td><td>9</td></tr><tr><td>1</td><td>8</td><td>9</td><td>·</td><td>9</td><td>8</td></tr></table></div></div> | 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 | H | T | O | · | Tth | Hth | 1 | 4 | 0 | · | 0 | 9 | + | 4 | 9 | · | 8 | 9 | 1 | 8 | 9 | · | 9 | 8 |
| M                                         | HTh                                                                                                                                                                                                                                                                                                                                                                   | TTh                                                                                                   | Th       | H   | T   | O |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●●                                        | ●●●●                                                                                                                                                                                                                                                                                                                                                                  | ●                                                                                                     | ●        | ●●● |     | ● |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           | TTh                                                                                                                                                                                                                                                                                                                                                                   | Th                                                                                                    | H        | T   | O   |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                                           | 4                                                                                                                                                                                                                                                                                                                                                                     | 0                                                                                                     | 3        | 6   | 5   |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| +                                         |                                                                                                                                                                                                                                                                                                                                                                       | 3                                                                                                     | 5        | 7   | 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   |     |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| H                                         | T                                                                                                                                                                                                                                                                                                                                                                     | O                                                                                                     | ·        | Tth | Hth |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                                         | 4                                                                                                                                                                                                                                                                                                                                                                     | 0                                                                                                     | ·        | 0   | 9   |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| +                                         | 4                                                                                                                                                                                                                                                                                                                                                                     | 9                                                                                                     | ·        | 8   | 9   |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                                         | 8                                                                                                                                                                                                                                                                                                                                                                     | 9                                                                                                     | ·        | 9   | 8   |   |   |   |    |      |   |   |     |  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |     |    |   |   |   |  |   |   |   |   |   |   |  |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

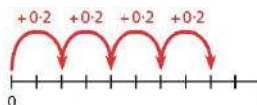
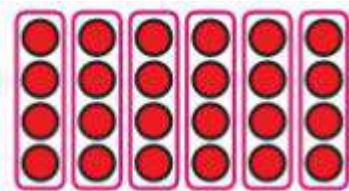
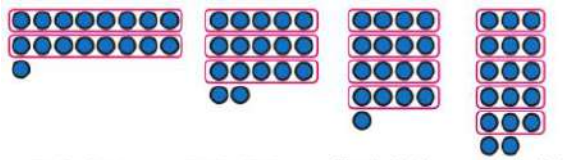
|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Selecting mental methods for larger numbers where appropriate</b></p> | <p>Represent 7-digit numbers on a place value grid and use this to support thinking and mental methods.</p>  <p><math>2,411,301 + 500,000 = ?</math></p> <p><i>This would be 5 more counters in the HTh place.</i></p> <p><i>So, the total is 2,911,301.</i></p> <p><math>2,411,301 + 500,000 = 2,911,301</math></p>                                                                                             | <p>Use a bar model to support thinking in addition problems.</p> <p><math>257,000 + 99,000 = ?</math></p>  <p><i>I added 100 thousands then subtracted 1 thousand.</i></p> <p><math>257 \text{ thousands} + 100 \text{ thousands} = 357 \text{ thousands}</math></p> <p><math>257,000 + 100,000 = 357,000</math><br/> <math>357,000 - 1,000 = 356,000</math></p> <p><i>So, <math>257,000 + 99,000 = 356,000</math></i></p> | <p>Use place value and unitising to support mental calculations with larger numbers.</p> <p><math>195,000 + 6,000 = ?</math></p> <p><math>195 + 5 + 1 = 201</math></p> <p><i>195 thousands + 6 thousands = 201 thousands</i></p> <p><i>So, <math>195,000 + 6,000 = 201,000</math></i></p>                         |
| <p><b>Understanding order of operations in calculations</b></p>             | <p>Use equipment to model different interpretations of a calculation with more than one operation. Explore different results.</p> <p><math>3 \times 5 - 2 = ?</math></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>Model calculations using a bar model to demonstrate the correct order of operations in multi-step calculations.</p>  <p>This can be written as: <math>16 \times 4 + 16 \times 6</math><br/> <math>16 \times 4 + 16 \times 6</math><br/> <math>64 + 96 = 160</math></p>                                                                                                                                                 | <p>Understand the correct order of operations in calculations without brackets.</p> <p>Understand how brackets affect the order of operations in a calculation.</p> <p><math>4 + 6 \times 16</math><br/> <math>4 + 96 = 100</math></p> <p><math>(4 + 6) \times 16</math><br/> <math>10 \times 16 = 160</math></p> |

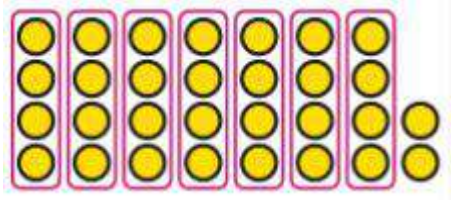
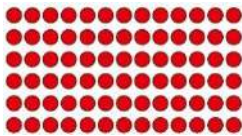
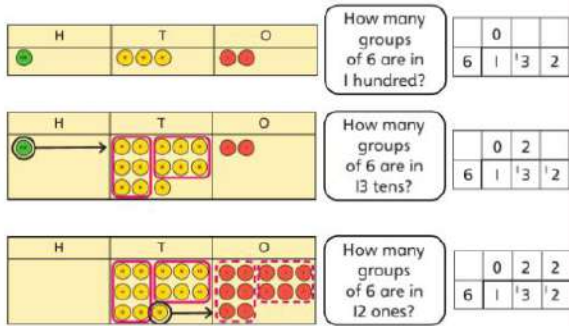
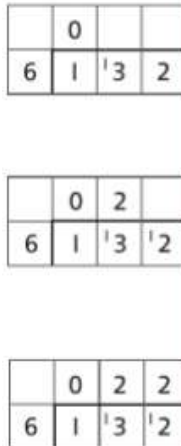
| Year 6<br>Subtraction                                   |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Comparing and selecting efficient methods</b></p> | <p>Use counters on a place value grid to represent subtractions of larger numbers.</p>  | <p>Compare subtraction methods alongside place value representations.</p>    <p>Use a bar model to represent calculations, including 'find the difference' with two bars as comparison.</p>  | <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>  <p>Use column subtraction for decimal problems, including in the context of measure.</p>  |

|                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                              |                                                                                           |    |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----|---|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|---|---|---|---|--|--|---|---|---|---|--|--|---|---|---|---|---|--|---|---|---|---|--|---|---|---|---|---|--|---|--|---|---|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------|-----|----|---|---|--------|-----|----|----|--|--|---|---|---|---|---|--|--|--|--|---|--|---|---|---|---|---|--|---|--|---|---|--|
| <b>Subtracting mentally with larger numbers</b>                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Use a bar model to show how unitising can support mental calculations.</p> <p><math>950,000 - 150,000</math><br/>That is 950 thousands – 150 thousands</p> <div><div>950</div><div>150</div><div>800</div></div> <p>So, the difference is 800 thousands.<br/><math>950,000 - 150,000 = 800,000</math></p> | <p>Subtract efficiently from powers of 10.</p> <p><math>10,000 - 500 = ?</math></p>       |    |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
| <b>Year 6 Multiplication</b>                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                              |                                                                                           |    |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
| <b>Multiplying up to a 4-digit number by a single digit number</b>            | <p>Use equipment to explore multiplications.</p> <div><table><tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td><div><div></div><div></div><div></div><div></div><div></div><div></div></div></td><td><div><div></div><div></div><div></div><div></div><div></div><div></div></div></td><td><div><div></div><div></div><div></div><div></div><div></div><div></div></div></td><td><div><div></div><div></div><div></div><div></div><div></div><div></div></div></td></tr></table><p>4 groups of 2,345</p><p>This is a multiplication:</p><p><math>4 \times 2,345</math><br/><math>2,345 \times 4</math></p></div> | Th                                                                                                                                                                                                                                                                                                           | H                                                                                         | T  | O | <div><div></div><div></div><div></div><div></div><div></div><div></div></div> | <div><div></div><div></div><div></div><div></div><div></div><div></div></div> | <div><div></div><div></div><div></div><div></div><div></div><div></div></div> | <div><div></div><div></div><div></div><div></div><div></div><div></div></div> | <p>Use place value equipment to compare methods.</p> <p><b>Method 1</b></p> <div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><table><tr><td></td><td></td><td>3</td><td>2</td><td>5</td><td>5</td></tr><tr><td></td><td></td><td>3</td><td>2</td><td>2</td><td>5</td></tr><tr><td></td><td></td><td>3</td><td>2</td><td>2</td><td>5</td></tr><tr><td>+</td><td></td><td>3</td><td>2</td><td>2</td><td>5</td></tr><tr><td></td><td>1</td><td>2</td><td>9</td><td>0</td><td>0</td></tr><tr><td></td><td>1</td><td></td><td>1</td><td>1</td><td></td></tr></table></div></div> <p><b>Method 2</b></p> <div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><p><math>4 \times 3,000</math>   <math>4 \times 200</math>   <math>4 \times 20</math>   <math>4 \times 5</math></p><p>12,000   +   800   +   80   +   20   = 12,900</p></div></div> |  |  | 3 | 2 | 5 | 5 |  |  | 3 | 2 | 2 | 5 |  |  | 3 | 2 | 2 | 5 | + |  | 3 | 2 | 2 | 5 |  | 1 | 2 | 9 | 0 | 0 |  | 1 |  | 1 | 1 |  | <p>Understand area model and short multiplication.</p> <p>Compare and select appropriate methods for specific multiplications.</p> <p><b>Method 3</b></p> <div><table><tr><td></td><td>3,000</td><td>200</td><td>20</td><td>5</td></tr><tr><td>4</td><td>12,000</td><td>800</td><td>80</td><td>20</td></tr></table><p><math>12,000 + 800 + 80 + 20 = 12,900</math></p></div> <p><b>Method 4</b></p> <div><table><tr><td></td><td></td><td>3</td><td>2</td><td>2</td><td>5</td></tr><tr><td>x</td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td>1</td><td>2</td><td>9</td><td>0</td><td>0</td></tr><tr><td></td><td>1</td><td></td><td>1</td><td>2</td><td></td></tr></table></div> |  | 3,000 | 200 | 20 | 5 | 4 | 12,000 | 800 | 80 | 20 |  |  | 3 | 2 | 2 | 5 | x |  |  |  |  | 4 |  | 1 | 2 | 9 | 0 | 0 |  | 1 |  | 1 | 2 |  |
| Th                                                                            | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | T                                                                                                                                                                                                                                                                                                            | O                                                                                         |    |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
| <div><div></div><div></div><div></div><div></div><div></div><div></div></div> | <div><div></div><div></div><div></div><div></div><div></div><div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div><div></div><div></div><div></div><div></div><div></div><div></div></div>                                                                                                                                                                                                                                | <div><div></div><div></div><div></div><div></div><div></div><div></div></div>             |    |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
|                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3                                                                                                                                                                                                                                                                                                            | 2                                                                                         | 5  | 5 |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
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|                                                                               | 3,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 200                                                                                                                                                                                                                                                                                                          | 20                                                                                        | 5  |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
| 4                                                                             | 12,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 800                                                                                                                                                                                                                                                                                                          | 80                                                                                        | 20 |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
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| x                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                              |                                                                                           |    | 4 |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |
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| <b>Multiplying up to a 4-digit</b>                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Use an area model alongside written multiplication.</p>                                                                                                                                                                                                                                                   | <p>Use compact column multiplication with understanding of place value at all stages.</p> |    |   |                                                                               |                                                                               |                                                                               |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |   |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |   |  |   |   |   |   |  |   |   |   |   |   |  |   |  |   |   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |       |     |    |   |   |        |     |    |    |  |  |   |   |   |   |   |  |  |  |  |   |  |   |   |   |   |   |  |   |  |   |   |  |

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|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|--|---|--|---|---|--|--|--|--|---|--|--|--|---|---|--|--|---|---|---|--|--|---|---|---|--|--|---|---|---|--|---|---|---|---|--|---|---|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|---|---|---|--|---|--|--|---|---|--|--|--|---|---|---|--|--|---|---|---|---|--|--|---|---|---|---|--|--|--|--|--|--|
| number by a 2-digit number                                                       |                                                                                                                                                                                                                                         | <div><div><div><div>200</div><div>30</div><div>5</div></div><div><div>20</div><div>4,000</div><div>600</div><div>100</div></div><div><div>1</div><div>200</div><div>30</div><div>5</div></div></div><div><div>4,200</div><div>+</div><div>630</div><div>+</div><div>105</div><div>=</div><div>4,935</div></div></div> <div><table><tr><td></td><td></td><td>2</td><td>3</td><td>5</td></tr><tr><td></td><td>x</td><td></td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td>3</td><td>0</td></tr><tr><td></td><td></td><td>2</td><td>0</td><td>0</td></tr><tr><td></td><td></td><td>1</td><td>0</td><td>0</td></tr><tr><td></td><td></td><td>6</td><td>0</td><td>0</td></tr><tr><td></td><td>4</td><td>0</td><td>0</td><td>0</td></tr><tr><td></td><td>4</td><td>9</td><td>3</td><td>5</td></tr></table><div><div>1 × 5</div><div>1 × 30</div><div>1 × 200</div><div>20 × 5</div><div>20 × 30</div><div>20 × 300</div><div>21 × 235</div></div></div> <td><table><tr><td></td><td></td><td></td><td>2</td><td>3</td><td>5</td></tr><tr><td></td><td>x</td><td></td><td></td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td>2</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td>4</td><td>7</td><td>0</td><td>0</td></tr><tr><td></td><td></td><td>4</td><td>9</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table><div><div>1 × 235</div><div>20 × 235</div><div>21 × 235</div></div></td> |                                                                                                                                                                                                                                                                                                                                                         |   | 2 | 3 | 5 |  | x |  | 2 | 1 |  |  |  |  | 5 |  |  |  | 3 | 0 |  |  | 2 | 0 | 0 |  |  | 1 | 0 | 0 |  |  | 6 | 0 | 0 |  | 4 | 0 | 0 | 0 |  | 4 | 9 | 3 | 5 | <table><tr><td></td><td></td><td></td><td>2</td><td>3</td><td>5</td></tr><tr><td></td><td>x</td><td></td><td></td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td>2</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td>4</td><td>7</td><td>0</td><td>0</td></tr><tr><td></td><td></td><td>4</td><td>9</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <div><div>1 × 235</div><div>20 × 235</div><div>21 × 235</div></div> |  |  |  | 2 | 3 | 5 |  | x |  |  | 2 | 1 |  |  |  | 2 | 3 | 5 |  |  | 4 | 7 | 0 | 0 |  |  | 4 | 9 | 3 | 5 |  |  |  |  |  |  |
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|                                                                                  |                                                                                                                                                                                                                                         | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                                                                                                                                                                                                                                                                                                                                                       | 0 |   |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  | 4                                                                                                                                                                                                                                       | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                                                                                                                                                                                                                                                                                                                                                       | 0 |   |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  | 4                                                                                                                                                                                                                                       | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3                                                                                                                                                                                                                                                                                                                                                       | 5 |   |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2                                                                                                                                                                                                                                                                                                                                                       | 3 | 5 |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  | x                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                         | 2 | 1 |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2                                                                                                                                                                                                                                                                                                                                                       | 3 | 5 |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  |                                                                                                                                                                                                                                         | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7                                                                                                                                                                                                                                                                                                                                                       | 0 | 0 |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  |                                                                                                                                                                                                                                         | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9                                                                                                                                                                                                                                                                                                                                                       | 3 | 5 |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
|                                                                                  |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                         |   |   |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |
| Using knowledge of factors and partitions to compare methods for multiplications | <div>Use equipment to understand square numbers and cube numbers.</div> <div><div></div><div></div></div> <div><div><math>5 \times 5 = 5^2 = 25</math></div><div><math>5 \times 5 \times 5 = 5^3 = 25 \times 5 = 125</math></div></div> | <div>Compare methods visually using an area model. Understand that multiple approaches will produce the same answer if completed accurately.</div> <div><div><div><div>5,200</div><div>20</div><div>5,200 × 20</div><div>5</div><div>5,200 × 5</div></div><div><div>5,000</div><div>200</div><div>5,000 × 20</div><div>200 × 20</div><div>5,000 × 5</div><div>200 × 5</div></div><div><div>5,200</div><div>5</div><div>5,200 × 5</div><div>5</div><div>5,200 × 5</div><div>5</div><div>5,200 × 5</div><div>5</div><div>5,200 × 5</div></div></div><div><div>5,200 × 25</div></div><div><div>5,000</div><div>25</div><div>5,000 × 25</div><div>200 × 25</div></div><div><div>5,200</div><div>100</div><div>5,200 × 25</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div>Use a known fact to generate families of related facts.</div> <div><div><div>170 × 11</div><div>171 × 11</div><div>1,870 ÷ 11 = 170</div><div>170 × 12</div><div>17 × 110</div></div></div> <div>Use factors to calculate efficiently.</div> <div><div><math>15 \times 16</math></div><div><math>= 3 \times 5 \times 2 \times 8</math></div></div> |   |   |   |   |  |   |  |   |   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |   |  |  |   |   |   |  |  |   |   |   |  |   |   |   |   |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |   |   |   |  |   |  |  |   |   |  |  |  |   |   |   |  |  |   |   |   |   |  |  |   |   |   |   |  |  |  |  |  |  |

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|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         |                                                                                                                                                                                                                                                                                                                                                                     | Represent and compare methods using a bar model.                                                                                                                                                              | $= 3 \times 8 \times 2 \times 5$ $= 24 \times 10$ $= 240$                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Multiplying by 10, 100 and 1,000</b> | <p>Use place value equipment to explore exchange in decimal multiplication.</p> <p>Represent 0.3.</p> <p>Multiply by 10.</p> <p>Exchange each group of ten tenths.</p> <p> <math>0.3 \times 10 = ?</math><br/> <math>0.3</math> is 3 tenths.<br/> <math>10 \times 3</math> tenths are 30 tenths.<br/> <math>30</math> tenths are equivalent to 3 ones.         </p> | <p>Understand how the exchange affects decimal numbers on a place value grid.</p> <p> <math>0.3 \times 10 = 3</math> </p>                                                                                     | <p>Use knowledge of multiplying by 10, 100 and 1,000 to multiply by multiples of 10, 100 and 1,000.</p> <p> <math>8 \times 100 = 800</math><br/> <math>8 \times 300 = 800 \times 3</math><br/> <math>= 2,400</math> </p> <p> <math>2.5 \times 10 = 25</math><br/> <math>2.5 \times 20 = 2.5 \times 10 \times 2</math><br/> <math>= 50</math> </p>                                                                                             |
| <b>Multiplying decimals</b>             | <p>Explore decimal multiplications using place value equipment and in the context of measures.</p> <p> <math>3</math> groups of 4 tenths is 12 tenths.<br/> <math>4</math> groups of 3 tenths is 12 tenths.         </p> <p> <math>1.3 \text{ cm} + 1.3 \text{ cm} + 1.3 \text{ cm} + 1.3 \text{ cm}</math> </p>                                                    | <p>Represent calculations on a place value grid.</p> <p> <math>3 \times 3 = 9</math><br/> <math>3 \times 0.3 = 0.9</math> </p> <p>Understand the link between multiplying decimals and repeated addition.</p> | <p>Use known facts to multiply decimals.</p> <p> <math>4 \times 3 = 12</math><br/> <math>4 \times 0.3 = 1.2</math><br/> <math>4 \times 0.03 = 0.12</math> </p> <p> <math>20 \times 5 = 100</math><br/> <math>20 \times 0.5 = 10</math><br/> <math>20 \times 0.05 = 1</math> </p> <p>Find families of facts from a known multiplication.</p> <p> <i>I know that <math>18 \times 4 = 72</math>.</i><br/> <i>This can help me work out:</i> </p> |

|                       |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                      |   |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|-----|---|---|-----|------|--------------|--|--|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|----------------|--|--|---|---|---|--|-----------------|--|--|--|---|--|--|
|                       | $4 \times 1\text{ cm} = 4\text{ cm}$<br>$4 \times 0.3\text{ cm} = 1.2\text{ cm}$<br>$4 \times 1.3 = 4 + 1.2 = 5.2\text{ cm}$                       | <table border="1"><tr><td>T</td><td>O</td><td>•</td><td>Tth</td></tr><tr><td></td><td></td><td></td><td>●●●●</td></tr><tr><td></td><td></td><td></td><td>●●●●</td></tr></table>                                                                                                               | T                                                                                                                                                                                                                                                                                                                                                                                                                    | O | •   | Tth |   |   |     | ●●●● |              |  |  | ●●●● | $1.8 \times 4 = ?$<br>$18 \times 0.4 = ?$<br>$180 \times 0.4 = ?$<br>$18 \times 0.04 = ?$<br><br>Use a place value grid to understand the effects of multiplying decimals. |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
| T                     | O                                                                                                                                                  | •                                                                                                                                                                                                                                                                                                                                                                                | Tth                                                                                                                                                                                                                                                                                                                                                                                                                  |   |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
|                       |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  | ●●●●                                                                                                                                                                                                                                                                                                                                                                                                                 |   |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
|                       |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  | ●●●●                                                                                                                                                                                                                                                                                                                                                                                                                 |   |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
|                       |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  | <table border="1"><tr><td></td><td>H</td><td>T</td><td>O</td><td>•</td><td>Tth</td><td>Hth</td></tr><tr><td><math>2 \times 3</math></td><td></td><td></td><td>6</td><td>•</td><td></td><td></td></tr><tr><td><math>0.2 \times 3</math></td><td></td><td></td><td>0</td><td>•</td><td>6</td><td></td></tr><tr><td><math>0.02 \times 3</math></td><td></td><td></td><td></td><td>•</td><td></td><td></td></tr></table> |   | H   | T   | O | • | Tth | Hth  | $2 \times 3$ |  |  | 6    | •                                                                                                                                                                          |  |  | $0.2 \times 3$ |  |  | 0 | • | 6 |  | $0.02 \times 3$ |  |  |  | • |  |  |
|                       | H                                                                                                                                                  | T                                                                                                                                                                                                                                                                                                                                                                                | O                                                                                                                                                                                                                                                                                                                                                                                                                    | • | Tth | Hth |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
| $2 \times 3$          |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  | 6                                                                                                                                                                                                                                                                                                                                                                                                                    | • |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
| $0.2 \times 3$        |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                                                                                                                                                                                                                                                                                                                                                    | • | 6   |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
| $0.02 \times 3$       |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                      | • |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
| Year 6 Division       |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                      |   |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |
| Understanding factors | Use equipment to explore different factors of a number.<br><br> | Recognise prime numbers as numbers having exactly two factors. Understand the link with division and remainders.<br><br> <div><math>17 \div 2 = 8\text{ r } 1</math><math>17 \div 3 = 5\text{ r } 2</math><math>17 \div 4 = 4\text{ r } 1</math><math>17 \div 5 = 3\text{ r } 2</math></div> | Recognise and know primes up to 100. Understand that 2 is the only even prime, and that 1 is not a prime number.<br><br>                                                                                                                                                                                                        |   |     |     |   |   |     |      |              |  |  |      |                                                                                                                                                                            |  |  |                |  |  |   |   |   |  |                 |  |  |  |   |  |  |

|                                   |                                                                                                                                                                                                                                      |                                                                                    |                                                                                                                                                                                                           |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |  <p><math>30 \div 4 = 7 \text{ remainder } 2</math></p> <p><i>4 is a factor of 24 but is not a factor of 30.</i></p>                                |                                                                                    |                                                                                                                                                                                                           |
| <b>Dividing by a single digit</b> | <p>Use equipment to make groups from a total.</p>  <p><i>There are 78 in total.<br/>There are 6 groups of 13.<br/>There are 13 groups of 6.</i></p> |  | <p>Use short division to divide by a single digit.</p>  <p>Use an area model to link multiplication and division.</p> |

|                                                         |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                         |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                     | <div> <div> <div>?</div> <div>6   132</div> <div><math>6 \times ? = 132</math></div> </div> <div> <div>10      10      1      1</div> <div>6   60   60   6   6</div> <div>20      2</div> <div>6   120   12</div> <div><math>132 = 120 + 12</math></div> <div><math>132 \div 6 = 20 + 2 = 22</math></div> </div> </div>                                                                                                                                                                                                                                                                                                                                            |
| <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> <div> <div>1,260</div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> </div> <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> <p> <math>2,100 \rightarrow \boxed{\div 2} \rightarrow \boxed{\div 6} \rightarrow</math><br/> <math>2,100 \rightarrow \boxed{\div 6} \rightarrow \boxed{\div 2} \rightarrow</math><br/> <math>2,100 \rightarrow \boxed{\div 3} \rightarrow \boxed{\div 4} \rightarrow</math><br/> <math>2,100 \rightarrow \boxed{\div 4} \rightarrow \boxed{\div 3} \rightarrow</math><br/> <math>2,100 \rightarrow \boxed{\div 3} \rightarrow \boxed{\div 2} \rightarrow \boxed{\div 2} \rightarrow</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> <div> <div> <div>?</div> <div>13   377</div> </div> <div> <div>10      ?</div> <div>13   130   247</div> </div> <div> <div>10      10      ?</div> <div>13   130   130   117</div> </div> <div> <div>29</div> <div> <div>10      10      9</div> <div>13   130   130   117</div> </div> </div> </div> | <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> <div> <div>0      13      26      39      52      65      78      91      104      117      130</div> <div> <math>0 \times 13</math>   <math>1 \times 13</math>   <math>2 \times 13</math>   <math>3 \times 13</math>   <math>4 \times 13</math>   <math>5 \times 13</math>   <math>6 \times 13</math>   <math>7 \times 13</math>   <math>8 \times 13</math>   <math>9 \times 13</math>   <math>10 \times 13</math> </div> </div> </div> |

|                                      |                                                            |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|--------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|---|---|--|----|---|---|---|--|---|---|---|---|----|--|---|---|---|--|---|---|---|---|----|--|---|---|---|--|---|---|---|---|---|--|--|--|---|--|--|---|----|-------|---|-------|--|-------|--|-----|----|-------|---|-------|--|-------|---|-------|--|---|
|                                      |                                                            | $377 \div 13 = 29$                                                                        | <table><tr><td></td><td></td><td>2</td><td>9</td><td></td></tr><tr><td>13</td><td>3</td><td>7</td><td>7</td><td></td></tr><tr><td>-</td><td>1</td><td>3</td><td>0</td><td>10</td></tr><tr><td></td><td>2</td><td>4</td><td>7</td><td></td></tr><tr><td>-</td><td>1</td><td>3</td><td>0</td><td>10</td></tr><tr><td></td><td>1</td><td>7</td><td>7</td><td></td></tr><tr><td>-</td><td>1</td><td>7</td><td>7</td><td>9</td></tr><tr><td></td><td></td><td></td><td>0</td><td></td></tr></table> <p><math>377 \div 13 = 29</math></p> <p>A slightly different layout may be used, with the division completed above rather than at the side.</p> <table><tr><td></td><td>3</td></tr><tr><td>21</td><td>7 9 8</td></tr><tr><td>-</td><td>6 3 0</td></tr><tr><td></td><td>1 6 8</td></tr></table> <table><tr><td></td><td>3 8</td></tr><tr><td>21</td><td>7 9 8</td></tr><tr><td>-</td><td>6 3 0</td></tr><tr><td></td><td>1 6 8</td></tr><tr><td>-</td><td>1 6 8</td></tr><tr><td></td><td>0</td></tr></table> <p>Divisions with a remainder explored in problem-solving contexts.</p> |    |  | 2 | 9 |  | 13 | 3 | 7 | 7 |  | - | 1 | 3 | 0 | 10 |  | 2 | 4 | 7 |  | - | 1 | 3 | 0 | 10 |  | 1 | 7 | 7 |  | - | 1 | 7 | 7 | 9 |  |  |  | 0 |  |  | 3 | 21 | 7 9 8 | - | 6 3 0 |  | 1 6 8 |  | 3 8 | 21 | 7 9 8 | - | 6 3 0 |  | 1 6 8 | - | 1 6 8 |  | 0 |
|                                      |                                                            | 2                                                                                         | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| 13                                   | 3                                                          | 7                                                                                         | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| -                                    | 1                                                          | 3                                                                                         | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 10 |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      | 2                                                          | 4                                                                                         | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| -                                    | 1                                                          | 3                                                                                         | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 10 |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      | 1                                                          | 7                                                                                         | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| -                                    | 1                                                          | 7                                                                                         | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 9  |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      |                                                            |                                                                                           | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      | 3                                                          |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| 21                                   | 7 9 8                                                      |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| -                                    | 6 3 0                                                      |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      | 1 6 8                                                      |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      | 3 8                                                        |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| 21                                   | 7 9 8                                                      |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| -                                    | 6 3 0                                                      |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      | 1 6 8                                                      |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| -                                    | 1 6 8                                                      |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
|                                      | 0                                                          |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |
| <b>Dividing by 10, 100 and 1,000</b> | Use place value equipment to explore division as exchange. | Represent division to show the relationship with multiplication. Understand the effect of | Use knowledge of factors to divide by multiples of 10, 100 and 1,000.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |  |   |   |  |    |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |    |  |   |   |   |  |   |   |   |   |   |  |  |  |   |  |  |   |    |       |   |       |  |       |  |     |    |       |   |       |  |       |   |       |  |   |

|                          |                                                                                                                                                                                                |                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                             |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | <p>Exchange each 0.1 for ten 0.01s. Divide 20 counters by 10.</p> <p><i>0.2 is 2 tenths.<br/>2 tenths is equivalent to 20 hundredths.<br/>20 hundredths divided by 10 is 2 hundredths.</i></p> | <p>dividing by 10, 100 and 1,000 on the digits on a place value grid.</p> <p>Understand how to divide using division by 10, 100 and 1,000.</p> <p><math>12 \div 20 = ?</math></p>            | <p><math>40 \div 50 = \square</math></p> <p><math>40 \rightarrow \div 10 \rightarrow \div 5 \rightarrow ?</math><br/> <math>40 \rightarrow \div 5 \rightarrow \div 10 \rightarrow ?</math></p> <p><math>40 \div 5 = 8</math><br/> <math>8 \div 10 = 0.8</math></p> <p>So, <math>40 \div 50 = 0.8</math></p> |
| <b>Dividing decimals</b> | <p>Use place value equipment to explore division of decimals.</p> <p><i>8 tenths divided into 4 groups. 2 tenths in each group.</i></p>                                                        | <p>Use a bar model to represent divisions.</p> <p><math>4 \times 2 = 8</math>      <math>8 \div 4 = 2</math><br/> So, <math>4 \times 0.2 = 0.8</math>      <math>0.8 \div 4 = 0.2</math></p> | <p>Use short division to divide decimals with up to 2 decimal places.</p>                                                                                                                                                                                                                                   |