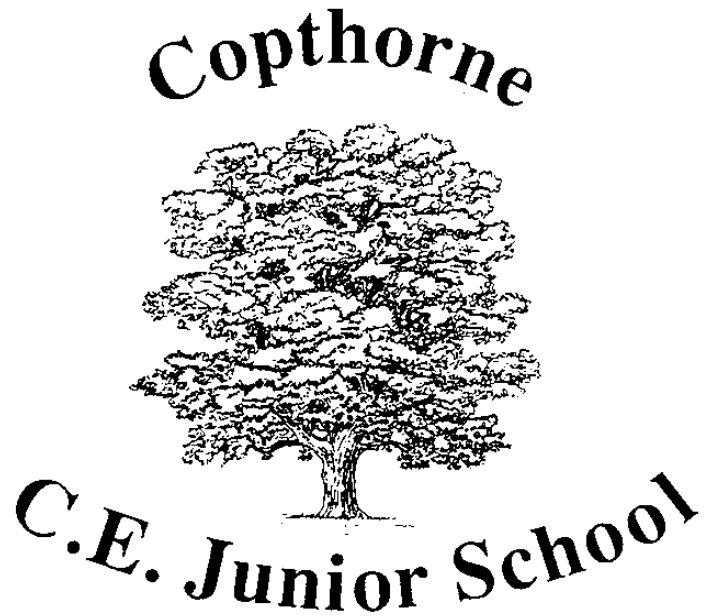


Copthorne CE Junior School



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

## KEY STAGE 2

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

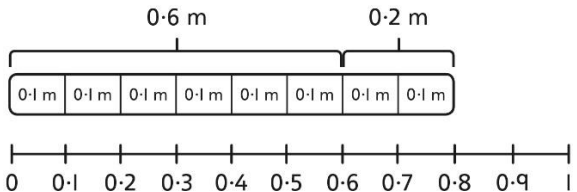
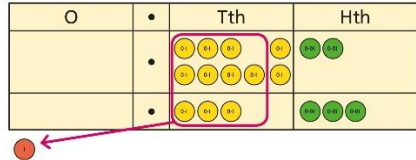
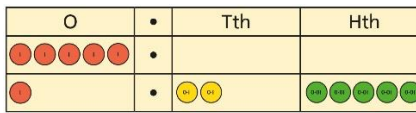
**Key language:** decimal, column methods, exchange, partition, mental method, ten thousand, hundred thousand, million, factor, multiple, prime number, square number, cube number

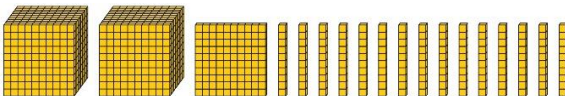
**Addition and subtraction:** Children build on their column methods to add and subtract numbers with up to seven digits, and they adapt the methods to calculate efficiently and effectively with decimals, ensuring understanding of place value at every stage.  
Children compare and contrast methods, and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

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

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

| Year 5                             |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |       |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|---|---|---|-------|-------|-------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|----|---|----|-------|-------|----|-------|---|-------|-------|-----|----|---|---|---|---|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|                                    | Concrete                                                                                                                                                                                                                                                                                         | Pictorial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Abstract |       |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Year 5 Addition                    |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |       |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Column addition with whole numbers | <p>Use place value equipment to represent additions.</p> <p>Add a row of counters onto the place value grid to show 15,735 + 4,012.</p> <table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>●</td><td>●●●●●</td><td>●●●●●</td><td>●●●●●</td><td>●●●●●</td></tr></table> | TTh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Th       | H     | T | O | ● | ●●●●● | ●●●●● | ●●●●● | ●●●●● | <p>Represent additions, using place value equipment on a place value grid alongside written methods.</p> <table><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>●●</td><td></td><td>●</td><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●</td><td>●●●●●</td><td>●</td><td>●●●●●</td><td>●●●●●</td></tr></table> <p>I need to exchange 10 tens for a 100.</p> <table><tr><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td>2</td><td>0</td><td>1</td><td>5</td><td>3</td></tr><tr><td>+</td><td>1</td><td>9</td><td>1</td><td>7</td><td>5</td></tr><tr><td>3</td><td>9</td><td>3</td><td>2</td><td>8</td></tr></table> | TTh | Th | H | T | O | ●● |   | ●  | ●●●●● | ●●●●● | ●● | ●●●●● | ● | ●●●●● | ●●●●● | TTh | Th | H | T | O | 2 | 0 | 1 | 5 | 3                                                                                                                                                                                                                              | + | 1 | 9 | 1 | 7 | 5 | 3 | 9 | 3 | 2 | 8 | <p>Use column addition, including exchanges.</p> <table><tr><td>TTh</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td>1</td><td>9</td><td>1</td><td>7</td><td>5</td></tr><tr><td>+</td><td>1</td><td>8</td><td>4</td><td>1</td><td>7</td></tr><tr><td>3</td><td>7</td><td>5</td><td>9</td><td>2</td></tr></table> | TTh | Th | H | T | O | 1 | 9 | 1 | 7 | 5 | + | 1 | 8 | 4 | 1 | 7 | 3 | 7 | 5 | 9 | 2 |
| TTh                                | Th                                                                                                                                                                                                                                                                                               | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | T        | O     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●                                  | ●●●●●                                                                                                                                                                                                                                                                                            | ●●●●●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ●●●●●    | ●●●●● |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| TTh                                | Th                                                                                                                                                                                                                                                                                               | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | T        | O     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●●                                 |                                                                                                                                                                                                                                                                                                  | ●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ●●●●●    | ●●●●● |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ●●                                 | ●●●●●                                                                                                                                                                                                                                                                                            | ●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ●●●●●    | ●●●●● |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| TTh                                | Th                                                                                                                                                                                                                                                                                               | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | T        | O     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2                                  | 0                                                                                                                                                                                                                                                                                                | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5        | 3     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| +                                  | 1                                                                                                                                                                                                                                                                                                | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1        | 7     | 5 |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3                                  | 9                                                                                                                                                                                                                                                                                                | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2        | 8     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| TTh                                | Th                                                                                                                                                                                                                                                                                               | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | T        | O     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                                  | 9                                                                                                                                                                                                                                                                                                | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7        | 5     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| +                                  | 1                                                                                                                                                                                                                                                                                                | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4        | 1     | 7 |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3                                  | 7                                                                                                                                                                                                                                                                                                | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 9        | 2     |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Representing additions             |                                                                                                                                                                                                                                                                                                  | <p>Bar models represent addition of two or more numbers in the context of problem solving.</p> <div><div>?</div><div>£19,579</div><div>£28,370</div><div>£16,725</div></div> <div>Jen<div>£2,600</div></div> <div>Holly<div>£2,600</div><div>£1,450</div></div> <div>£4,050</div> <table><tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><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>4</td><td>0</td><td>5</td><td>0</td></tr></table> <table><tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td>2</td><td>6</td><td>0</td><td>0</td></tr><tr><td>+</td><td>4</td><td>0</td><td>5</td><td>0</td></tr><tr><td>6</td><td>6</td><td>5</td><td>0</td></tr></table> | 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 | <div><div>TThThHTO</div><div>23405</div><div>+</div><div>7892</div><div>20297</div></div> <div><div>TThThHTO</div><div>23405</div><div>+</div><div>7892</div><div>31297</div></div> <p>I will use 23,000 + 8,000 to check.</p> |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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        |       |   |   |   |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |    |   |   |   |    |   |    |       |       |    |       |   |       |       |     |    |   |   |   |   |   |   |   |                                                                                                                                                                                                                                |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                           |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

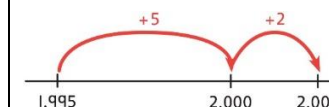
|                                                     |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Adding tenths</b></p>                         | <p>Link measure with addition of decimals.</p> <p>Two lengths of fencing are 0.6 m and 0.2 m.<br/>How long are they when added together?</p>  | <p>Use a bar model with a number line to add tenths.</p>  <p><math>0.6 + 0.2 = 0.8</math><br/>6 tenths + 2 tenths = 8 tenths</p>                                                                                                                                                           | <p>Understand the link with adding fractions.</p> $\frac{6}{10} + \frac{2}{10} = \frac{8}{10}$ <p>6 tenths + 2 tenths = 8 tenths<br/><math>0.6 + 0.2 = 0.8</math></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Adding decimals using column addition</b></p> | <p>Use place value equipment to represent additions.</p> <p>Show <math>0.23 + 0.45</math> using place value counters.</p>                                                                                                      | <p>Use place value equipment on a place value grid to represent additions.</p> <p>Represent exchange where necessary.</p>  <p>Include examples where the numbers of decimal places are different.</p>  | <p>Add using a column method, ensuring that children understand the link with place value.</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 0 \cdot 2 \quad 3 \\ + 0 \cdot 4 \quad 5 \\ \hline 0 \cdot 6 \quad 8 \end{array}$ <p>Include exchange where required, alongside an understanding of place value.</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 0 \cdot 9 \quad 2 \\ + 0 \cdot 3 \quad 3 \\ \hline 1 \cdot 2 \quad 5 \end{array}$ <p>Include additions where the numbers of decimal places are different.</p> $3.4 + 0.65 = ?$ $\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 3 \cdot 4 \quad 0 \\ + 0 \cdot 6 \quad 5 \\ \hline \end{array}$ |

| Year 5<br>Subtraction                             |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|-----|----|---|---|---|---|---|---|---|-----|----|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|----|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Column subtraction with whole numbers             | <p>Use place value equipment to understand where exchanges are required.</p> <p>2,250 – 1,070</p>  | <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 border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>1</td><td>5</td><td>7</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <p>Now subtract the 10s. Exchange 1 hundred for 10 tens.</p> <table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>1</td><td>5</td><td>7</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <p>Subtract the 100s, 1,000s and 10,000s.</p> <table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>1</td><td>5</td><td>7</td><td>3</td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>1</td><td>5</td><td>7</td><td>3</td><td>5</td></tr><tr><td>-</td><td>2</td><td>5</td><td>8</td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> | TTh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Th  | H  | T | O | 1 | 5 | 7 | 3 | 5 |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   | TTh | Th | H | T | O | 1 | 5 | 7 | 3 | 5 |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | TTh | Th | H | T | O | 1 | 5 | 7 | 3 | 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | TTh | Th | H | T | O | 1 | 5 | 7 | 3 | 5 | - | 2 | 5 | 8 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <p>Use column subtraction methods with exchange where required.</p> <table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>1</td><td>5</td><td>7</td><td>3</td><td>5</td></tr><tr><td>-</td><td>2</td><td>5</td><td>8</td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <p>62,097 – 18,534 = 43,563</p> | TTh | Th | H | T | O | 1 | 5 | 7 | 3 | 5 | - | 2 | 5 | 8 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| TTh                                               | Th                                                                                                                                                                                  | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | O   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1                                                 | 5                                                                                                                                                                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1                                                 | 5                                                                                                                                                                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Checking strategies and representing subtractions |                                                                                                                                                                                     | <p>Bar models represent subtractions in problem contexts, including ‘find the difference’.</p> <p>Athletics Stadium <span style="border: 1px solid black; padding: 2px 20px;">75,450</span></p> <p>Hockey Centre <span style="border: 1px solid black; padding: 2px 20px;"></span> <span style="margin-left: 10px;">← 42,300 →</span></p> <p>Velodrome <span style="border: 1px solid black; padding: 2px 20px;">15,735</span> <span style="margin-left: 10px;">← ? →</span></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Children can explain the mistake made when the columns have not been ordered correctly.</p> <div><div><p>Bella's working</p><table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>1</td><td>7</td><td>8</td><td>7</td><td>7</td></tr><tr><td>+</td><td>4</td><td>0</td><td>1</td><td>2</td></tr><tr><td></td><td>5</td><td>7</td><td>9</td><td>9</td></tr></tbody></table></div><div><p>Correct method</p><table border="1"><thead><tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr></thead><tbody><tr><td>1</td><td>7</td><td>8</td><td>7</td><td>7</td></tr><tr><td>+</td><td>4</td><td>0</td><td>1</td><td>2</td></tr><tr><td></td><td>2</td><td>1</td><td>8</td><td>9</td></tr></tbody></table></div></div> <p>Use approximation to check calculations.</p> <p>I calculated 18,000 + 4,000 mentally to check my subtraction.</p> | TTh | Th | H | T | O | 1 | 7 | 8 | 7 | 7 | + | 4 | 0 | 1 | 2 |  | 5 | 7 | 9 | 9 | TTh | Th | H | T | O | 1 | 7 | 8 | 7 | 7   | +  | 4 | 0 | 1 | 2 |   | 2 | 1 | 8 | 9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TTh                                               | Th                                                                                                                                                                                  | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | O   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1                                                 | 7                                                                                                                                                                                   | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|                                                   | 5                                                                                                                                                                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TTh                                               | Th                                                                                                                                                                                  | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | O   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1                                                 | 7                                                                                                                                                                                   | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| +                                                 | 4                                                                                                                                                                                   | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                   | 2                                                                                                                                                                                   | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |     |    |   |   |   |   |   |   |   |     |    |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### Choosing efficient methods

To subtract two large numbers that are close, children find the difference by counting on.

$$2,002 - 1,995 = ?$$



Use addition to check subtractions.  
*I calculated  $7,546 - 2,355 = 5,191$ .  
 I will check using the inverse.*

### Subtracting decimals

Explore complements to a whole number by working in the context of length.



$$1 \text{ m} - \boxed{\phantom{00}} \text{ m} = \boxed{\phantom{00}} \text{ m}$$

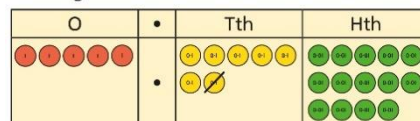
$$1 - 0.49 = ?$$

Use a place value grid to represent the stages of column subtraction, including exchanges where required.

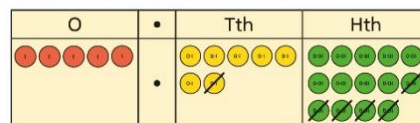
$$5.74 - 2.25 = ?$$



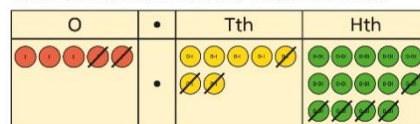
Exchange 1 tenth for 10 hundredths.



Now subtract the 5 hundredths.



Now subtract the 2 tenths, then the 2 ones.



$$\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 5 \cdot 74 \\ - 2 \cdot 25 \\ \hline \end{array}$$

$$\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 5 \cdot 674 \\ - 2 \cdot 25 \\ \hline \end{array}$$

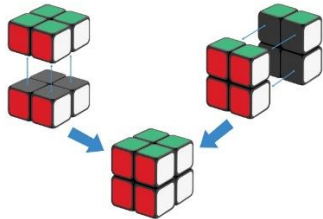
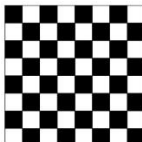
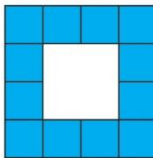
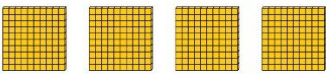
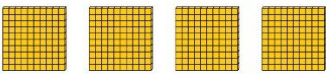
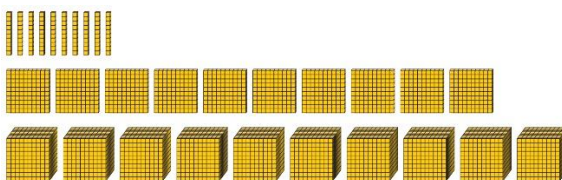
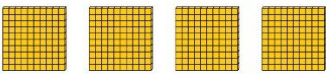
$$\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 5 \cdot 674 \\ - 2 \cdot 25 \\ \hline \end{array}$$

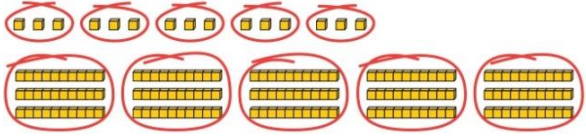
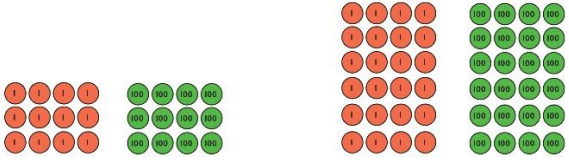
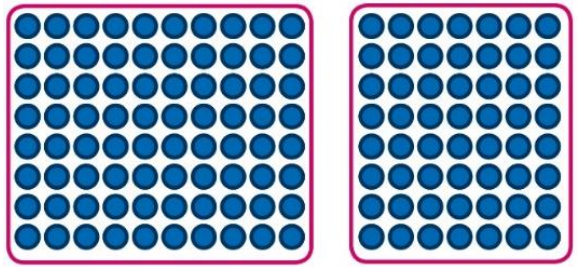
$$\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \\ 5 \cdot 674 \\ - 2 \cdot 25 \\ \hline 3 \cdot 49 \end{array}$$

Use column subtraction, with an understanding of place value, including subtracting numbers with different numbers of decimal places.

$$3.921 - 3.75 = ?$$

$$\begin{array}{r} \text{O} \cdot \text{Tth} \text{Hth} \text{Thth} \\ 3 \cdot 921 \\ - 3 \cdot 750 \\ \hline \end{array}$$

| <b>Year 5 Multiplication</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                           |                                     |                                                                                     |                                           |                                                                                     |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |  |   |   |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--|---|---|
| <b>Understanding factors</b>              | <p>Use cubes or counters to explore the meaning of 'square numbers'.</p> <p><i>25 is a square number because it is made from 5 rows of 5.</i></p> <p>Use cubes to explore cube numbers.</p>  <p><i>8 is a cube number.</i></p>                                                                                                                                                                                                                                                                                                       | <p>Use images to explore examples and non-examples of square numbers.</p>  <p><math>8 \times 8 = 64</math><br/><math>8^2 = 64</math></p>  <p><i>12 is not a square number, because you cannot multiply a whole number by itself to make 12.</i></p> | <p>Understand the pattern of square numbers in the multiplication tables.</p> <p>Use a multiplication grid to circle each square number. Can children spot a pattern?</p> |                                     |                                                                                     |                                           |                                                                                     |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |  |   |   |
| <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><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>Understand how exchange relates to the digits when multiplying by 10, 100 and 1,000.</p> <table><tr><th>H</th><th>T</th><th>O</th></tr><tr><td></td><td>1</td><td>7</td></tr></table> <p><math>17 \times 10 = 170</math><br/><math>17 \times 100 = 17 \times 10 \times 10 = 1,700</math><br/><math>17 \times 1,000 = 17 \times 10 \times 10 \times 10 = 17,000</math></p> | H | T | O |  | 1 | 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                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                           |                                     |                                                                                     |                                           |                                                                                     |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |  |   |   |
|                                           | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                           |                                     |                                                                                     |                                           |                                                                                     |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                              |   |   |   |  |   |   |

| <p><b>Multiplying by multiples of 10, 100 and 1,000</b></p>       | <p>Use place value equipment to explore multiplying by unitising.</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>                                   | <p>Use place value equipment to represent how to multiply by multiples of 10, 100 and 1,000.</p>  <p><math>4 \times 3 = 12</math><br/><math>4 \times 300 = 1,200</math></p> <p><math>6 \times 4 = 24</math><br/><math>6 \times 400 = 2,400</math></p>                                                                                                                                                | <p>Use known facts and unitising to multiply.</p> <p><math>5 \times 4 = 20</math><br/><math>5 \times 40 = 200</math><br/><math>5 \times 400 = 2,000</math><br/><math>5 \times 4,000 = 20,000</math></p> <p><math>5,000 \times 4 = 20,000</math></p> |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|------|--|--|--|-----|--|--|--|----|--|--|--|---|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----|----|---|---|----------------------|---------------------|-------------------|
| <p><b>Multiplying up to 4-digit numbers by a single digit</b></p> | <p>Explore how to use partitioning to multiply efficiently.</p> <p><math>8 \times 17 = ?</math></p>  <p><math>8 \times 10 = 80</math><br/><math>8 \times 7 = 56</math></p> <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 border="1"> <thead> <tr> <th></th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>1000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>100</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                     | H | T | O | 1000 |  |  |  | 100 |  |  |  | 10 |  |  |  | 1 |  |  |  | <p>Use an area model and then add the parts.</p> <table border="1"> <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> $\begin{array}{r} 136 \\ \times 5 \\ \hline 816 \\ 23 \end{array}$ |  | 100 | 60 | 3 | 5 | $100 \times 5 = 500$ | $60 \times 5 = 300$ | $3 \times 5 = 15$ |
|                                                                   | H                                                                                                                                                                                                                                                                                                                                        | T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | O                                                                                                                                                                                                                                                   |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |
| 1000                                                              |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                     |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |
| 100                                                               |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                     |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |
| 10                                                                |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                     |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |
| 1                                                                 |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                     |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |
|                                                                   | 100                                                                                                                                                                                                                                                                                                                                      | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3                                                                                                                                                                                                                                                   |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |
| 5                                                                 | $100 \times 5 = 500$                                                                                                                                                                                                                                                                                                                     | $60 \times 5 = 300$                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $3 \times 5 = 15$                                                                                                                                                                                                                                   |   |   |   |      |  |  |  |     |  |  |  |    |  |  |  |   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |     |    |   |   |                      |                     |                   |

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

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

$$23 \times 15 = ?$$



$$10 \times 15 = 150$$



$$10 \times 15 = 150$$



$$3 \times 15 = 45$$

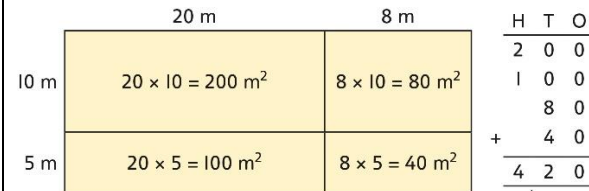
There are 345 bottles of milk in total.

|   |   |   |   |
|---|---|---|---|
|   | H | T | O |
|   | 1 | 5 | 0 |
|   | 1 | 5 | 0 |
| + |   | 4 | 5 |
|   | 3 | 4 | 5 |

$$23 \times 15 = 345$$

Use an area model and add the parts.

$$28 \times 15 = ?$$



|   |   |   |   |
|---|---|---|---|
|   | H | T | O |
|   | 2 | 0 | 0 |
|   | 1 | 0 | 0 |
|   |   | 8 | 0 |
| + |   | 4 | 0 |
|   | 4 | 2 | 0 |

$$28 \times 15 = 420$$

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

|   |   |   |
|---|---|---|
|   | 3 | 4 |
| x | 2 | 7 |
|   | 2 | 3 |
|   | 2 | 8 |

$$34 \times 7$$

|   |   |   |
|---|---|---|
|   | 3 | 4 |
| x | 2 | 7 |
|   | 2 | 3 |
|   | 2 | 8 |

$$34 \times 7$$

|  |   |   |   |
|--|---|---|---|
|  | 6 | 8 | 0 |
|  | 6 | 8 | 0 |

$$34 \times 20$$

|   |   |   |
|---|---|---|
|   | 3 | 4 |
| x | 2 | 7 |
|   | 2 | 3 |
|   | 2 | 8 |

$$34 \times 7$$

|  |   |   |   |
|--|---|---|---|
|  | 6 | 8 | 0 |
|  | 6 | 8 | 0 |

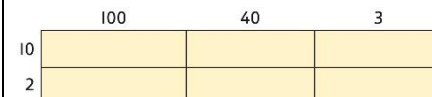
$$34 \times 20$$

|  |   |   |   |
|--|---|---|---|
|  | 9 | 1 | 8 |
|  | 9 | 1 | 8 |

$$34 \times 27$$

### Multiplying up to 4-digits by 2-digits

Use the area model then add the parts.



$$143 \times 12 = 1,716$$

There are 1,716 boxes of cereal in total.

$$143 \times 12 = 1,716$$

|   |    |   |   |   |
|---|----|---|---|---|
|   | Th | H | T | O |
|   | 1  | 0 | 0 | 0 |
|   | 4  | 0 | 0 |   |
|   | 2  | 0 | 0 |   |
|   |    | 8 | 0 |   |
|   |    | 3 | 0 |   |
| + |    |   | 6 |   |
|   | 1  | 7 | 1 | 6 |

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

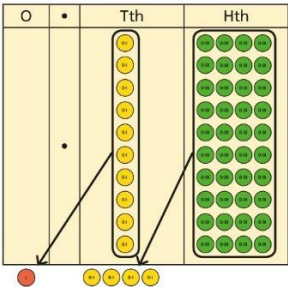
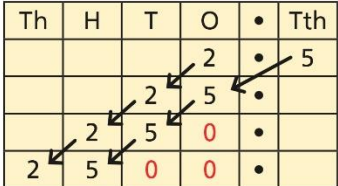
|   |   |   |   |
|---|---|---|---|
|   | 1 | 4 | 3 |
| x |   | 1 | 2 |
|   | 2 | 8 | 6 |
|   | 1 | 4 | 3 |
|   | 1 | 7 | 1 |

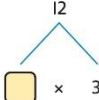
$$143 \times 2$$

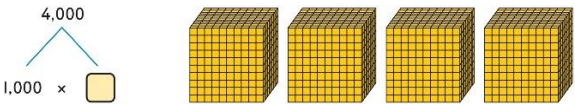
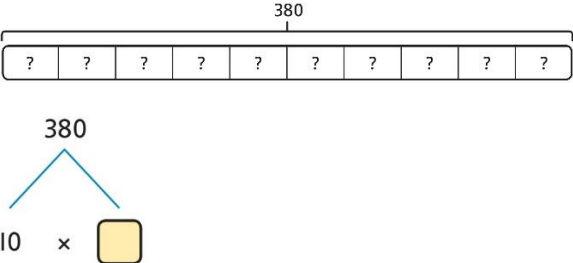
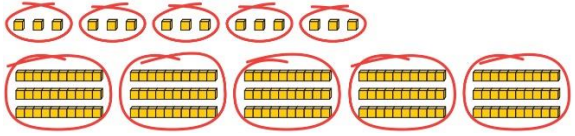
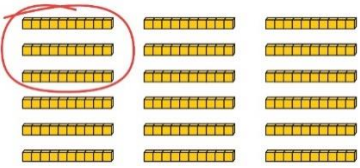
$$143 \times 10$$

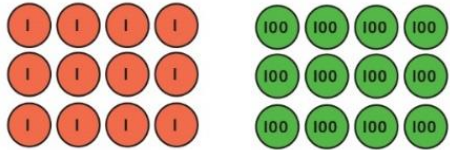
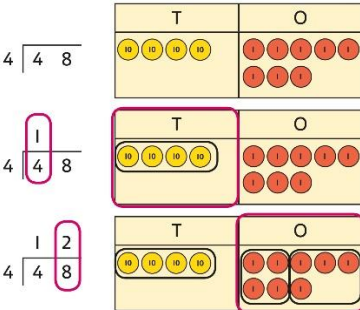
$$143 \times 12$$

Progress to include examples that require multiple exchanges as understanding, confidence and fluency build.

|                                                         |                                                                                                                        |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                         |                                                                                                                        |                                                                                                                                                                                                        | <p><math>1,274 \times 32 = ?</math><br/>First multiply 1,274 by 2.</p> $\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 2 \\ \hline 2\ 5\ 4\ 8 \end{array} \quad 1,274 \times 2$ <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> $\begin{array}{r} 1\ 2\ 7\ 4 \\ \times \quad 3\ 2 \\ \hline 2\ 5\ 4\ 8 \quad 1,274 \times 2 \\ 3\ 8\ 2\ 2\ 0 \quad 1,274 \times 30 \\ \hline 4\ 0\ 7\ 6\ 8 \quad 1,274 \times 32 \\ \hline \end{array}$ <p><math>1,274 \times 32 = 40,768</math></p> |
| <p><b>Multiplying decimals by 10, 100 and 1,000</b></p> | <p>Use place value equipment to explore and understand the exchange of 10 tenths, 10 hundredths or 10 thousandths.</p> | <p>Represent multiplication by 10 as exchange on a place value grid.</p>  <p><math>0.14 \times 10 = 1.4</math></p> | <p>Understand how this exchange is represented on a place value chart.</p>  <p><math>2.5 \times 10 = 25</math><br/><math>2.5 \times 100 = 250</math><br/><math>2.5 \times 1,000 = 2,500</math></p>                                                                                                                                                                                                                                                                                                                                                                          |

| Year 5<br>Division                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Understanding factors and prime numbers</b>                                                 | <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><br/> <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>                                                                                                                                                                                                                                                      |
| <b>Understanding inverse operations and the link with multiplication, grouping and sharing</b> | <p>Use equipment to group and share and to explore the calculations that are present.</p> <p><i>I have 28 counters.</i></p> <p><i>I made 7 groups of 4. There are 28 in total.</i></p> <p><i>I have 28 in total. I shared them equally into 7 groups. There are 4 in each group.</i></p> <p><i>I have 28 in total. I made groups of 4. There are 7 equal groups.</i></p>                                                                                                                      | <p>Represent multiplicative relationships and explore the families of division facts.</p>  <p><math>60 \div 4 = 15</math><br/> <math>60 \div 15 = 4</math></p>                                | <p>Represent the different multiplicative relationships to solve problems requiring inverse operations.</p> <p><math>12 \div 3 = \square</math><br/> <math>12 \div \square = 3</math><br/> <math>\square \times 3 = 12</math><br/> <math>\square \div 3 = 12</math></p>  <p>Understand missing number problems for division calculations and know how to solve them using inverse operations.</p> <p><math>22 \div ? = 2</math><br/> <math>22 \div 2 = ?</math><br/> <math>? \div 2 = 22</math><br/> <math>? \div 22 = 2</math></p> |

| <p><b>Dividing whole numbers by 10, 100 and 1,000</b></p> | <p>Use place value equipment to support unitising for division.</p> <p><math>4,000 \div 1,000</math></p>  <p><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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |   |   |   |   |   |   |
| <p><b>Dividing by multiples of 10, 100 and 1,000</b></p>  | <p>Use place value equipment to represent known facts and unitising.</p>  <p><math>15</math> ones put into groups of 3 ones. There are 5 groups.</p> <p><math>15 \div 3 = 5</math></p> <p><math>15</math> tens put into groups of 3 tens. There are 5 groups.</p> <p><math>150 \div 30 = 5</math></p> | <p>Represent related facts with place value equipment when dividing by unitising.</p>  <p><math>180</math> is 18 tens.</p> <p><math>18</math> tens divided into groups of 3 tens. There are 6 groups.</p> <p><math>180 \div 30 = 6</math></p>            | <p>Reason from known facts, based on understanding of unitising. Use knowledge of the inverse relationship to check.</p> <p><math>3,000 \div 5 = 600</math></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>                                                                                                                                                                                                                          |    |   |   |   |   |   |   |   |

|                                                                          |                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          |                                                                                                                                                                                                                                                |  <p>12 ones divided into groups of 4. There are 3 groups.</p> <p>12 hundreds divided into groups of 4 hundreds. There are 3 groups.</p> <p><math>1200 \div 400 = 3</math></p>                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Dividing up to four digits by a single digit using short division</b> | <p>Explore grouping using place value equipment.</p> <p><math>268 \div 2 = ?</math></p> <p><i>There is 1 group of 2 hundreds.<br/>There are 3 groups of 2 tens.<br/>There are 4 groups of 2 ones.</i></p> <p><math>264 \div 2 = 134</math></p> | <p>Use place value equipment on a place value grid alongside short division. The model uses grouping. A sharing model can also be used, although the model would need adapting.</p>  <p>Lay out the problem as a short division.</p> <p><i>There is 1 group of 4 in 4 tens.<br/>There are 2 groups of 4 in 8 ones.</i></p> | <p>Use short division for up to 4-digit numbers divided by a single digit.</p> $\begin{array}{r} 0 \ 5 \ 5 \ 6 \\ 7 \overline{) 3 \ 8 \ 9 \ 2} \end{array}$ <p><math>3,892 \div 7 = 556</math></p> <p>Use multiplication to check.</p> <p><math>556 \times 7 = ?</math></p> <p><math>6 \times 7 = 42</math><br/> <math>50 \times 7 = 350</math><br/> <math>500 \times 7 = 3500</math></p> <p><math>3,500 + 350 + 42 = 3,892</math></p> |

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.

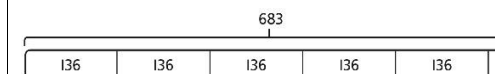
There are 2 tens remaining.

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.



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

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

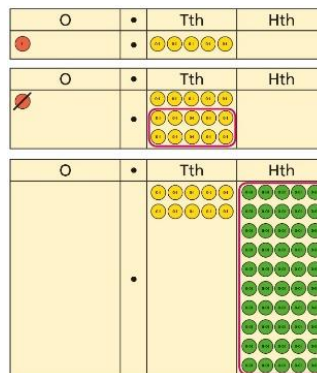
### Dividing decimals by 10, 100 and 1,000

Understand division by 10 using exchange.

*2 ones are 20 tenths.*

*20 tenths divided by 10 is 2 tenths.*

Represent division using exchange on a place value grid.



*1.5 is 1 one and 5 tenths.*

*This is equivalent to 10 tenths and 50 hundredths.*

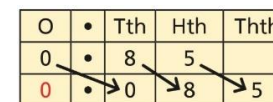
*10 tenths divided by 10 is 1 tenth.*

*50 hundredths divided by 10 is 5 hundredths.*

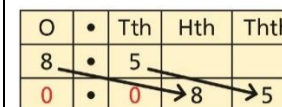
*1.5 divided by 10 is 1 tenth and 5 hundredths.*

*$1.5 \div 10 = 0.15$*

Understand the movement of digits on a place value grid.



*$0.85 \div 10 = 0.085$*



*$8.5 \div 100 = 0.085$*

### Understanding the relationship between fractions and division

Use sharing to explore the link between fractions and division.

*1 whole shared between 3 people.  
Each person receives one-third.*



Use a bar model and other fraction representations to show the link between fractions and division.



$$1 \div 3 = \frac{1}{3}$$

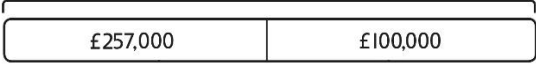
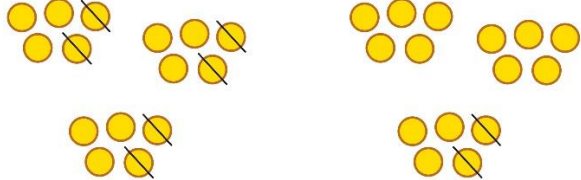
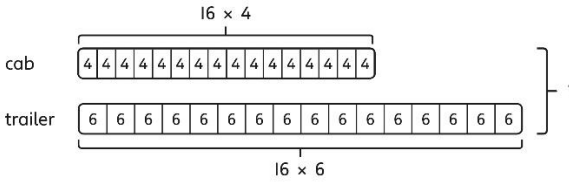
Use the link between division and fractions to calculate divisions.

$$5 \div 4 = \frac{5}{4} = 1\frac{1}{4}$$

$$11 \div 4 = \frac{11}{4} = 2\frac{3}{4}$$

## Year 6

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

| <div>Year 6</div> <div>Subtraction</div>            | <div>Use counters on a place value grid to represent subtractions of larger numbers.</div> <div><table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td><div><div></div><div></div></div></td><td><div><div></div><div></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></div><div></div></div></td><td><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></td></tr></table></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></div><div></div></div> | <div>Compare subtraction methods alongside place value representations.</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></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><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td><div><div></div><div></div></div></td><td><div><div></div><div></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></div><div></div></div></td><td><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></td></tr></table><div><table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>2</td><td>6</td><td>7</td><td>9</td></tr><tr><td>-</td><td>5</td><td>3</td><td>4</td></tr><tr><td>2</td><td>1</td><td>4</td><td>5</td></tr></table></div></div> <div>Use a bar model to represent calculations, including 'find the difference' with two bars as comparison.</div> <div><div><div>computer game</div><div>puzzle book</div><div>£12.50</div></div></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></div><div></div></div> | Th | H | T | O | 2 | 6 | 7 | 9 | - | 5 | 3 | 4 | 2 | 1 | 4 | 5 | <div>Compare and select methods. Use column subtraction when mental methods are not efficient. Use two different methods for one calculation as a checking strategy.</div> <div><table><tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>1</td><td>5</td><td>5</td><td>8</td></tr><tr><td>-</td><td>1</td><td>5</td><td>8</td></tr><tr><td></td><td>3</td><td>9</td><td>4</td></tr></table><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>Use column subtraction for decimal problems, including in the context of measure.</div> <div><table><tr><th>H</th><th>T</th><th>O</th><th>Tth</th><th>Hth</th></tr><tr><td>3</td><td>0</td><td>9</td><td>6</td><td>0</td></tr><tr><td>-</td><td>2</td><td>0</td><td>6</td><td>4</td></tr><tr><td></td><td>1</td><td>0</td><td>3</td><td>2</td></tr></table></div> | Th | H | T | O | 1 | 5 | 5 | 8 | - | 1 | 5 | 8 |  | 3 | 9 | 4 | H | T | O | Tth | Hth | 3 | 0 | 9 | 6 | 0 | - | 2 | 0 | 6 | 4 |  | 1 | 0 | 3 | 2 |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----|---|-----------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|-----------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|-----|-----|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|
| 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></div><div></div></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></div><div></div></div> |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| Th                                                  | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | T                                                                                                                                                                                                                                                                                                                              | O                                                                                                   |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| 2                                                   | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7                                                                                                                                                                                                                                                                                                                              | 9                                                                                                   |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| -                                                   | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3                                                                                                                                                                                                                                                                                                                              | 4                                                                                                   |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| 2                                                   | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4                                                                                                                                                                                                                                                                                                                              | 5                                                                                                   |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| Th                                                  | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | T                                                                                                                                                                                                                                                                                                                              | O                                                                                                   |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
| 1                                                   | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 5                                                                                                                                                                                                                                                                                                                              | 8                                                                                                   |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
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|                                                     | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9                                                                                                                                                                                                                                                                                                                              | 4                                                                                                   |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
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| <div>Subtracting mentally with larger numbers</div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <div>Use a bar model to show how unitising can support mental calculations.</div> <div><div>950,000 - 150,000</div><div>That is 950 thousands - 150 thousands</div><div><div><div>950</div><div>150</div><div>800</div></div></div><div>So, the difference is 800 thousands.</div><div>950,000 - 150,000 = 800,000</div></div> | <div>Subtract efficiently from powers of 10.</div> <div>10,000 - 500 = ?</div>                      |     |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |   |   |                                   |                                                                                                     |                                                                                                     |                                                                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |     |     |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |

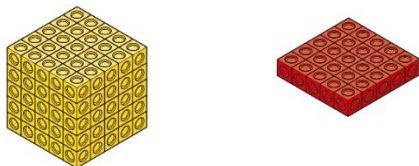
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### Using knowledge of factors and partitions to compare methods for multiplications

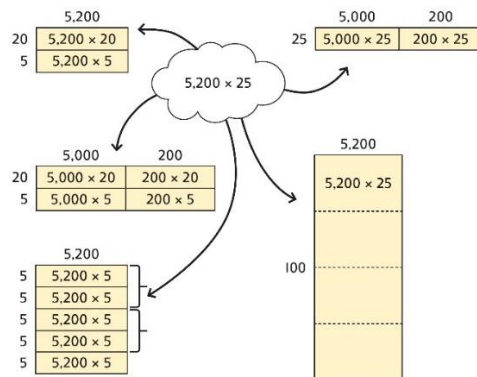
Use equipment to understand square numbers and cube numbers.



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

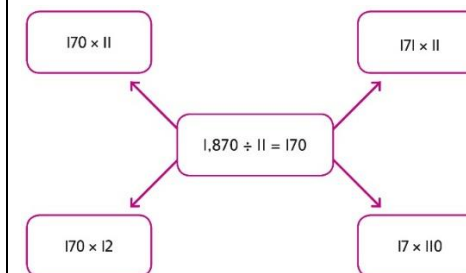
$$5 \times 5 \times 5 = 5^3 = 25 \times 5 = 125$$

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



Represent and compare methods using a bar model.

Use a known fact to generate families of related facts.



Use factors to calculate efficiently.

$$15 \times 16$$

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

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

$$= 24 \times 10$$

$$= 240$$

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

Use place value equipment to explore exchange in decimal multiplication.

| T | O | . | Tth |
|---|---|---|-----|
|   |   | . | 3   |

Represent 0.3.

| T | O | . | Tth |
|---|---|---|-----|
|   |   | . | 30  |

Multiply by 10.

| T | O | . | Tth |
|---|---|---|-----|
| 3 |   | . | 0   |

Exchange each group of ten tenths.

$$0.3 \times 10 = ?$$

0.3 is 3 tenths.  
 10 x 3 tenths are 30 tenths.  
 30 tenths are equivalent to 3 ones.

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

| T | O | . | Tth |
|---|---|---|-----|
| 3 |   | . | 0   |

$$0.3 \times 10 = 3$$

| T | O | . | Tth |
|---|---|---|-----|
| 3 |   | . | 0   |

| T | O | . | Tth |
|---|---|---|-----|
| 3 |   | . | 0   |

| T | O | . | Tth |
|---|---|---|-----|
| 3 |   | . | 0   |

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

$$8 \times 100 = 800$$

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

$$= 2,400$$

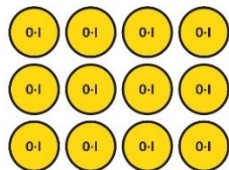
$$2.5 \times 10 = 25$$

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

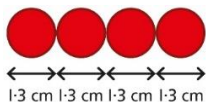
$$= 50$$

## Multiplying decimals

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



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



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

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

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

Represent calculations on a place value grid.

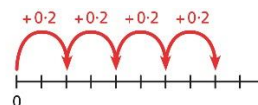
$$3 \times 3 = 9$$

$$3 \times 0.3 = 0.9$$

| T | O | • | Tth |
|---|---|---|-----|
|   |   |   |     |

Understand the link between multiplying decimals and repeated addition.

| T | O | • | Tth |
|---|---|---|-----|
|   |   |   |     |



Use known facts to multiply decimals.

$$4 \times 3 = 12$$

$$4 \times 0.3 = 1.2$$

$$4 \times 0.03 = 0.12$$

$$20 \times 5 = 100$$

$$20 \times 0.5 = 10$$

$$20 \times 0.05 = 1$$

Find families of facts from a known multiplication.

$$I \text{ know that } 18 \times 4 = 72.$$

This can help me work out:

$$1.8 \times 4 = ?$$

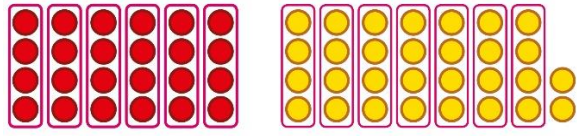
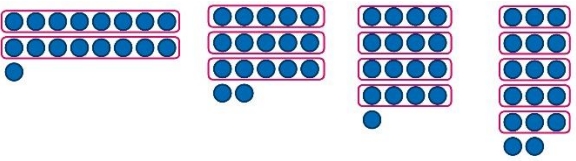
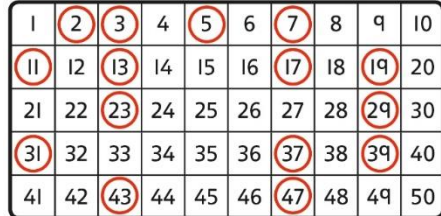
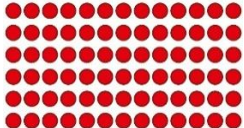
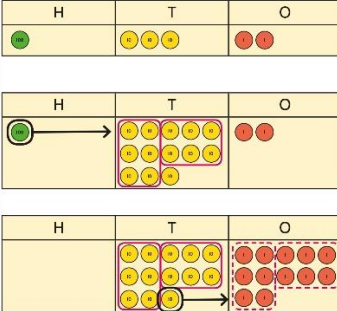
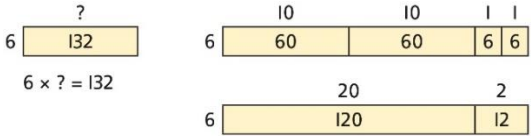
$$18 \times 0.4 = ?$$

$$180 \times 0.4 = ?$$

$$18 \times 0.04 = ?$$

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

|                 | H | T | O | • | Tth | Hth |
|-----------------|---|---|---|---|-----|-----|
| $2 \times 3$    |   |   | 6 | • |     |     |
| $0.2 \times 3$  |   |   | 0 | • | 6   |     |
| $0.02 \times 3$ |   |   |   | • |     |     |

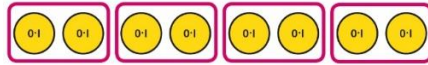
| Year 6<br>Division                |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Understanding factors</b>      | <p>Use equipment to explore different factors of a number.</p>  <p><math>24 \div 4 = 6</math>      <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> | <p>Recognise prime numbers as numbers having exactly two factors. Understand the link with division and remainders.</p>  <p><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></p> | <p>Recognise and know primes up to 100. Understand that 2 is the only even prime, and that 1 is not a prime number.</p>                                                                                                                                                                                                                                                                                                                   |
| <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>How many groups of 6 are in 100? <math>6 \overline{) 132}</math></p> <p>How many groups of 6 are in 13 tens? <math>6 \overline{) 132}</math></p> <p>How many groups of 6 are in 12 ones? <math>6 \overline{) 132}</math></p>                                                                               | <p>Use short division to divide by a single digit.</p> $\begin{array}{r} 0 \\ 6 \overline{) 132} \end{array}$ $\begin{array}{r} 0 \quad 2 \\ 6 \overline{) 132} \end{array}$ $\begin{array}{r} 0 \quad 2 \quad 2 \\ 6 \overline{) 132} \end{array}$ <p>Use an area model to link multiplication and division.</p>  <p><math>6 \times ? = 132</math></p> <p><math>132 = 120 + 12</math></p> <p><math>132 \div 6 = 20 + 2 = 22</math></p> |

|                                                       |                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <div>Dividing by a 2-digit number using factors</div> | <div>Understand that division by factors can be used when dividing by a number that is not prime.</div> | <div>Use factors and repeated division.</div> <div><math>1,260 \div 14 = ?</math></div> <div><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><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><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><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><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><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><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><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><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><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><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><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><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><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><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><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></d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|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                             | <p>A slightly different layout may be used, with the division completed above rather than at the side.</p> $\begin{array}{r} 3 \\ 21 \overline{) 798} \\ \underline{- 630} \\ 168 \end{array}$ $\begin{array}{r} 38 \\ 21 \overline{) 798} \\ \underline{- 630} \\ 168 \\ \underline{- 168} \\ 0 \end{array}$ <p>Divisions with a remainder explored in problem-solving contexts.</p>                                      |
| <p><b>Dividing by 10, 100 and 1,000</b></p> | <p>Use place value equipment to explore division as exchange.</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>Represent division to show the relationship with multiplication. Understand the effect of dividing by 10, 100 and 1,000 on the digits on a place value grid.</p> <p>Understand how to divide using division by 10, 100 and 1,000.</p> <p><math>12 \div 20 = ?</math></p> | <p>Use knowledge of factors to divide by multiples of 10, 100 and 1,000.</p> <p><math>40 \div 50 = \square</math></p> <p><math>40 \rightarrow \boxed{\div 10} \rightarrow \boxed{\div 5} \rightarrow ?</math></p> <p><math>40 \rightarrow \boxed{\div 5} \rightarrow \boxed{\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> |

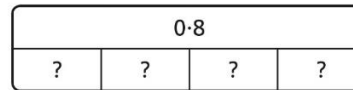
## Dividing decimals

Use place value equipment to explore division of decimals.



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

Use a bar model to represent divisions.



$$4 \times 2 = 8$$

$$8 \div 4 = 2$$

So,  $4 \times 0.2 = 0.8$

$$0.8 \div 4 = 0.2$$

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

$$8 \overline{) 4.24}$$

$$0 \cdot$$

$$8 \overline{) 4.24}$$

$$0 \cdot 5$$

$$8 \overline{) 4.24}$$

$$0 \cdot 53$$

$$8 \overline{) 4.24}$$