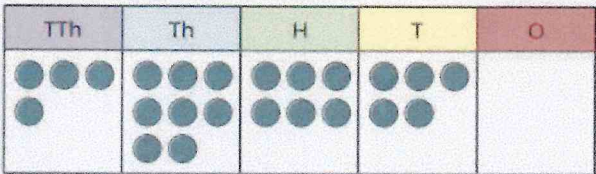
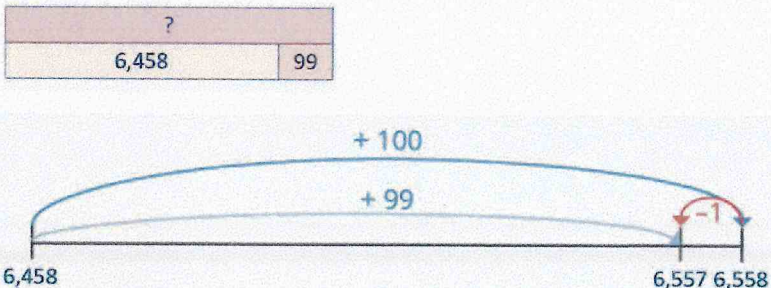
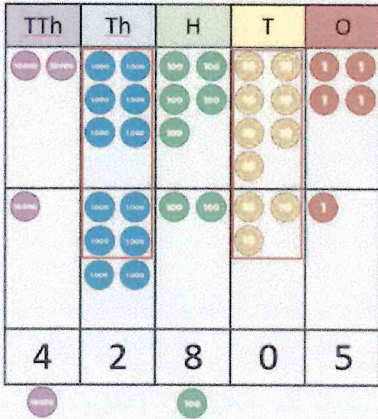
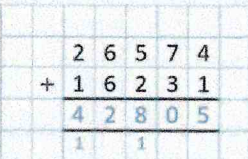
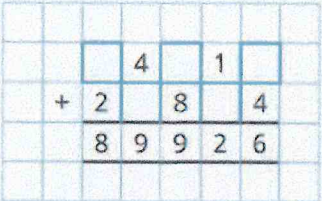
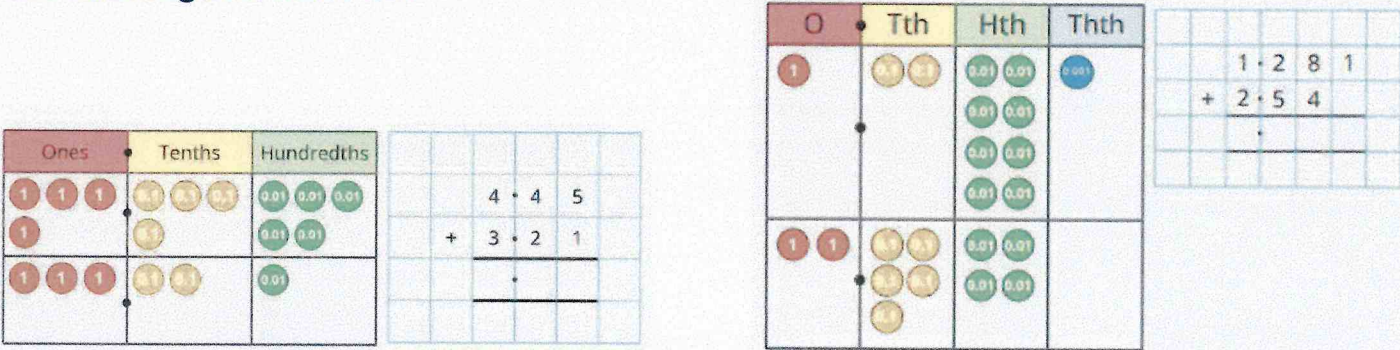
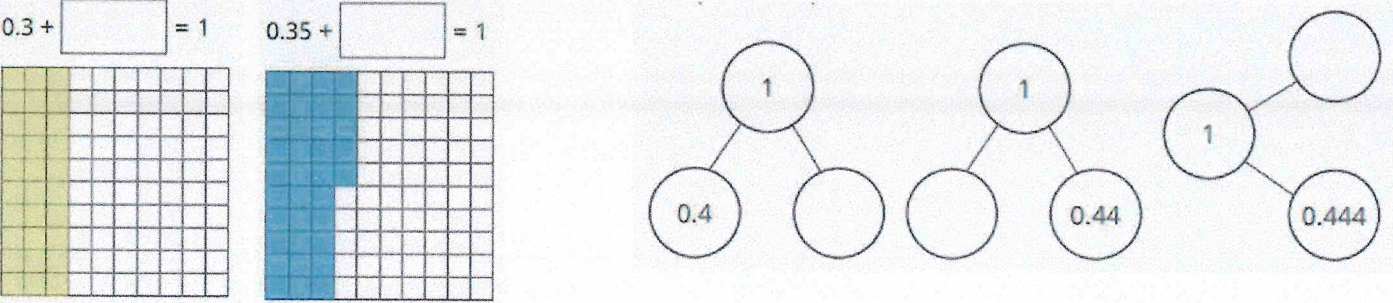
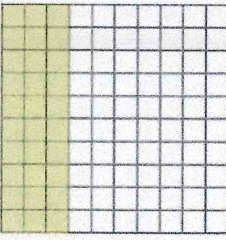
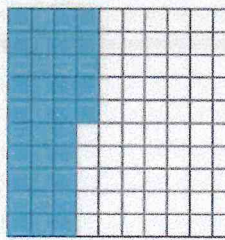
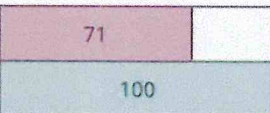
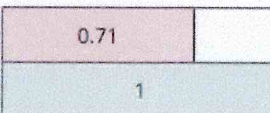
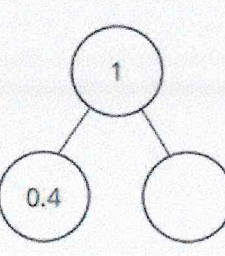
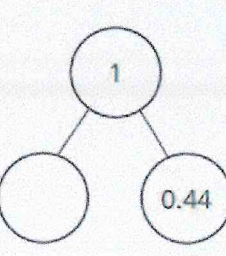
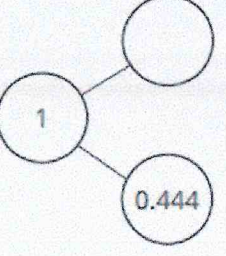


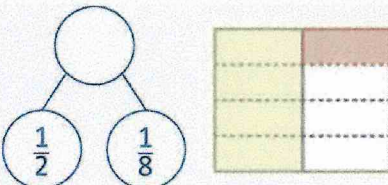
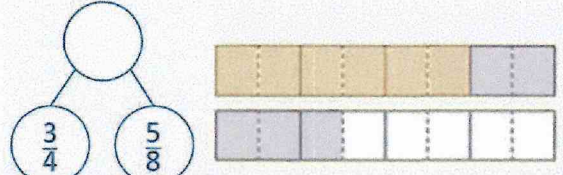

Addition

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

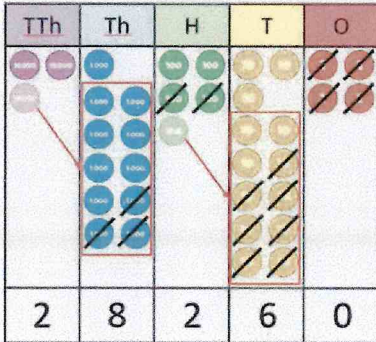
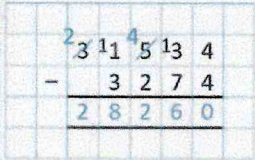
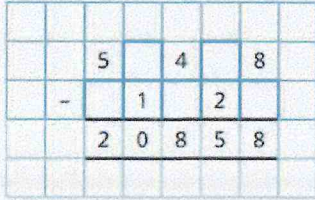
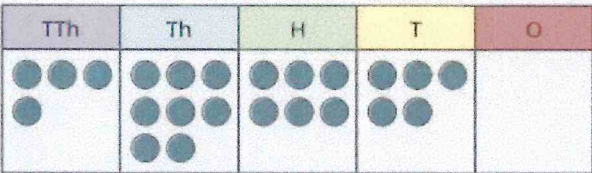
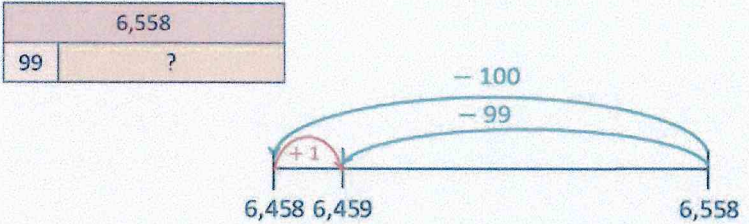
Addition

Progression of skills	Key representations
<p>Add decimals with up to 2 decimal places</p> <p>Progress from the same number of decimal places to a different number of decimal places, and from no exchange to exchange.</p>	<p>I do/do not need to make an exchange because ... I can exchange 10 ... for 1 ...</p> 
<p>Complements to 1</p> <p>Pairs of numbers with up to 3 decimal places which total 1</p> <p>Encourage children to make links with bonds to 10 and complements to 100 and 1,000</p>	 <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> $0.3 + \square = 1$  </div> <div style="text-align: center;"> $0.35 + \square = 1$  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>71 + 29 = 100</p> </div> <div style="text-align: center;">  <p>0.71 + 0.29 = 1</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>4 + 6 = 10</p> </div> <div style="text-align: center;">  <p>44 + 56 = 100</p> </div> <div style="text-align: center;">  <p>444 + 556 = 1,000</p> </div> </div>

Addition

Progression of skills	Key representations
<p>Add fractions with denominators that are a multiple of one another</p> <p>Encourage children to convert fractions to the same denominator before adding.</p> <p>Progress from adding fractions within 1 whole to adding fractions beyond 1 whole.</p>	<p>The denominator has been multiplied by ..., so the numerator needs to be multiplied by... for the fractions to be equivalent.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  $\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$ </div> <div style="text-align: center;">  $\frac{3}{4} + \frac{5}{8} = \frac{6}{8} + \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}$ </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  $\frac{1}{4} + \frac{3}{8} = \frac{2}{8} + \frac{3}{8} = \frac{5}{8}$ </div> </div>

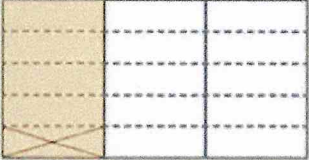
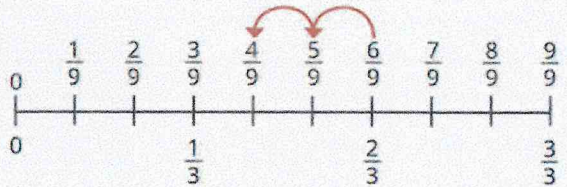
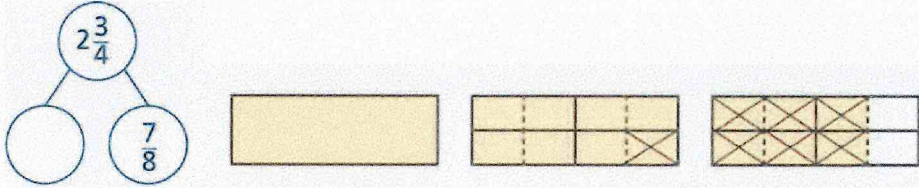
Subtraction

<p>Year 5</p>	<ul style="list-style-type: none"> Subtract whole numbers with more than 4 digits. Subtract numbers mentally with increasingly large numbers. Subtract decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 Subtract fractions with the same denominator, and denominators that are multiples of the same number. 	
<p>Progression of skills</p>	<p>Key representations</p>	
<p>Subtract whole numbers with more than 4 digits</p> <p>Encourage children to estimate and use inverse operations to check answers to calculations.</p>	<p>I can exchange 1 ... for 10 ...</p>   	
<p>Subtract using mental strategies</p> <p>Subtract 1s, 10s, 100s etc from any number. Use number bonds and related facts.</p>	 <p> $48,650 - 300 =$ $48,650 - 30,000 =$ $48,650 - 30 =$ </p>	<p>To subtract ..., I can subtract ... then add ...</p> 


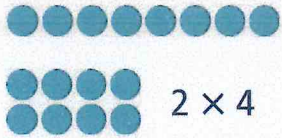
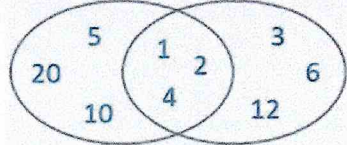
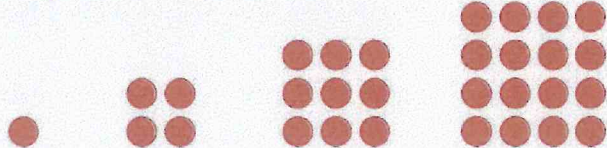
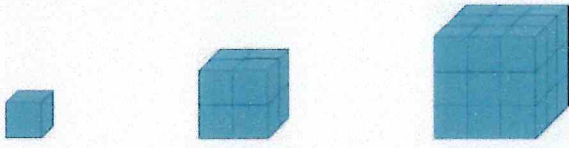
Subtraction

Progression of skills	Key representations																
<p>Subtract decimals with up to 2 decimal places</p> <p>Progress from the same number of decimal places to a different number of decimal places and from no exchange to exchange.</p>																	
<p>Complements to 1</p> <p>Encourage children to make links with bonds to 10 and complements to 100 and 1,000 when finding a missing part or subtracting from 1</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>$0.3 + \square = 1$</p> <table border="1" style="margin: 5px auto;"> <tr><td colspan="2">10</td></tr> <tr><td>3</td><td>?</td></tr> </table> <table border="1" style="margin: 5px auto;"> <tr><td colspan="2">1</td></tr> <tr><td>0.3</td><td>?</td></tr> </table> </div> <div style="text-align: center;"> <p>$0.35 + \square = 1$</p> <table border="1" style="margin: 5px auto;"> <tr><td colspan="2">100</td></tr> <tr><td>35</td><td>?</td></tr> </table> <table border="1" style="margin: 5px auto;"> <tr><td colspan="2">1</td></tr> <tr><td>0.35</td><td>?</td></tr> </table> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>$10 - 4 = 6$</p> </div> <div style="text-align: center;"> <p>$100 - 44 = 56$</p> </div> <div style="text-align: center;"> <p>$1,000 - 444 = 556$</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>$1 - 0.4 = 0.6$</p> </div> <div style="text-align: center;"> <p>$1 - 0.44 = 0.56$</p> </div> <div style="text-align: center;"> <p>$1 - 0.444 = 0.556$</p> </div> </div>	10		3	?	1		0.3	?	100		35	?	1		0.35	?
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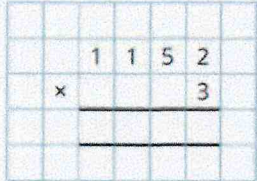
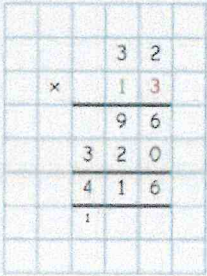
Subtraction

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

Multiplication

<p>Year 5</p>	<ul style="list-style-type: none"> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. Multiply numbers mentally drawing upon known facts. Multiply whole numbers and those involving decimals by 10, 100 and 1000 Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. 																																
<p>Progression of skills</p>	<p>Key representations</p>																																
<p>Multiples and factors</p> <p>Encourage children to notice patterns and make links with known facts.</p>	<p>... is a multiple of ... because ... × ... = ...</p>  <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	<p>... is a factor of ... because ... × ... = ...</p>  <p>1 × 8 2 × 4</p> <p>1, 2, 4 and 8 are factors of 8</p>	<p>The common factors of ... and ... are ...</p> <p>Factors of 20 Factors of 12</p> 
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11	12	13	14	15	16	17	18	19	20																								
21	22	23	24	25	26	27	28	29	30																								
<p>Square and cube numbers</p>	<p>... squared means ... × ...</p>  <p>1 × 1 2 × 2 3 × 3 4 × 4 1² = 1 2² = 4 3² = 9 4² = 16</p>		<p>... cubed means ... × ... × ...</p>  <p>1 × 1 × 1 2 × 2 × 2 3 × 3 × 3 1³ = 1 2³ = 8 3³ = 27</p>																														


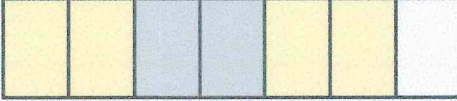
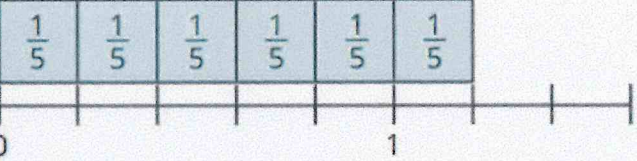
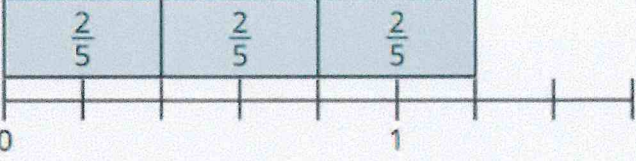
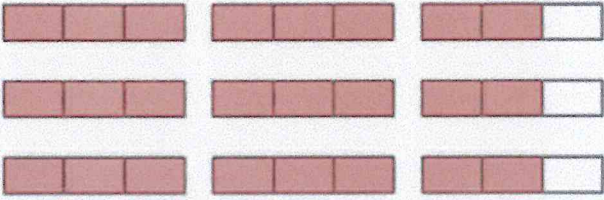
Multiplication

Progression of skills	Key representations																																											
<p>Multiply numbers up to 4 digits by a 1-digit number</p> <p>This builds on the short multiplication method introduced in Y4</p>	<p>To multiply a 4-digit number by ... , I multiply the ones by ... , the tens by ... , the hundreds by ... and the thousands by ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 20px;"></th> <th style="width: 40px;">Th</th> <th style="width: 40px;">H</th> <th style="width: 40px;">T</th> <th style="width: 40px;">O</th> </tr> </thead> <tbody> <tr> <td>1000</td> <td></td> <td>100</td> <td>10</td> <td>1</td> </tr> <tr> <td>1000</td> <td></td> <td>100</td> <td>10</td> <td>1</td> </tr> <tr> <td>1000</td> <td></td> <td>100</td> <td>10</td> <td>1</td> </tr> </tbody> </table>  </div>			Th	H	T	O	1000		100	10	1	1000		100	10	1	1000		100	10	1																						
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<p>Multiply numbers up to 4 digits by a 2-digit number</p> <p>Numbers are first partitioned using an area model then long multiplication is introduced for the first time.</p>	<p>I can partition ... into ... and ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tbody> <tr> <td>x</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> <td>10</td> </tr> <tr> <td>30</td> <td>300</td> <td>300</td> <td>300</td> <td>300</td> <td>300</td> <td>300</td> <td>300</td> </tr> <tr> <td>2</td> <td>20</td> <td>20</td> <td>20</td> <td>20</td> <td>20</td> <td>20</td> <td>20</td> </tr> </tbody> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tbody> <tr> <td>x</td> <td>40</td> <td>4</td> </tr> <tr> <td>30</td> <td>1,200</td> <td>120</td> </tr> <tr> <td>2</td> <td>80</td> <td>8</td> </tr> </tbody> </table> </div> <p>$32 \times 44 = 1,200 + 80 + 120 + 8$ $32 \times 44 = 1,408$</p>	x	10	10	10	10	10	10	10	30	300	300	300	300	300	300	300	2	20	20	20	20	20	20	20	x	40	4	30	1,200	120	2	80	8	<p>First, I multiply by the ... Then I multiply by the ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tbody> <tr> <td>x</td> <td>10</td> <td>3</td> </tr> <tr> <td>30</td> <td>300</td> <td>90</td> </tr> <tr> <td>2</td> <td>20</td> <td>6</td> </tr> </tbody> </table>  <div style="margin-left: 20px;"> <p>(32×3) (32×10)</p> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; width: fit-content;"> $300 + 90 + 20 + 6 = 416$ </div>	x	10	3	30	300	90	2	20	6
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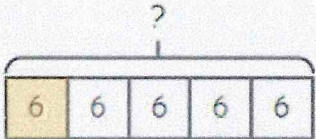
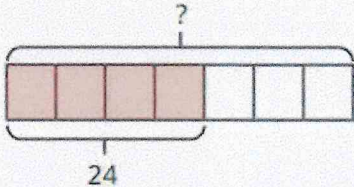
Multiplication

Progression of skills	Key representations																										
<p>Multiply by 10, 100 and 1,000</p> <p>Some children may over-generalise that multiplying by a power of 10 always results in adding zeros. This will cause issues later when multiplying decimals.</p>	<p>To multiply by 10/100/1,000, I move all the digits ... places to the left. ... is 10/100/1,000 times the size of ...</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 150px; height: 40px;"> <tr> <th style="width: 25%;">M</th> <th style="width: 25%;">HTh</th> <th style="width: 25%;">TTh</th> <th style="width: 25%;">Th</th> <th style="width: 25%;">H</th> <th style="width: 25%;">T</th> <th style="width: 25%;">O</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>● ●</td> <td>● ● ● ●</td> <td>● ● ● ●</td> </tr> </table> <p> $234 \times 10 = 2,340$ $234 \times 100 = 23,400$ $234 \times 1,000 = 234,000$ </p> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 150px; height: 40px;"> <tr> <th style="width: 25%;">Th</th> <th style="width: 25%;">H</th> <th style="width: 25%;">T</th> <th style="width: 25%;">O</th> <th style="width: 25%;">Tth</th> <th style="width: 25%;">Hth</th> </tr> <tr> <td></td> <td></td> <td></td> <td>● ● ● ●</td> <td>● ● ● ●</td> <td>● ● ● ●</td> </tr> </table> <p> $2.34 \times 10 = 23.4$ $2.34 \times 100 = 234$ $2.34 \times 1,000 = 2,340$ </p> </div> </div>	M	HTh	TTh	Th	H	T	O					● ●	● ● ● ●	● ● ● ●	Th	H	T	O	Tth	Hth				● ● ● ●	● ● ● ●	● ● ● ●
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<p>Mental strategies</p> <p>Children continue to use efficient mental strategies such as partitioning and knowledge of factor pairs and related facts to multiply.</p>	<p>The most efficient strategy to calculate ... \times ... is ... To calculate ... \times 12, I can do ... \times ... \times ...</p> <p>For example: 121×12 I could calculate 100×12 plus 20×12 plus 1×12 I could calculate 121×10 plus 121×2 I could calculate $121 \times 6 \times 2$ I could calculate $121 \times 4 \times 3$</p>																										

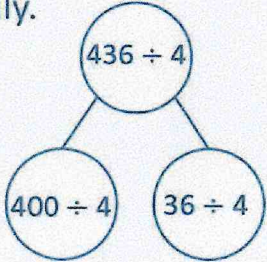
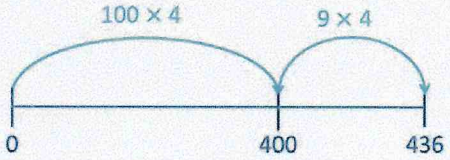
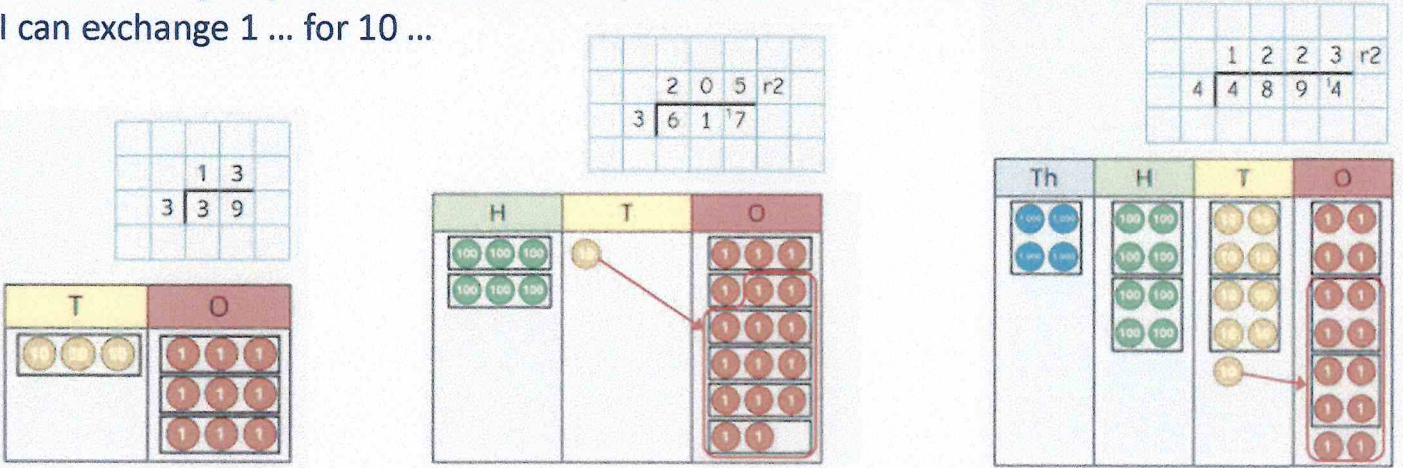
Multiplication

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

Multiplication

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

Division

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

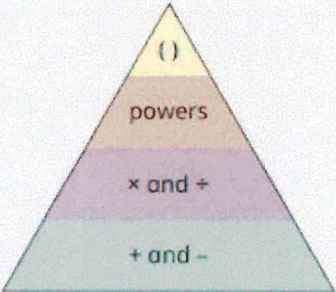
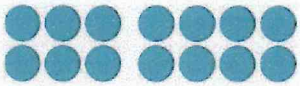

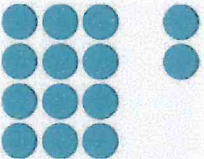
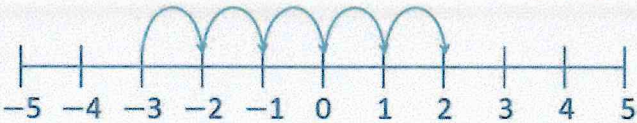
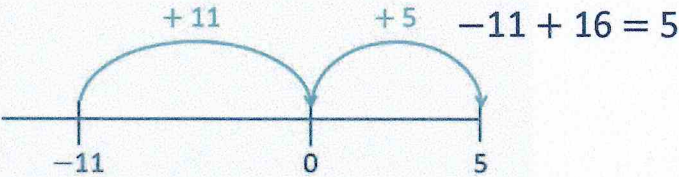
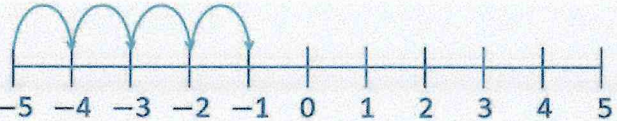
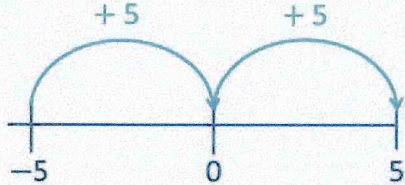
Division

Progression of skills	Key representations																																					
<p>Divide by 10, 100 and 1,000</p> <p>Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1,000 is the same as dividing by 10 three times.</p>	<p>To divide by 10/100/1,000, I move all the digits ... places to the right. ... is one-tenth/one-hundredth/one-thousandth the size of ...</p> <div style="display: flex; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 200px;"> <tr> <td style="width: 25px;">Th</td> <td style="width: 25px;">H</td> <td style="width: 25px;">T</td> <td style="width: 25px;">O</td> <td style="width: 25px;">Tth</td> <td style="width: 25px;">Hth</td> </tr> <tr> <td></td> <td>●</td> <td>●●</td> <td>●</td> <td>●</td> <td></td> </tr> </table> <div style="margin-left: 20px;"> $120 \div 10 = 12$ </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 200px;"> <tr> <td style="width: 25px;">Th</td> <td style="width: 25px;">H</td> <td style="width: 25px;">T</td> <td style="width: 25px;">O</td> <td style="width: 25px;">Tth</td> <td style="width: 25px;">Hth</td> </tr> <tr> <td></td> <td></td> <td>●</td> <td>●●</td> <td>●</td> <td></td> </tr> </table> <div style="margin-left: 20px;"> $120 \div 100 = 1.2$ </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 200px;"> <tr> <td style="width: 25px;">Th</td> <td style="width: 25px;">H</td> <td style="width: 25px;">T</td> <td style="width: 25px;">O</td> <td style="width: 25px;">Tth</td> <td style="width: 25px;">Hth</td> </tr> <tr> <td></td> <td></td> <td></td> <td>●</td> <td>●●</td> <td></td> </tr> </table> <div style="margin-left: 20px;"> $120 \div 1,000 = 0.12$ </div> </div>		Th	H	T	O	Tth	Hth		●	●●	●	●		Th	H	T	O	Tth	Hth			●	●●	●		Th	H	T	O	Tth	Hth				●	●●	
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<p>Fraction of an amount</p> <p>Bar models support children to understand that to find a fraction of an amount, we divide by the denominator and multiply by the numerator.</p>	<p>To find $\frac{\square}{\square}$ of ... , I need to divide by ... and multiply by ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px;"> <tr><td>●●●●●</td></tr> <tr><td>●●●●●</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px;"> <tr><td>●●●●●</td></tr> <tr><td>●●●●●</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px;"> <tr><td>●●●●●</td></tr> <tr><td>●●●●●</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px;"> <tr><td>●●●●●</td></tr> <tr><td>●●●●●</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px;"> <tr><td>●●●●●</td></tr> <tr><td>●●●●●</td></tr> </table> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> $\frac{1}{5}$ of 20 = </div> <div style="text-align: center;"> $\frac{1}{4}$ of 84 = </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> $\frac{3}{5}$ of 20 = </div> <div style="text-align: center;"> $\frac{3}{4}$ of 84 = </div> </div>	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	<p>If $\frac{1}{\square}$ is ... , then the whole is ... \times ...</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 150px;"> <tr><td style="width: 30px;">?</td></tr> <tr><td style="width: 30px;">6</td><td style="width: 30px;">6</td><td style="width: 30px;">6</td><td style="width: 30px;">6</td><td style="width: 30px;">6</td></tr> </table> <div style="margin-left: 20px;"> $\frac{1}{5}$ of ___ = 6 </div> </div> <div style="display: flex; align-items: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 150px;"> <tr><td style="width: 30px;">?</td></tr> <tr><td style="width: 30px;">●</td><td style="width: 30px;">●</td><td style="width: 30px;">●</td><td style="width: 30px;">●</td><td style="width: 30px;">●</td><td style="width: 30px;">●</td><td style="width: 30px;">●</td></tr> <tr><td colspan="3" style="border: none;">}</td><td colspan="3" style="border: none;">24</td><td style="border: none;"></td></tr> </table> <div style="margin-left: 20px;"> $\frac{4}{7}$ of ___ = 24 </div> </div>	?	6	6	6	6	6	?	●	●	●	●	●	●	●	}			24								
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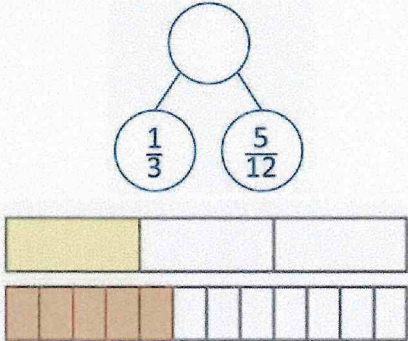
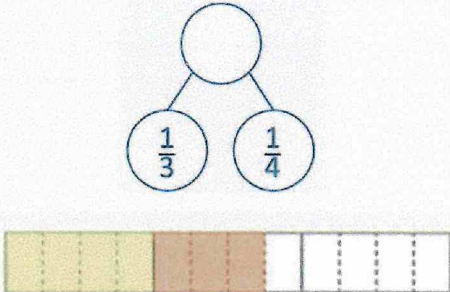
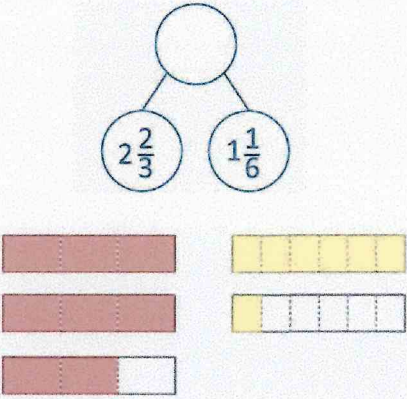
Addition

<p>Year 6</p>	<ul style="list-style-type: none"> • Add larger numbers, using the formal written method of columnar addition. • Use their knowledge of the order of operations to carry out calculations involving the 4 operations. • Calculate intervals across zero. • Add fractions with different denominators and mixed numbers, using the concept of equivalent fractions. 																																																																																						
<p>Progression of skills</p>	<p>Key representations</p>																																																																																						
<p>Add integers up to 10 million</p> <p>Encourage children to estimate and use inverse operations to check answers to calculations.</p>	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>3</td><td>4</td><td>6</td><td>2</td><td>2</td><td>1</td></tr> <tr><td></td><td>+</td><td>1</td><td>8</td><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr style="border-top: 1px solid black;"><td></td><td></td><td>5</td><td>3</td><td>0</td><td>5</td><td>4</td><td>2</td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td colspan="3" style="background-color: #f0f0f0;">?</td></tr> <tr><td>2,354</td><td>750</td><td>1,500</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>8</td><td>1</td><td></td><td>8</td><td>5</td><td></td></tr> <tr><td></td><td>+</td><td></td><td></td><td>0</td><td>6</td><td></td><td></td></tr> <tr style="border-top: 1px solid black;"><td></td><td></td><td>9</td><td>9</td><td>5</td><td></td><td>8</td><td></td></tr> </table> </div>											3	4	6	2	2	1		+	1	8	4	3	2	1			5	3	0	5	4	2			1	1					?			2,354	750	1,500											8	1		8	5			+			0	6					9	9	5		8									
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<p>Add decimals with up to 3 decimal places</p> <p>Progress to numbers with digits in different place value columns.</p> <p>Encourage children to check that they have lined up the columns correctly.</p>	<p>I do/do not need to make an exchange because ...</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="background-color: #f08080;">0</th> <th style="background-color: #fff2cc;">Tth</th> <th style="background-color: #d9ead3;">Hth</th> <th style="background-color: #d9ead3;">Thth</th> </tr> </thead> <tbody> <tr> <td>1 1</td> <td>1</td> <td></td> <td>1 1 1 1 1 1 1 1 1 1</td> </tr> <tr> <td>1 1</td> <td>1</td> <td>1 1 1 1 1 1 1 1 1 1</td> <td>1 1 1 1 1 1 1 1 1 1</td> </tr> <tr> <td>5</td> <td>2</td> <td>6</td> <td>2</td> </tr> </tbody> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>3</td><td>1</td><td>0</td><td>8</td></tr> <tr><td></td><td>+</td><td>2</td><td>1</td><td>5</td><td>4</td></tr> <tr style="border-top: 1px solid black;"><td></td><td></td><td>5</td><td>2</td><td>6</td><td>2</td></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td>1</td><td>5</td><td>0</td><td>2</td><td>7</td></tr> <tr><td></td><td>+</td><td></td><td>9</td><td>5</td><td>8</td><td></td><td></td></tr> <tr style="border-top: 1px solid black;"><td></td><td></td><td></td><td>2</td><td>4</td><td>6</td><td>0</td><td>7</td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td></td></tr> </table> </div>	0	Tth	Hth	Thth	1 1	1		1 1 1 1 1 1 1 1 1 1	1 1	1	1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1	5	2	6	2									3	1	0	8		+	2	1	5	4			5	2	6	2					1													1	5	0	2	7		+		9	5	8						2	4	6	0	7			1	1				
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Addition

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

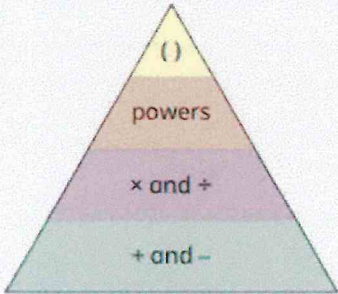
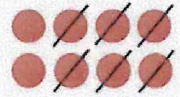
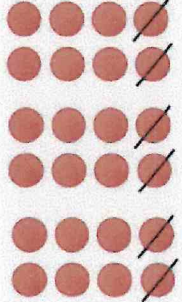
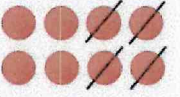
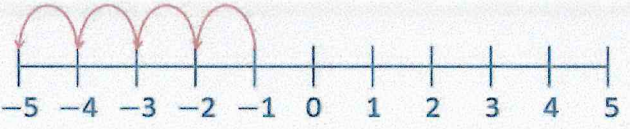
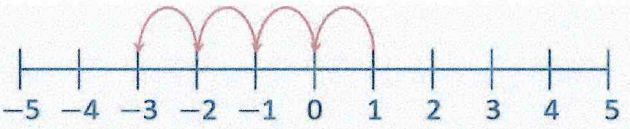
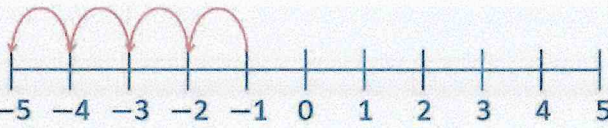
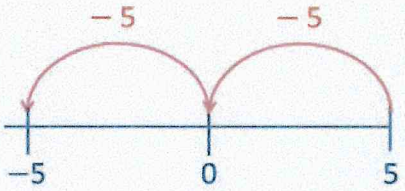
Addition

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

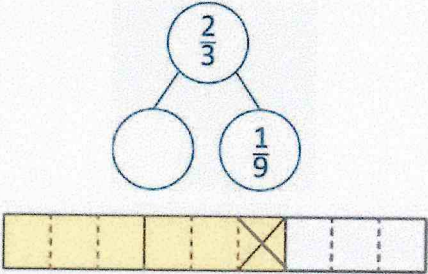
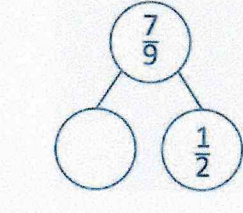
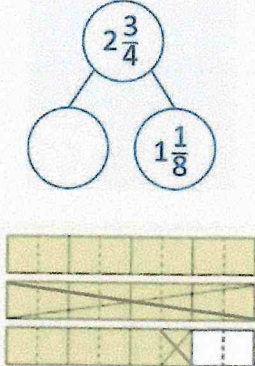
Subtraction

<p>Year 6</p>	<ul style="list-style-type: none"> Subtract larger numbers, using the formal written methods of columnar subtraction. Use their knowledge of the order of operations to carry out calculations involving the 4 operations. Calculate intervals across zero. Subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
<p>Progression of skills</p>	<p>Key representations</p>
<p>Subtract integers up to 10 million</p> <p>Encourage children to estimate and use inverse operations to check answers to calculations.</p>	
<p>Subtract decimals with up to 3 decimal places</p> <p>Progress from the same number of decimal and whole number places to a different number of decimal and whole number places.</p>	<p>I do/do not need to make an exchange because ...</p>

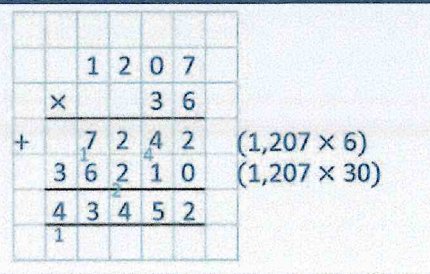
Subtraction

Progression of skills	Key representations	
<p>Order of operations</p> <p>Children learn the order of priority for operations in a calculation. Calculations in brackets should be done first. Multiplication and division should be performed before addition and subtraction.</p>	<p>... has greater priority than ... , so the first part of the calculation I need to do is ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>$8 - 2 \times 3 = 2$</p> </div> <div style="text-align: center;">  <p>$(8 - 2) \times 3 = 18$</p> </div> <div style="text-align: center;">  <p>$8 - 2^2 = 4$</p> </div> </div>	
<p>Negative numbers</p> <p>Children subtract from positive and negative numbers and calculate intervals across 0</p>	<p>... minus ... is equal to ...</p> <div style="display: flex; justify-content: space-between; align-items: center;">  <div style="text-align: right;"> $-1 - 4 = -5$ </div> </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 20px;">  <div style="text-align: right;"> $1 - 4 = -3$ </div> </div>	<div style="display: flex; justify-content: space-between; align-items: center;">  <div style="text-align: right;"> <p>The difference between -5 and -1 is 4</p> </div> </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 20px;">  <div style="text-align: right;"> <p>The difference between 5 and -5 is 10</p> </div> </div>

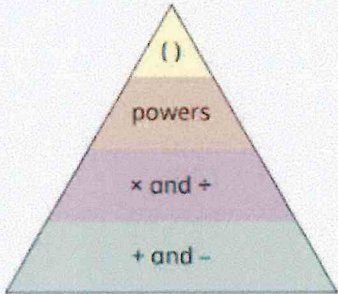
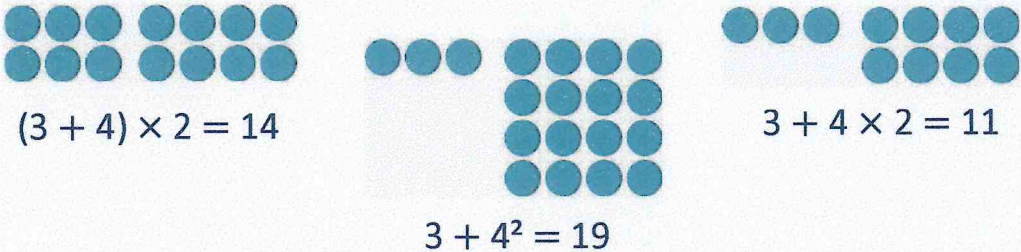
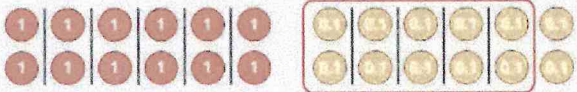
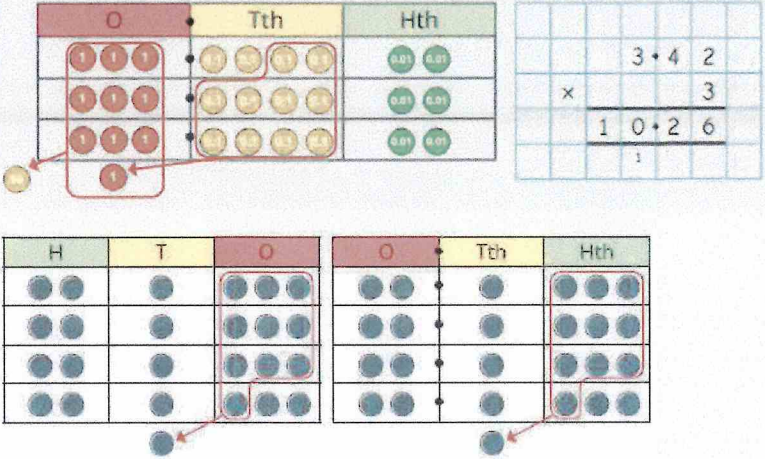
Subtraction

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

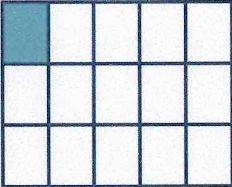
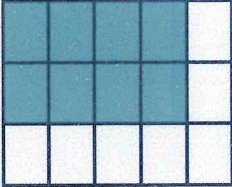
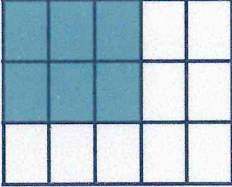
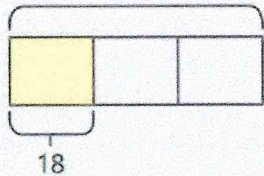
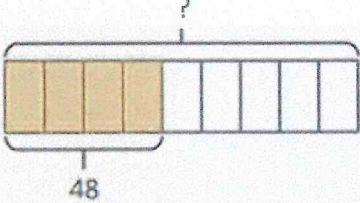
Multiplication

<p>Year 6</p>	<ul style="list-style-type: none"> Identify common factors and common multiples. Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Multiply numbers by 10, 100 and 1,000 Multiply one-digit numbers with up to two decimal places by whole numbers. Use their knowledge of the order of operations to carry out calculations involving the 4 operations. Multiply simple pairs of proper fractions, writing the answer in its simplest form. Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving the calculation of percentages. 																													
<p>Progression of skills</p>	<p>Key representations</p>																													
<p>Multiply numbers up to 4 digits by a 2-digit number</p>	<p>To multiply by a 2-digit number, first multiply by the ones, then multiply by the tens and then find the total.</p>																													
<p>Multiply by 10, 100 and 1,000 Some children may over-generalise that multiplying by a power of 10 always results in adding zeros.</p>	<p>To multiply by 10/100/1,000, I move all the digits ... places to the left. ... is 10/100/1,000 times the size of ...</p> <table border="1"> <thead> <tr> <th>M</th> <th>HTh</th> <th>TTh</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td>● ●</td> <td>● ●</td> <td>● ●</td> </tr> </tbody> </table> <p> $234 \times 10 = 2,340$ $234 \times 100 = 23,400$ $234 \times 1,000 = 234,000$ </p> <table border="1"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> <th>Tth</th> <th>Hth</th> <th>Thth</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>●</td> <td>● ●</td> <td>● ●</td> <td>● ●</td> </tr> </tbody> </table> <p> $0.234 \times 10 = 2.34$ $0.234 \times 100 = 23.4$ $0.234 \times 1,000 = 234$ </p>		M	HTh	TTh	Th	H	T	O					● ●	● ●	● ●	Th	H	T	O	Tth	Hth	Thth				●	● ●	● ●	● ●
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Multiplication

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

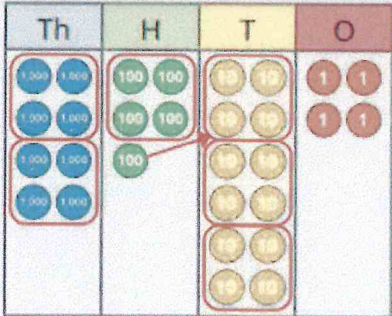
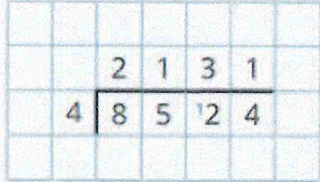
Multiplication

Progression of skills	Key representations	
<p>Multiply fractions by fractions</p> <p>Encourage children to give answers in their simplest form.</p>	<p>When multiplying a pair of fractions, I need to multiply the numerator and multiply the denominator.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  $\frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$ </div> <div style="text-align: center;">  $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$ </div> <div style="text-align: center;">  $\frac{2}{3} \times \frac{3}{5} = \frac{6}{15} = \frac{2}{5}$ </div> </div>	
<p>Find the whole</p> <p>Children multiply to find the whole from a given part.</p>	<p>If $\frac{1}{\square}$ is ... , then the whole is ... \times ...</p> <p>$\frac{1}{3}$ of ___ = 18</p>  <p>$18 \times 3 = 54$</p> <p>$\frac{1}{3}$ of 54 = 18</p>	<p>If $\frac{\square}{\square}$ is ... , then $\frac{1}{\square}$ is ... and the whole is ... \times ...</p> <p>$\frac{4}{9}$ of ___ = 48</p>  <p>$\frac{1}{9} = 48 \div 4 = 12$</p> <p>$9 \times 12 = 108$</p> <p>$\frac{4}{9}$ of 108 = 48</p>

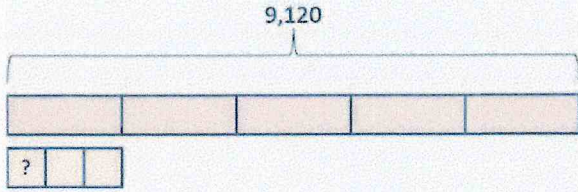
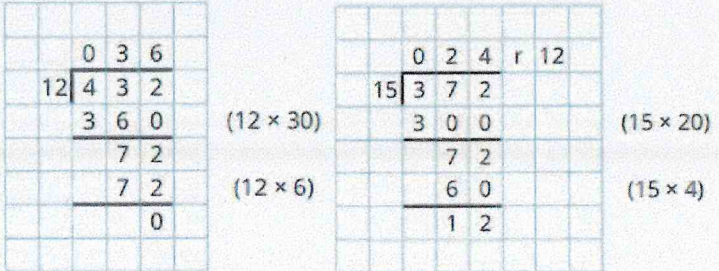
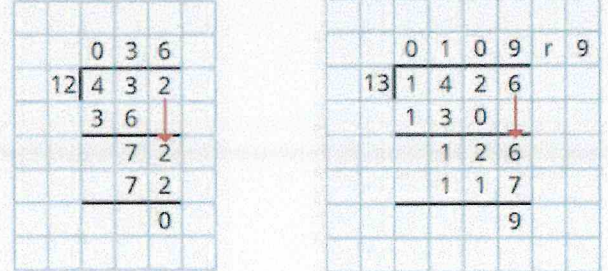
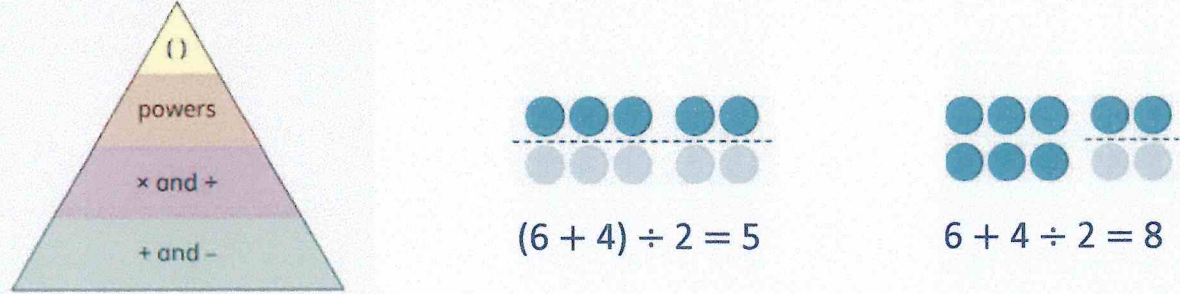
Multiplication

Progression of skills	Key representations																																	
<p>Calculate percentages</p> <p>Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.</p>	<p>There are ... lots of ... % in 100%</p> <p>To find ... %, I need to divide by ...</p> <table border="1"> <tr><td colspan="4">100%</td></tr> <tr><td colspan="2">50%</td><td colspan="2">50%</td></tr> <tr><td>25%</td><td>25%</td><td>25%</td><td>25%</td></tr> </table> <p>50% of ... = ... \div 2</p> <p>25% of ... = ... \div 4</p>	100%				50%		50%		25%	25%	25%	25%	<p>... % is made up of ... %, and ... %</p> <table border="1"> <tr><td colspan="10">100%</td></tr> <tr><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td></tr> </table> <p>To find 30%, I can find 10% and then multiply it by 3</p> <p>To find 23%, I can use 10% \times 2 and 1% \times 3</p> <p>To find 99%, I can find 1%, then subtract from 100%</p>	100%										10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
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<p>Calculations involving ratio</p> <p>Encourage children to see the multiplicative relationship between ratios. They will need to multiply or divide each value by the same number to keep the ratio equivalent. Double number lines and ratio tables help children to see both horizontal and vertical multiplicative relationships.</p>	<p>For every ... , there are ...</p> <p>For every 1 adult on a school trip, there are 6 children.</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">adults</div> <div style="border: 1px solid black; width: 40px; height: 30px; background-color: #fff9c4;"></div> </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 20px;">children</div> <div style="border: 1px solid black; width: 260px; height: 30px; background-color: #fff9c4;"></div> </div> <div style="text-align: right; margin-top: 20px;"> <table border="1"> <thead> <tr><th>Adults</th><th>Children</th></tr> </thead> <tbody> <tr><td>1</td><td>6</td></tr> <tr><td>2</td><td>12</td></tr> <tr><td>3</td><td>18</td></tr> </tbody> </table> <p style="text-align: center;"> × 3 (vertical arrows) × 6 (horizontal arrows) </p> </div> <div style="margin-top: 20px;"> <table border="1"> <tr><td>Adults</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>Children</td><td>0</td><td>6</td><td>12</td><td>18</td><td></td><td></td><td></td></tr> </table> </div> <p>The ratio of adults to children is 1 : 6</p>		Adults	Children	1	6	2	12	3	18	Adults	0	1	2	3	4	5	6	Children	0	6	12	18											
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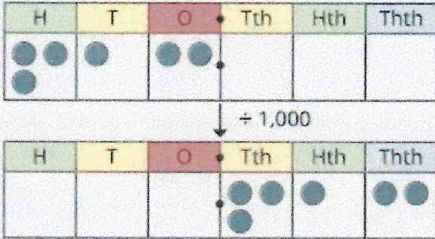



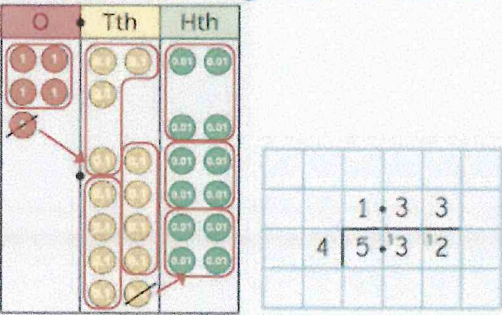
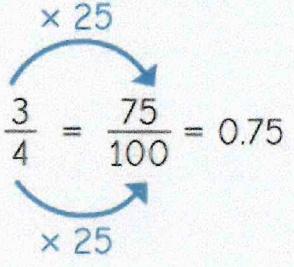
Division

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

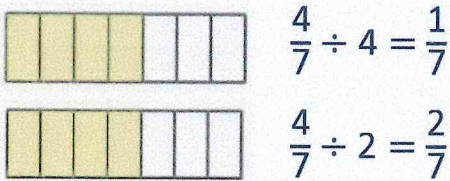
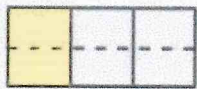
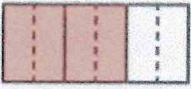
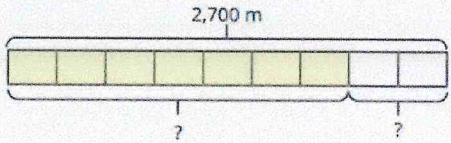
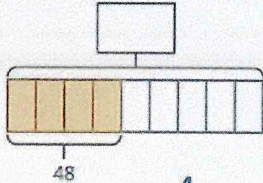
Division

Progression of skills	Key representations	
<p>Mental strategies</p> <p>Include partitioning and number line strategies outlined in Y5 as well as division using factors.</p>	<p>To divide by ... , I can first divide by ... and then divide the answer by ...</p> <p>$240 \div 60 = 240 \div 10 \div 6$</p> <p>240 → $\div 10$ → <input type="text"/> → $\div 6$ → <input type="text"/></p> <p>$480 \div 24 = 480 \div 4 \div 6$</p> <p>480 → $\div 4$ → <input type="text"/> → $\div 6$ → <input type="text"/></p> <p>$9,120 \div 15 = 9,120 \div 5 \div 3$</p> 	
<p>Long division</p> <p>The long division method is introduced for the first time. Two alternative methods are shown.</p>	<p>Method 1</p> 	<p>Method 2</p> 
<p>Order of operations</p> <p>Calculations in brackets should be done first, then powers. Multiplication and division should be performed before addition and subtraction.</p>	<p>... has greater priority than ..., so the first part of the calculation I need to do is ...</p> 	

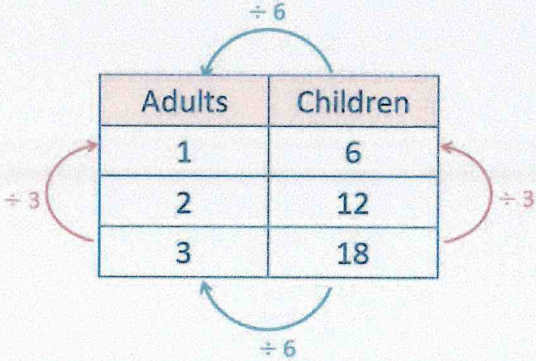
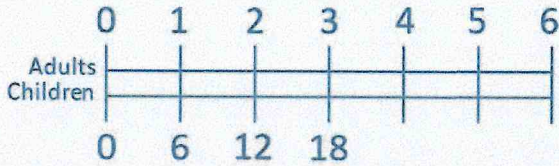
Division

Progression of skills	Key representations																																																																																																					
<p>Divide by 10, 100 and 1,000 Encourage children to notice that dividing by 100 is the same as dividing by 10 twice, and that dividing by 1,000 is the same as dividing by 10 three times.</p>	<p>To divide by ... , I move the digits ... places to the right.</p>  <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> $312 \div 10 = 31.2$ $312 \div 100 = 3.12$ $312 \div 1,000 = 0.312$ </div> <div style="text-align: center;"> $906 \div 10 = 90.6$ $906 \div 100 = 9.06$ $906 \div 1,000 = 0.906$ </div> </div>																																																																																																					
<p>Divide decimals by integers This is the first time children divide decimals by numbers other than 10, 100 or 1,000</p>	<p>I know that ... \div ... = ..., so I also know that ... \div ... = ...</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  <p>$39 \div 3 = 13$</p> </div> <div style="text-align: center;">  <p>$3.9 \div 3 = 1.3$</p> </div> <div style="text-align: center;">  <p>$0.39 \div 3 = 0.13$</p> </div> </div>	<p>I need to exchange 1 ... for 10 ...</p> 																																																																																																				
<p>Decimal and fraction equivalents</p>	<p>The fraction ... is equivalent to the decimal ...</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td colspan="10">1</td></tr> <tr><td colspan="5">$\frac{1}{2}$</td><td colspan="5">$\frac{1}{2}$</td></tr> <tr><td colspan="2">$\frac{1}{4}$</td><td colspan="2">$\frac{1}{4}$</td><td colspan="2">$\frac{1}{4}$</td><td colspan="2">$\frac{1}{4}$</td><td colspan="2">$\frac{1}{4}$</td></tr> <tr><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td><td colspan="2">$\frac{1}{5}$</td></tr> <tr><td colspan="2">$\frac{1}{10}$</td><td colspan="2">$\frac{1}{10}$</td><td colspan="2">$\frac{1}{10}$</td><td colspan="2">$\frac{1}{10}$</td><td colspan="2">$\frac{1}{10}$</td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td colspan="10">1</td></tr> <tr><td colspan="5">0.5</td><td colspan="5">0.5</td></tr> <tr><td colspan="2">0.25</td><td colspan="2">0.25</td><td colspan="2">0.25</td><td colspan="2">0.25</td><td colspan="2">0.25</td></tr> <tr><td colspan="2">0.2</td><td colspan="2">0.2</td><td colspan="2">0.2</td><td colspan="2">0.2</td><td colspan="2">0.2</td></tr> <tr><td colspan="2">0.1</td><td colspan="2">0.1</td><td colspan="2">0.1</td><td colspan="2">0.1</td><td colspan="2">0.1</td></tr> </table> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">$\frac{1}{5} = 0.2$</div> <div style="text-align: center;">$\frac{2}{5} = 0.4$</div> <div style="text-align: center;">$\frac{3}{5} = 0.6$</div> </div> <div style="margin-top: 20px;"> <p>$\frac{3}{4}$ is equal to $\frac{\square}{100}$</p>  <p>$\frac{3}{4} = \frac{75}{100} = 0.75$</p> </div>		1										$\frac{1}{2}$					$\frac{1}{2}$					$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{10}$		$\frac{1}{10}$		$\frac{1}{10}$		$\frac{1}{10}$		$\frac{1}{10}$		1										0.5					0.5					0.25		0.25		0.25		0.25		0.25		0.2		0.2		0.2		0.2		0.2		0.1		0.1		0.1		0.1		0.1	
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Division

Progression of skills	Key representations		
<p>Divide a fraction by an integer</p> <p>This is the first time children divide fractions by an integer.</p>	<p>... ones divided by 2 is ... ones so ... sevenths divided by 2 is ... sevenths.</p>  <p>$\frac{4}{7} \div 4 = \frac{1}{7}$</p> <p>$\frac{4}{7} \div 2 = \frac{2}{7}$</p>	<p>I am dividing by ... , so I can split each part into ... equal parts.</p>  <p>$\frac{1}{3} \div 2 = \frac{1}{6}$</p>	<p>... is equivalent to ... so ... \div ... = ... \div ...</p>  <p>$\frac{2}{3} = \frac{4}{6}$</p> <p>so $\frac{2}{3} \div 4 = \frac{4}{6} \div 4 = \frac{1}{6}$</p>
<p>Fraction of an amount</p> <p>Children divide and multiply to find fractions of an amount. Bar models can still be used to support understanding where needed.</p>	<p>To find $\frac{1}{\square}$ I divide by ...</p> <p>$\frac{1}{2}$ of 36 = $36 \div 2$</p> <p>$\frac{1}{12}$ of 36 = $36 \div 12$</p>	<p>If $\frac{1}{\square}$ is equal to ..., then $\frac{\square}{\square}$ are equal to ...</p>  <p>$\frac{7}{9}$ of 2,700 = $\frac{1}{9}$ of 2,700 \times 7</p>	<p>If $\frac{\square}{\square}$ is equal to ..., then the whole is equal to ...</p>  <p>$\frac{4}{9}$ of ___ = 48</p>

Division

Progression of skills	Key representations																																	
<p>Calculate percentages</p> <p>Children first learn how to find 1%, 10%, 20%, 25% and 50% before using multiples of these amounts to find any percentage.</p>	<p>There are ... lots of ... % in 100%</p> <p>To find ... %, I need to divide by ...</p> <table border="1"> <tr><td colspan="4">100%</td></tr> <tr><td colspan="2">50%</td><td colspan="2">50%</td></tr> <tr><td>25%</td><td>25%</td><td>25%</td><td>25%</td></tr> </table> <p>50% of ... = ... \div 2 25% of ... = ... \div 4</p>	100%				50%		50%		25%	25%	25%	25%	<p>... % is made up of ... %, and ... %</p> <table border="1"> <tr><td colspan="10">100%</td></tr> <tr><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td><td>10%</td></tr> </table> <p>To find 30%, I can find 10% and then multiply it by 3 To find 23%, I can use 10% \times 2 and 1% \times 3 To find 99%, I can find 1%, then subtract from 100%</p>	100%										10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
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<p>Calculations involving ratio</p> <p>Encourage children to see the multiplicative relationship between ratios. They will need to multiply or divide each value by the same number to keep the ratio equivalent. Double number lines and ratio tables help children to see both horizontal and vertical multiplicative relationships.</p>	<p>For every ... , there are ...</p> <p>For every 6 children on a school trip, there is 1 adult.</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>adults</p> <div style="border: 1px solid black; width: 40px; height: 20px; background-color: #fff9c4; margin: 5px;"></div> <p>children</p> <div style="border: 1px solid black; width: 260px; height: 20px; background-color: #fff9c4; margin: 5px;"></div> </div> <div style="text-align: center;">  <table border="1" style="margin: 0 auto;"> <thead> <tr><th>Adults</th><th>Children</th></tr> </thead> <tbody> <tr><td>1</td><td>6</td></tr> <tr><td>2</td><td>12</td></tr> <tr><td>3</td><td>18</td></tr> </tbody> </table> <p>Arrows indicate: $\div 6$ (horizontal), $\div 3$ (vertical), $\times 6$ (horizontal), $\times 3$ (vertical)</p> </div> </div> <div style="margin-top: 20px;">  <p>Adults: 0, 1, 2, 3, 4, 5, 6 Children: 0, 6, 12, 18</p> </div> <p>The ratio of children to adults is 6 : 1</p>		Adults	Children	1	6	2	12	3	18																								
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