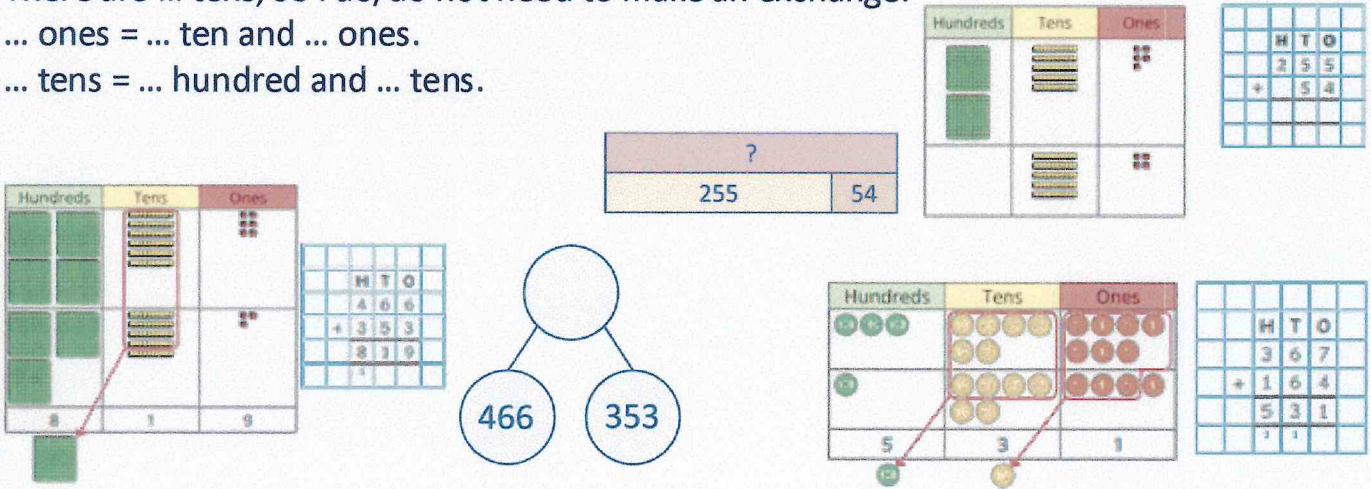
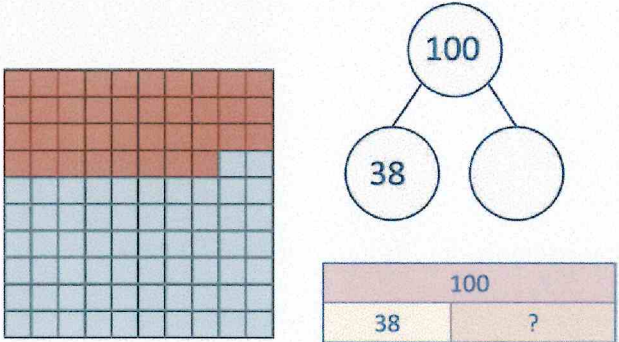
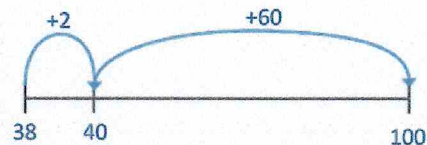


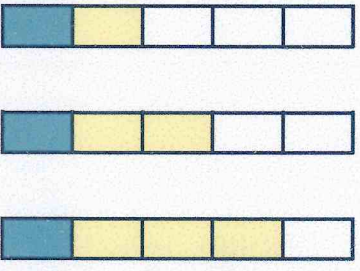
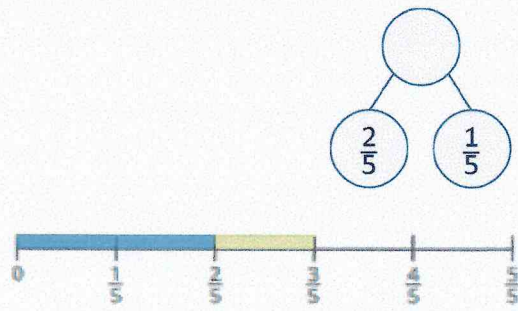
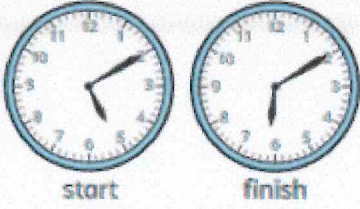
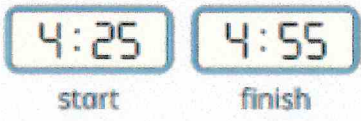
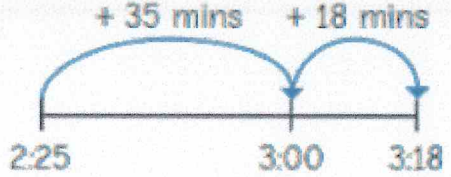
Addition

<p>Year 3</p>	<ul style="list-style-type: none"> Add numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. Add numbers with up to three digits, using formal written methods of columnar addition. Add fractions with the same denominator within 1 whole. Calculate the time taken by particular events or tasks. 																																				
<p>Progression of skills</p>	<p>Key representations</p>																																				
<p>Add 1s, 10s or 100s to a 3-digit number</p> <p>Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.</p>	<p>The ones/tens/hundreds column will increase by ...</p> <table border="1"> <thead> <tr> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p> $444 + 5 =$ $777 + 2 =$ $444 + 50 =$ $777 + 20 =$ $444 + 500 =$ $777 + 200 =$ </p>	Hundreds	Tens	Ones				<p>What patterns do you notice?</p> <p> $235 + 3 =$ $235 + 30 =$ $235 + 300 =$ </p> <p> $111 + \square = 118$ $111 + \square = 181$ $111 + \square = 811$ </p>																													
Hundreds	Tens	Ones																																			
<p>Add two numbers (no exchange)</p> <p>Mental strategies and introduction of formal written method.</p>	<p>... ones + ... ones = ... ones ... tens + ... tens = ... tens ... hundreds + ... hundreds = ... hundreds</p> <table border="1"> <tr> <td colspan="2">?</td> </tr> <tr> <td>345</td> <td>432</td> </tr> </table> <table border="1"> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p></p> <table border="1"> <thead> <tr> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th></th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>+</td> <td>4</td> <td>3</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		?		345	432							Hundreds	Tens	Ones								H	T	O		3	4	5	+	4	3	2				
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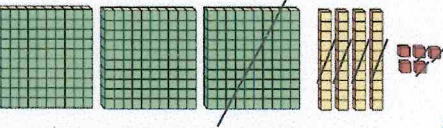
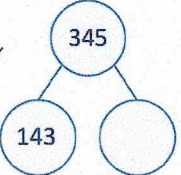

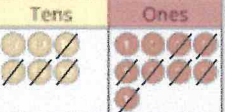


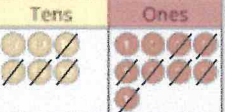


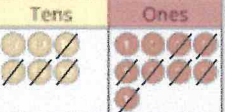

Addition

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

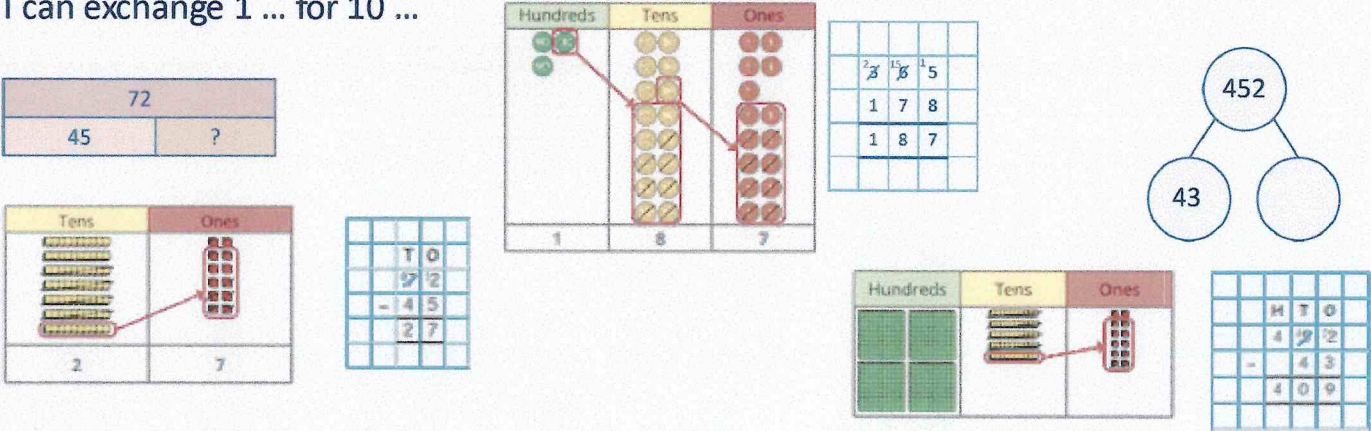
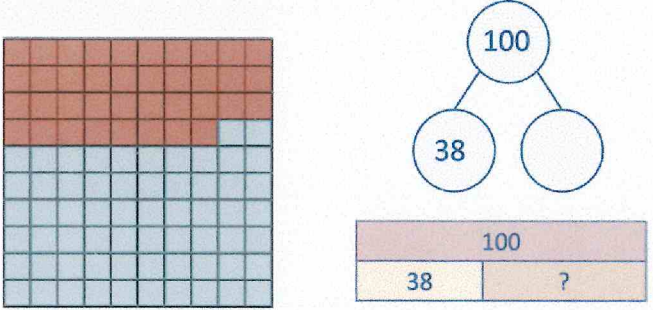
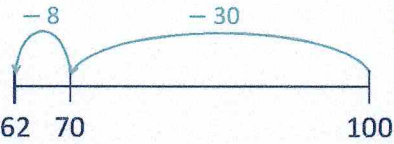
Addition

Progression of skills	Key representations
<p>Add fractions with the same denominator within 1 whole</p> <p>Make links with known facts.</p>	<p>When adding fractions with the same denominator, I only add the numerator. ... fifths + ... fifths = ... fifths</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> $\frac{1}{5} + \frac{1}{5}$ $\frac{1}{5} + \frac{2}{5}$ $\frac{1}{5} + \frac{3}{5}$ </div> </div> <div style="text-align: right; margin-top: 20px;">  </div>
<p>Calculate the duration of events</p> <p>Find durations of time between a given start and end point. Children will need to calculate complements to 60</p>	<p>From ... to ... o'clock is ... minutes. From ... o'clock to ... is ... minutes. The total time taken is ... minutes.</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="text-align: center;">  <p>start finish</p> </div> <div style="text-align: center;">  <p>start finish</p> </div> <div style="text-align: center;">  <p>2:25 3:00 3:18</p> </div> </div>




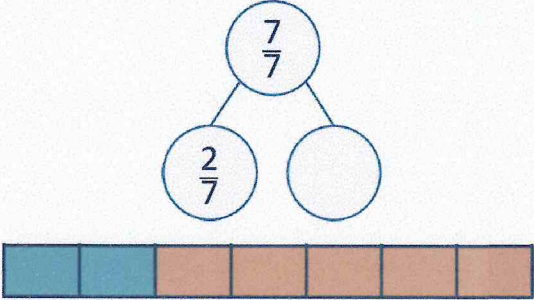
Subtraction

<p>Year 3</p>	<ul style="list-style-type: none"> Subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. Subtract numbers with up to three digits, using formal written methods. Subtract fractions with the same denominator within 1 whole. 																							
<p>Progression of skills</p>	<p>Key representations</p>																							
<p>Subtract 1s, 10s and 100s from a 3-digit number</p> <p>Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.</p>	<p>The ones/tens/hundreds column will decrease by ...</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9ead3;">Hundreds</th> <th style="background-color: #fff2cc;">Tens</th> <th style="background-color: #f4cccc;">Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> </tr> </tbody> </table> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9ead3;">H</th> <th style="background-color: #fff2cc;">T</th> <th style="background-color: #f4cccc;">O</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> </tr> </tbody> </table> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> $444 - 2 =$ $444 - 20 =$ $444 - 200 =$ </div> <div style="text-align: center;"> $777 - 4 =$ $777 - 40 =$ $777 - 400 =$ </div> </div>	Hundreds	Tens	Ones				H	T	O				<p>What patterns do you notice?</p> $235 - 3 =$ $235 - 30 =$ $235 - 300 =$										
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<p>Subtract two numbers (no exchange)</p> <p>Mental strategies and introduction of formal written method.</p>	<p>... ones - ... ones = ... ones ... tens - ... tens = ... tens ... hundreds - ... hundreds = ... hundreds</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <tr> <td colspan="2" style="background-color: #d9ead3;">769</td> </tr> <tr> <td style="background-color: #d9ead3;">147</td> <td style="background-color: #d9ead3;">?</td> </tr> </table> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9ead3;">Hundreds</th> <th style="background-color: #fff2cc;">Tens</th> <th style="background-color: #f4cccc;">Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> </tr> </tbody> </table> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9ead3;">H</th> <th style="background-color: #fff2cc;">T</th> <th style="background-color: #f4cccc;">O</th> </tr> </thead> <tbody> <tr> <td style="background-color: #d9ead3;">7</td> <td style="background-color: #fff2cc;">6</td> <td style="background-color: #f4cccc;">9</td> </tr> <tr> <td style="background-color: #d9ead3;">-</td> <td style="background-color: #fff2cc;">1</td> <td style="background-color: #f4cccc;">4</td> </tr> <tr> <td style="background-color: #d9ead3;"> </td> <td style="background-color: #fff2cc;"> </td> <td style="background-color: #f4cccc;"> </td> </tr> </tbody> </table> </div> </div>		769		147	?	Hundreds	Tens	Ones				H	T	O	7	6	9	-	1	4			
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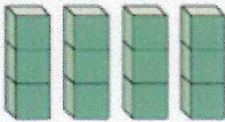
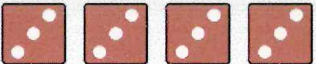
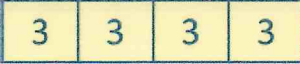
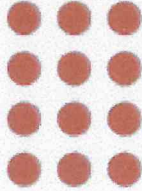
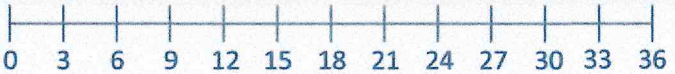
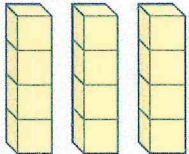

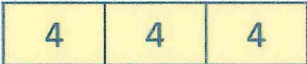
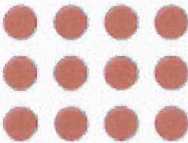
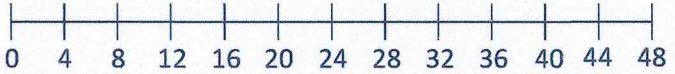
Subtraction

Progression of skills	Key representations	
<p>Subtract two numbers across a 10 or 100</p> <p>Formal written method involving up to 2 exchanges including 3-digit subtract 2-digit numbers.</p>	<p>I need to subtract ... ones. I do/do not need to make an exchange. I need to subtract ... tens. I do/do not need to make an exchange. I can exchange 1 ... for 10 ...</p> 	
<p>Complements to 100</p> <p>Focus on subtraction facts.</p> <p>Encourage children to notice patterns.</p>	<p>100 minus ... is equal to ...</p> 	<p>I subtract ... tens, then I subtract ... ones.</p> $100 - 38 = 62$ $100 - 62 = 38$ $62 = 100 - 38$ $38 = 100 - 62$ 

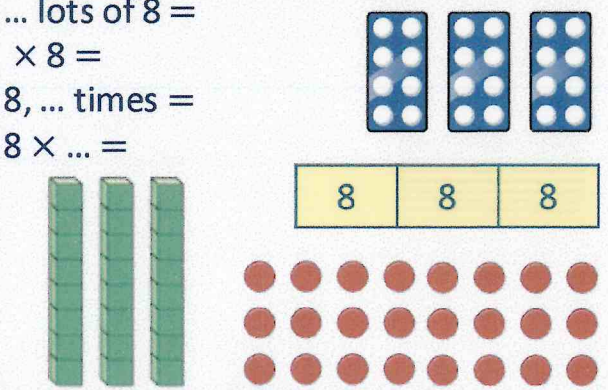
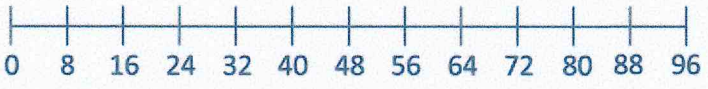
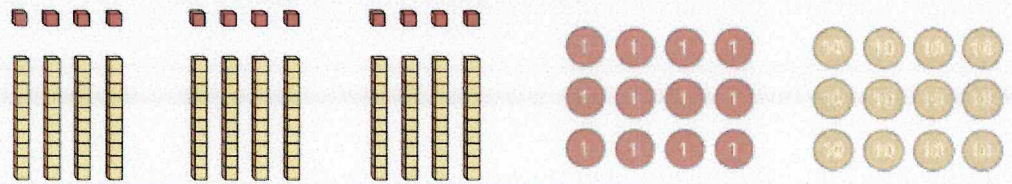
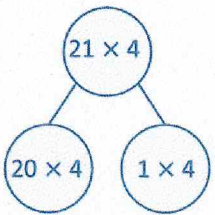
Subtraction

Progression of skills	Key representations
<p>Subtract fractions with the same denominator within 1 whole</p> <p>Make links with known facts.</p>	<p>When subtracting fractions with the same denominator, I only subtract the numerator. ... fifths – ... fifths = ... fifths</p> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;">$\frac{5}{5} - \frac{1}{5}$</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;">$\frac{4}{5} - \frac{1}{5}$</div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">$\frac{3}{5} - \frac{1}{5}$</div> </div> <div style="text-align: right; margin-top: 20px;">  </div>

Multiplication

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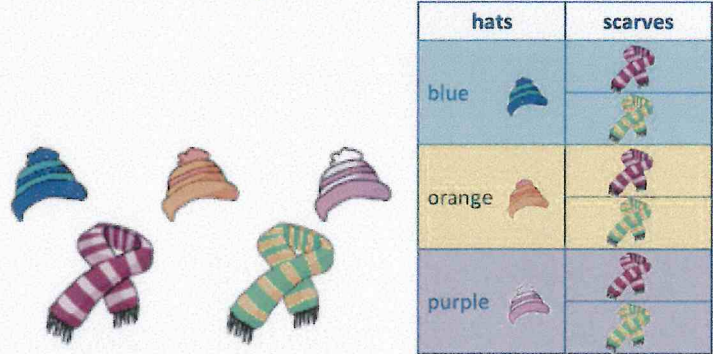



























Multiplication

Progression of skills	Key representations																															
<p>The 8 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between the 2, 4 and 8 times-tables.</p>	<p>... lots of 8 = $\times 8 =$ 8, ... times = $8 \times \dots =$</p> 	<p>... times 8 is equal to ...</p> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> </table> <p>$3 \times 8 = 24$ $24 = 3 \times 8$</p> 	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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21	22	23	24	25	26	27	28	29	30																							
<p>Related facts</p> <p>Use knowledge of multiplying by 10 to scale times-table facts.</p>	<p>... \times ... ones is equal to ... ones so ... \times ... tens is equal to ... tens.</p>  <p>$3 \times 4 = 12$ $3 \times 40 = 120$</p>																															
<p>Multiply a 2-digit number by a 1-digit number - no exchange</p> <p>Children apply their understanding of partitioning to represent and solve calculations using the expanded method.</p>	<p>... tens multiplied by ... is equal to ... tens. ...ones multiplied by ... is equal to ... ones.</p> <table border="1"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>30</td><td>0</td></tr> <tr><td>20</td><td>0</td></tr> <tr><td>30</td><td>0</td></tr> <tr><td>20</td><td>0</td></tr> </tbody> </table> <p>$30 \times 2 = 60$ $2 \times 2 = 4$</p> <p>$32 \times 2 = 64$</p>  <table border="1"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>60</td><td>0</td></tr> <tr><td>20</td><td>0</td></tr> <tr><td>60</td><td>0</td></tr> <tr><td>20</td><td>0</td></tr> </tbody> </table>		Tens	Ones	30	0	20	0	30	0	20	0	Tens	Ones	60	0	20	0	60	0	20	0										
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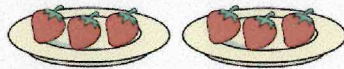
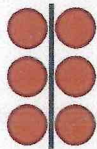
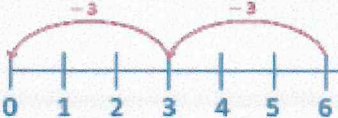
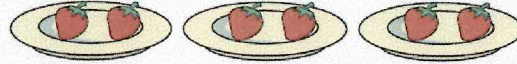
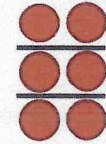
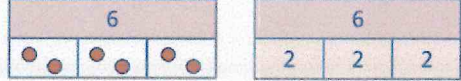

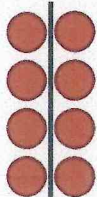
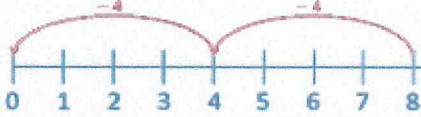
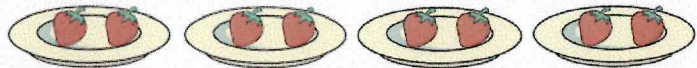


Multiplication

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

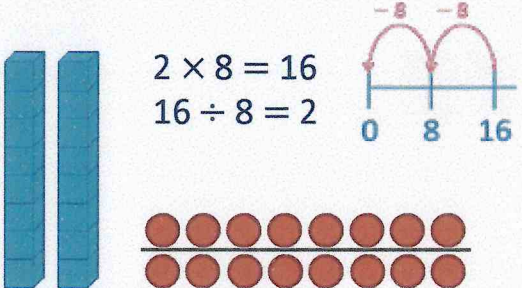


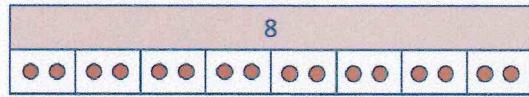
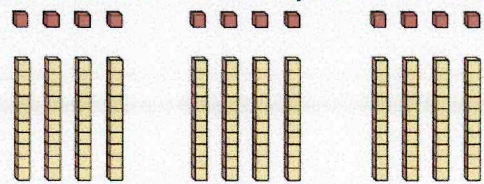
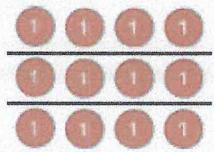

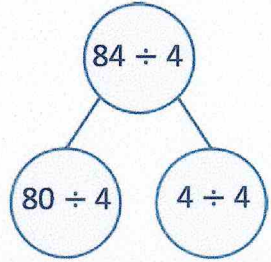
Multiplication

Progression of skills	Key representations								
<p>Correspondence problems (How many ways?)</p> <p>Encourage children to work systematically to find all the different possible combinations.</p>	<p>For every ... , there are ... possible ... There are ... \times ... possibilities altogether.</p> <div><p>The illustration shows three hats (blue, orange, purple) and two scarves (red and green). To the right is a table with 'hats' and 'scarves' as columns. The 'hats' column lists 'blue', 'orange', and 'purple' with corresponding hat icons. The 'scarves' column shows two scarves (red and green) for each hat color, representing the combinations.</p><table border="1"><thead><tr><th>hats</th><th>scarves</th></tr></thead><tbody><tr><td>blue </td><td> </td></tr><tr><td>orange </td><td> </td></tr><tr><td>purple </td><td> </td></tr></tbody></table></div> <p>For every hat, there are two possible scarves. $3 \times 2 = 6$</p> <p>There are 6 possibilities altogether.</p>	hats	scarves	blue 	 	orange 	 	purple 	 
hats	scarves								
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purple 	 								

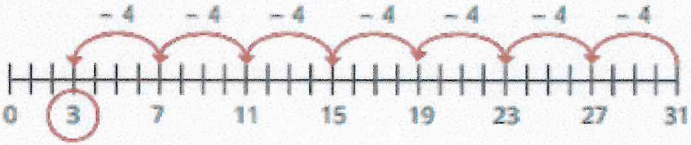

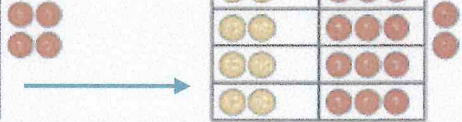
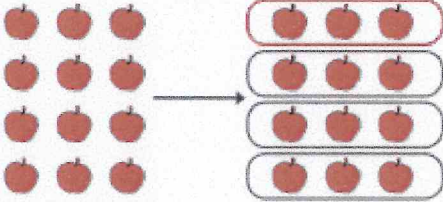


Division

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

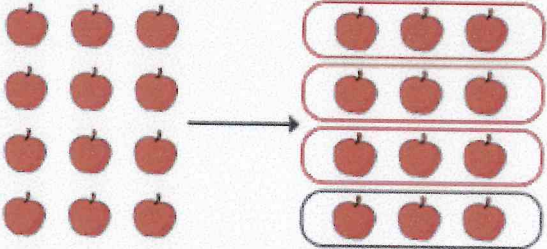
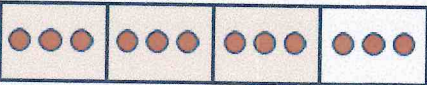

Division

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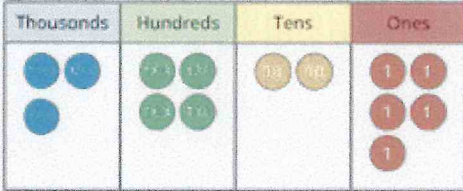
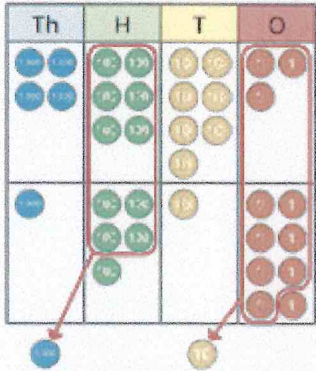
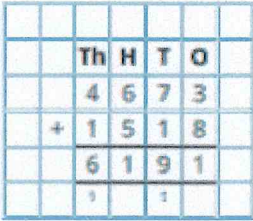
Division

Progression of skills	Key representations																																													
<p>Divide a 2-digit number by a 1-digit number - with remainders</p> <p>Encourage children to partition numbers flexibly to help them to divide more efficiently.</p>	<p>... tens divided by ... is equal to ... tens. ... ones divided by ... is equal to ... ones.</p> <table border="1"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr><td>8</td><td>6</td></tr> <tr><td>8</td><td>6</td></tr> <tr><td>8</td><td>6</td></tr> <tr><td>8</td><td>6</td></tr> <tr><td>8</td><td>6</td></tr> <tr><td>8</td><td>6</td></tr> <tr><td>8</td><td>6</td></tr> </tbody> </table> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> $96 \div 4$ $80 \div 4$ </div> <div style="text-align: center;"> $16 \div 4$ </div> </div> <p> $80 \div 4 = 20$ $16 \div 4 = 4$ $96 \div 4 = 24$ </p>	Tens	Ones	8	6	8	6	8	6	8	6	8	6	8	6	8	6	<p>There are ... groups of ... There are ... remaining.</p> <p>$31 \div 4 = 7 \text{ r}3$</p>  <p>$94 \div 4 = 23 \text{ r}2$</p> <table border="1"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> <tr><td>9</td><td>4</td></tr> </tbody> </table>  <table border="1"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr><td>2</td><td>3</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>2</td><td>3</td></tr> </tbody> </table> 	Tens	Ones	9	4	9	4	9	4	9	4	9	4	Tens	Ones	2	3	2	3	2	3	2	3	2	3	2	3	2	3
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<p>Unit fractions of a set of objects</p> <p>Bar models are useful to show the link between division and fractions, for example, dividing by 3 and finding a third.</p>	<p>The whole is divided into ... equal parts. Each part is $\frac{1}{\square}$ of the whole.</p>  <p>$\frac{1}{4}$ of 12 apples is 3 apples.</p>	<p>One ... of ... is ...</p> <p>$\frac{1}{4}$ of 12 is 3</p>  <p>$\frac{1}{3}$ of 36 is 12</p> 																																												



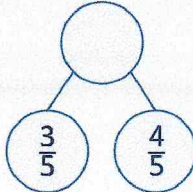
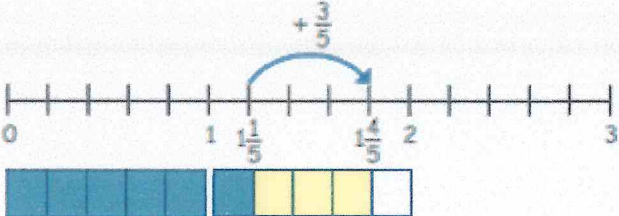
Division

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

Addition

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

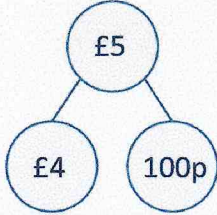
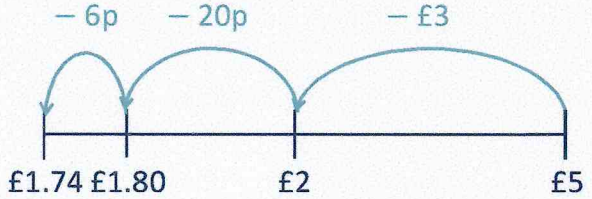
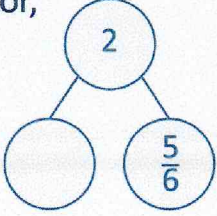
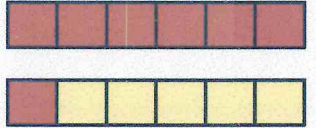
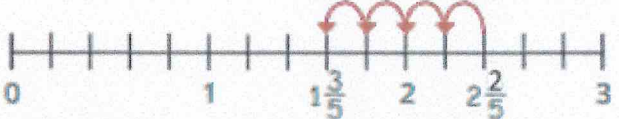

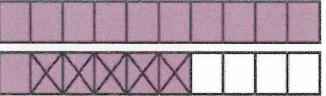
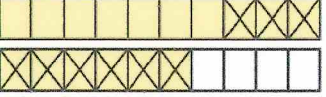
Addition

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

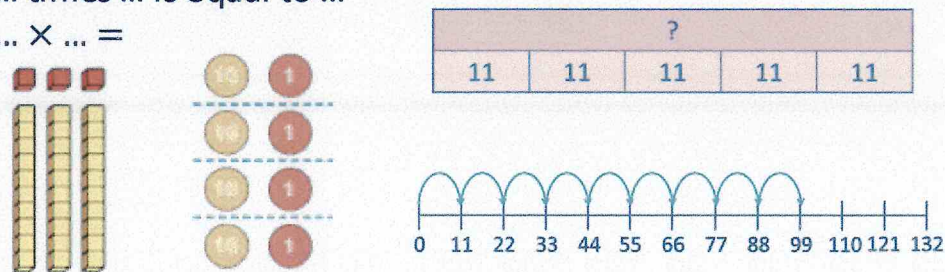
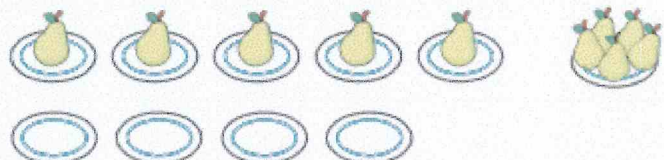
Subtraction

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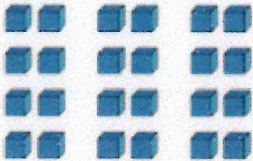
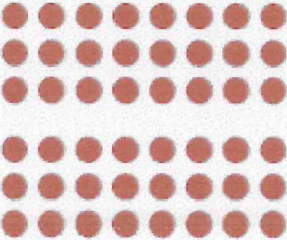
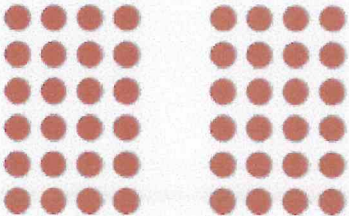
Subtraction

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


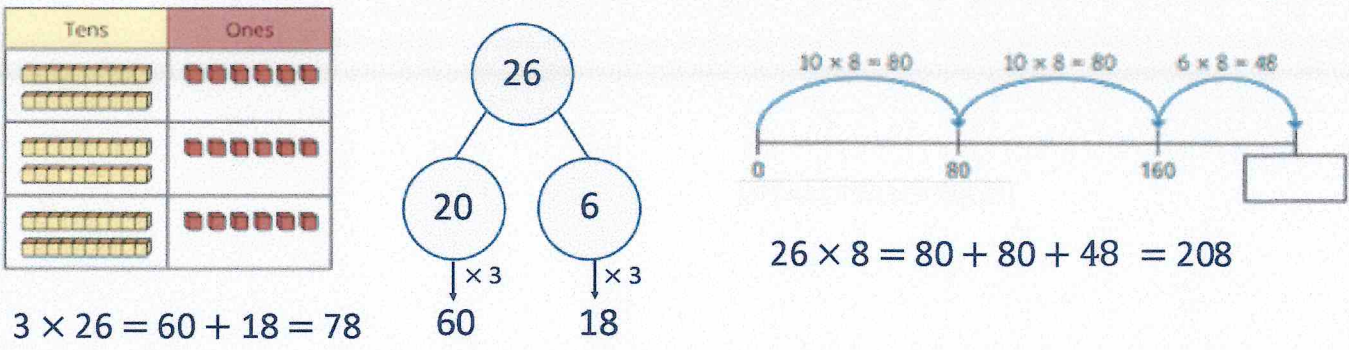
Multiplication

<p>Year 4</p>	<ul style="list-style-type: none"> Recall multiplication facts for multiplication tables up to 12×12 Use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations. Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. 																																																																																																					
<p>Progression of skills</p>	<p>Key representations</p>																																																																																																					
<p>Times-table facts to 12×12</p> <p>Encourage daily counting in multiples both forwards and back. Encourage children to notice links between related times-tables.</p>	<p>... groups of ... =</p> <p>... times ... is equal to ...</p> <p>... \times ... =</p> 	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> <tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr> <tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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<p>Multiply by 1 and 0</p>	<p>Any number multiplied by 1 is equal to ...</p> <p>Any number multiplied by 0 is equal to ...</p> 	<p>... \times ... = ...</p> <table> <tr><td>$1 \times 1 = 1$</td><td>$1 \times 0 = 0$</td></tr> <tr><td>$2 \times 1 = 2$</td><td>$2 \times 0 = 0$</td></tr> <tr><td>$3 \times 1 = 3$</td><td>$3 \times 0 = 0$</td></tr> <tr><td>$4 \times 1 = 4$</td><td>$4 \times 0 = 0$</td></tr> </table>	$1 \times 1 = 1$	$1 \times 0 = 0$	$2 \times 1 = 2$	$2 \times 0 = 0$	$3 \times 1 = 3$	$3 \times 0 = 0$	$4 \times 1 = 4$	$4 \times 0 = 0$																																																																																												
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Multiplication

Progression of skills	Key representations															
<p>Multiply 3 numbers</p> <p>Children use their understanding of commutativity to multiply more efficiently.</p>	<p>To work out ... \times ... \times ..., I can first calculate ... \times ... and then multiply the answer by ...</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> $4 \times 2 \times 3 = 8 \times 3 = 24$ $2 \times 3 \times 4 = 6 \times 4 = 24$ $3 \times 4 \times 2 = 12 \times 2 = 24$ </div> </div>															
<p>Factor pairs</p> <p>Children explore equivalent calculations using different factors pairs.</p>	<p>$12 = \dots \times \dots$, so ... \times 12 = ... \times ... \times ...</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$8 \times 6 = 8 \times 3 \times 2$ $8 \times 6 = 24 \times 2$</p> </div> <div style="text-align: center;">  <p>$6 \times 8 = 6 \times 4 \times 2$ $6 \times 8 = 24 \times 2$</p> </div> </div>															
<p>Multiply by 10 and 100</p> <p>Some children may over-generalise that multiplying by 10 or 100 always results in adding zeros. This will cause issues later when multiplying decimals.</p>	<p>When I multiply by 10, the digits move ... place value column to the left. ... is 10 times the size of ...</p> <div style="display: flex; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px; height: 100px;"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td></td><td>●●</td><td>●●●●</td></tr> </table> <div style="margin-left: 20px;"> $35 \times 10 = 350$ </div> </div>	H	T	O		●●	●●●●	<p>When I multiply by 100, the digits move ... place value columns to the left. ... is 100 times the size of ...</p> <div style="display: flex; align-items: center;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 150px; height: 100px;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td></td><td></td><td>●</td><td>●●●●</td></tr> </table> <div style="margin-left: 20px;"> $14 \times 100 = 1,400$ </div> </div>	Th	H	T	O			●	●●●●
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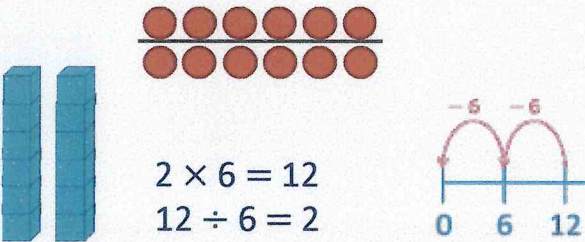
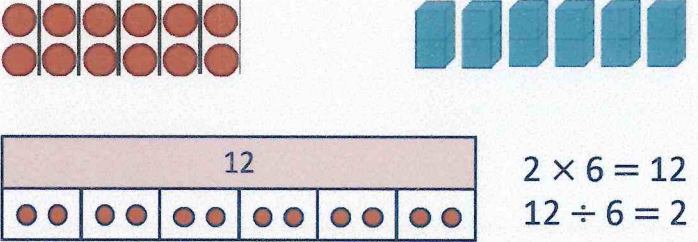




Multiplication

Progression of skills	Key representations
<p>Related facts</p> <p>Use knowledge of multiplying by 10 and 100 to scale times-table facts.</p>	<p>... × ... ones is equal to ... ones so ... × ... tens is equal to ... tens and ... × ... hundreds is equal to ... hundreds.</p>  <p> $3 \times 7 = 21$ $7 \times 3 = 21$ $3 \times 70 = 210$ $7 \times 30 = 210$ $3 \times 700 = 2,100$ $7 \times 300 = 2,100$ </p>
<p>Mental strategies</p> <p>Partition 2 or 3-digit numbers to multiply using informal methods.</p>	<p>... tens multiplied by ... is equal to ... tens. ...ones multiplied by ... is equal to ... ones.</p>  <p> $3 \times 26 = 60 + 18 = 78$ </p> <p> $26 \times 8 = 80 + 80 + 48 = 208$ </p>


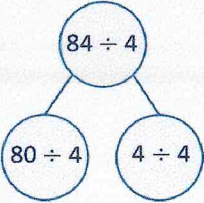
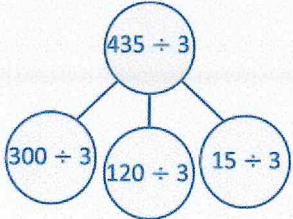
Multiplication

Progression of skills	Key representations																								
<p>Multiply a 2 or 3-digit number by a 1-digit number</p> <p>The short multiplication method is introduced for the first time, initially in an expanded form.</p>	<p>To multiply a 2-digit number by ... , I multiply the ones by ... and the tens by ... To multiply a 3-digit number by ... , I multiply the ones by ... , the tens by ... and the hundreds by ...</p>																								
<p>Scaling</p> <p>Children focus on multiplication as scaling (... times the size).</p>	<p>... is ... times the size of ...</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>7</p> <p>7 7 7 7 7 7</p> <p>A computer mouse costs £7 A keyboard costs 6 times as much.</p> </div> <div style="text-align: center;"> <p>6</p> <p>6 6 6 6 6 6 6</p> <p>A red ribbon is 6 cm. A yellow ribbon is 7 times as long.</p> </div> </div>																								
<p>Correspondence problems</p> <p>Encourage children to use tables to show all the different possible combinations.</p>	<p>For every ... , there are ... possibilities. There are ... × ... possibilities altogether.</p> <p>A pizza company offers a choice of 5 toppings and 3 bases.</p> <p>$5 \times 3 = 15$</p> <table border="1"> <thead> <tr> <th></th> <th>Deep pan</th> <th>Italian</th> <th>Thin</th> </tr> </thead> <tbody> <tr> <th>Cheese</th> <td>C DP</td> <td>C I</td> <td>C Th</td> </tr> <tr> <th>Mushroom</th> <td>M DP</td> <td>M I</td> <td>M Th</td> </tr> <tr> <th>Vegetable</th> <td>V DP</td> <td>V I</td> <td>V Th</td> </tr> <tr> <th>Chicken</th> <td>C DP</td> <td>C I</td> <td>C Th</td> </tr> <tr> <th>Tuna</th> <td>T DP</td> <td>T I</td> <td>T Th</td> </tr> </tbody> </table>		Deep pan	Italian	Thin	Cheese	C DP	C I	C Th	Mushroom	M DP	M I	M Th	Vegetable	V DP	V I	V Th	Chicken	C DP	C I	C Th	Tuna	T DP	T I	T Th
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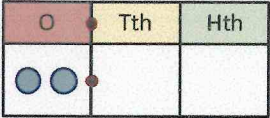
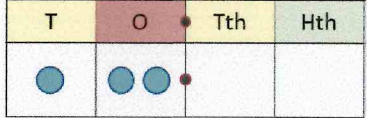
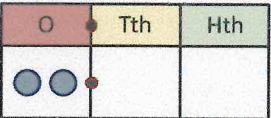
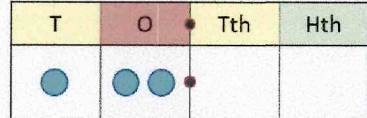
Division

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

Division

Progression of skills	Key representations																										
<p>Related facts</p> <p>Link to known times-table facts.</p>	<p>... \div ... is equal to ... so ... tens \div ... is equal to ... tens and ... hundreds \div ... is equal to ... hundreds.</p>  <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> $21 \div 7 = 3$ $210 \div 7 = 30$ $2,100 \div 7 = 300$ </div> <div style="text-align: center;"> $21 \div 3 = 7$ $210 \div 3 = 70$ $2,100 \div 3 = 700$ </div> </div>																										
<p>Divide a 2 or 3-digit number by a 1-digit number</p> <p>Progress from divisions with no exchange, to divisions with exchange and then divisions with remainders.</p>	<p>I can partition ... into ... tens and ... ones.</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="margin-left: 20px;"> $80 \div 4 = 20$ $4 \div 4 = 1$ $84 \div 4 = 21$ </div> </div> <div style="margin-top: 10px;"> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #ffffcc;">Tens</th> <th style="background-color: #e0e0e0;">Ones</th> </tr> </thead> <tbody> <tr><td>●●</td><td>●</td></tr> <tr><td>●●</td><td>●</td></tr> <tr><td>●●</td><td>●</td></tr> <tr><td>●●</td><td>●</td></tr> </tbody> </table> </div>	Tens	Ones	●●	●	●●	●	●●	●	●●	●	<p>I cannot share the hundreds/tens equally, so I need to exchange 1 ... for 10 ...</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="margin-left: 20px;"> $300 \div 3 = 100$ $120 \div 3 = 40$ $15 \div 3 = 5$ $435 \div 3 = 145$ </div> </div> <div style="margin-top: 10px;"> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #e0e0e0;">Hundreds</th> <th style="background-color: #ffffcc;">Tens</th> <th style="background-color: #e0e0e0;">Ones</th> </tr> </thead> <tbody> <tr> <td>●</td> <td>●●●●</td> <td>●●●●●</td> </tr> <tr> <td>●</td> <td>●●●●</td> <td>●●●●●</td> </tr> <tr> <td>●</td> <td>●●●●</td> <td>●●●●●</td> </tr> <tr> <td>●</td> <td>●●●●</td> <td>●●●●●</td> </tr> </tbody> </table> </div>	Hundreds	Tens	Ones	●	●●●●	●●●●●	●	●●●●	●●●●●	●	●●●●	●●●●●	●	●●●●	●●●●●
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Division

Progression of skills	Key representations			
<p>Divide by 10 and 100</p> <p>Encourage children to notice that dividing by 100 is the same as dividing by 10 twice.</p>	<p>When I divide by 10, the digits move 1 place value column to the right. ... is one-tenth the size of ...</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>$2 \div 10 = 0.2$</p> </div> <div style="text-align: center;">  <p>$12 \div 10 = 1.2$</p> </div> </div>		<p>When I divide by 100, the digits move 2 place value columns to the right. ... is one-hundredth the size of ...</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>$2 \div 100 = 0.02$</p> </div> <div style="text-align: center;">  <p>$12 \div 100 = 0.12$</p> </div> </div>	