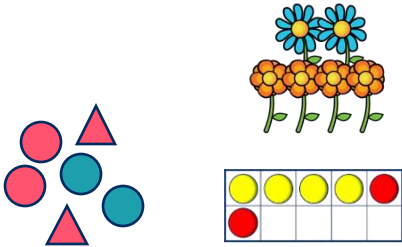
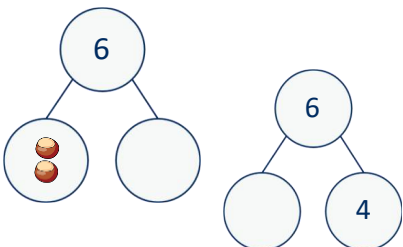
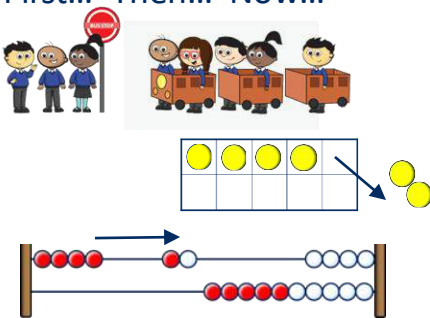
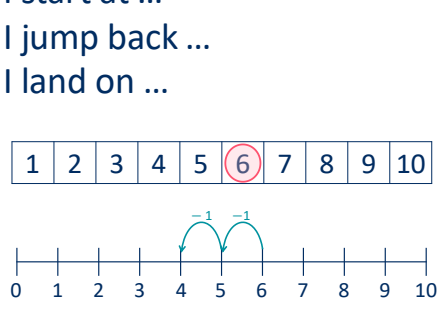
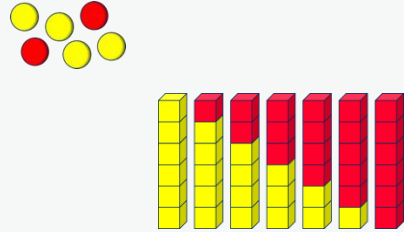
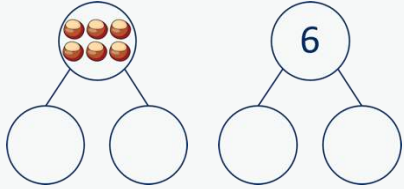
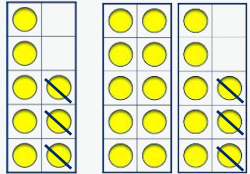
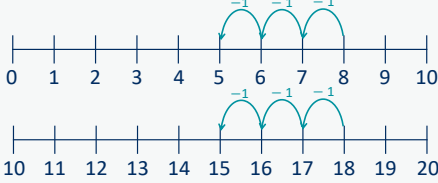
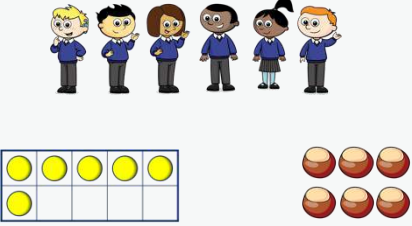
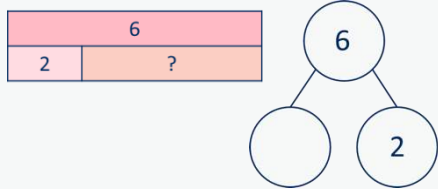



Subtraction

<p>Year 1</p>	<ul style="list-style-type: none"> • Read, write and interpret mathematical statements involving subtraction (−) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20 • Subtract one-digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$ 		
<p>Progression of skills</p>	<p>Key representations</p>		
<p>Find a part</p> <p>Link to number bonds and known facts. E.g. $2 + 4 = 6$ so if 6 is the whole and 4 is a part, the other part must be 2</p>	<p>There are ... in total. ... are ... How many are not ...?</p> 	<p>... is the whole. ... is a part. ... is a part.</p> 	<p>... subtract ... is equal to is equal to ... − ...</p> $6 - 2 = 4$ $6 - 4 = 2$ $4 = 6 - 2$ $2 = 6 - 4$
<p>Take away</p> <p>A quantity is decreased.</p>	<p>First... Then... Now...</p> 	<p>I start at ... I jump back ... I land on ...</p> 	<p>... minus ... is equal to is equal to ... − ...</p> $6 - 2 = 4$ $6 - 4 = 2$ $4 = 6 - 2$ $2 = 6 - 4$

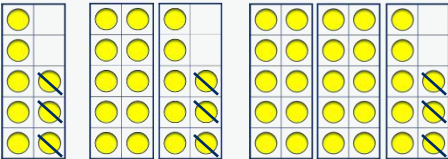
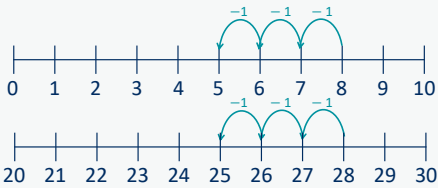
Subtraction

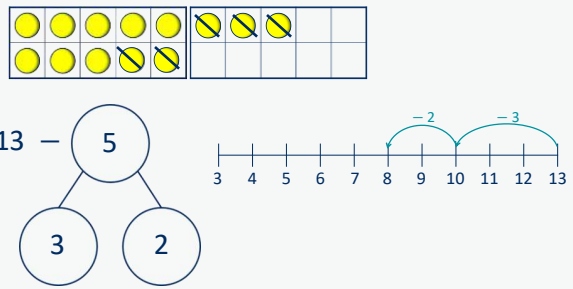
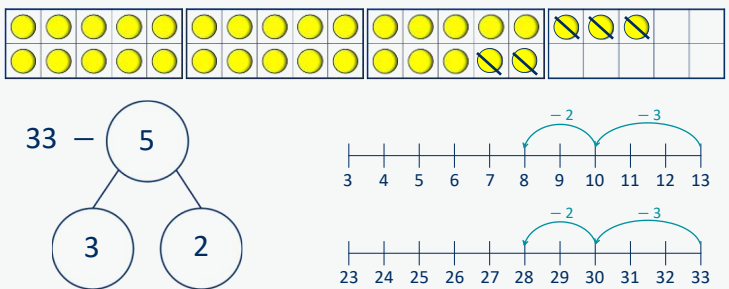
Progression of skills	Key representations		
<p>Bonds within 10</p> <p>Focus on subtraction facts.</p> <p>Encourage children to notice patterns.</p>	<p>... is made of ... and and ... make ...</p> 	<p>... can be partitioned into ... and ...</p> 	<p>... minus ... is equal to ...</p> $6 - 0 = 6$ $6 - 1 = 5$ $6 - 2 = 4$ $6 - 3 = 3$ $6 - 4 = 2$ $6 - 5 = 1$ $6 - 6 = 0$
<p>Related facts within 20</p> <p>Make links to known facts.</p>	<p>I know that ... minus ... = ... so ... minus ... = ...</p> 	<p>... less than ... is ... so ... less than ... is ...</p> 	<p>What patterns do you notice?</p> $8 - 3 = 5$ $18 - 3 = 15$ $5 = 8 - 3$ $15 = 18 - 3$
<p>Missing numbers</p> <p>Make links to known facts.</p>	<p>How many do you need to subtract to make ...?</p> 	<p>If ... is the whole and ... is a part, the other part must be...</p> 	<p>... minus ... is equal to ...</p> $6 - \square = 2$ $2 = 6 - \square$ 

Subtraction

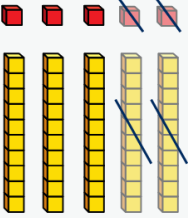
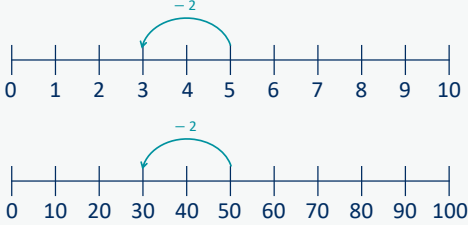
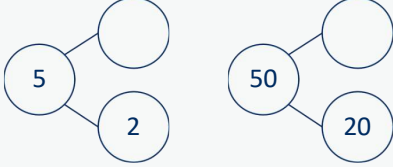
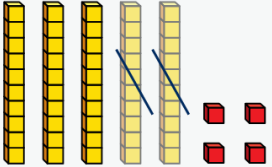
	<ul style="list-style-type: none"> Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100 Subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> a two-digit number and 1s a two-digit number and 10s 2 two-digit numbers Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
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Progression of skills	Key representations
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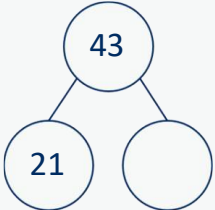
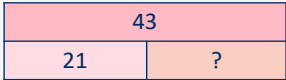
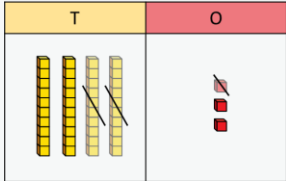
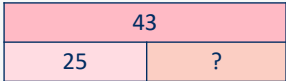
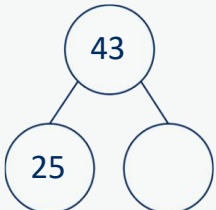
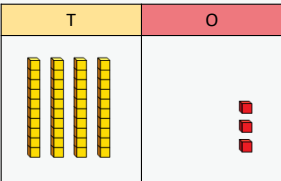
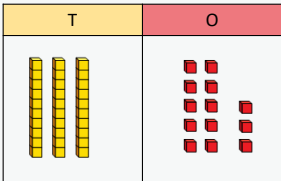
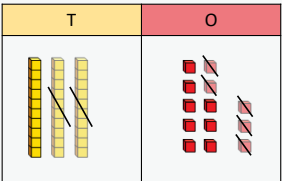
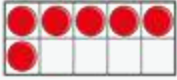
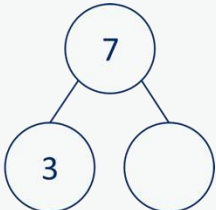
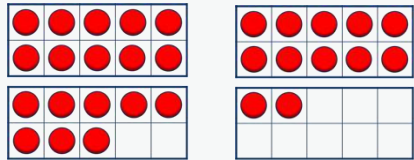
<p>Subtract ones from any number (related facts)</p> <p>Make links to known facts.</p>	<p>I know that ... minus ... = ... so ... minus ... = ...</p> 	<p>... less than ... is ... so ... less than ... is ...</p> 	<p>What do you notice? Can you continue the pattern?</p> $8 - 3 = 5$ $18 - 3 = 15$ $28 - 3 = 25...$
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<p>Subtract across a 10</p> <p>Partition the number being subtracted to bridge through a ten.</p>	<p>... can be partitioned into ... and ...</p> 	<p>Make links with related facts.</p> 
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Subtraction

Progression of skills	Key representations																																																														
<p>Subtract multiples of 10</p> <p>Make links to known facts within ten.</p>	<p>... ones – ... ones = ... ones so ... tens – ... tens = ... tens</p>  <p>$5 - 2 = 3$ $50 - 20 = 30$</p>	<p>What is the same? What is different?</p> 	 <table border="1" data-bbox="1632 494 1891 646"> <tr> <td colspan="2">5</td> </tr> <tr> <td>2</td> <td>?</td> </tr> <tr> <td colspan="2">50</td> </tr> <tr> <td>20</td> <td>?</td> </tr> </table>	5		2	?	50		20	?																																																				
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2	?																																																														
50																																																															
20	?																																																														
<p>Subtract 10s from any number</p> <p>Make links to known facts.</p>	<p>... tens – ... tens = ... tens ... tens and ... ones = ...</p> 	<p>To subtract ... I need to subtract 10 ... times.</p> <table border="1" data-bbox="1079 843 1477 1068"> <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> </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	<p>I know that ... minus ... = ... so ... minus ... = ...</p> <p>$50 - 20 = 30$ $54 - 20 = 34$</p>
1	2	3	4	5	6	7	8	9	10																																																						
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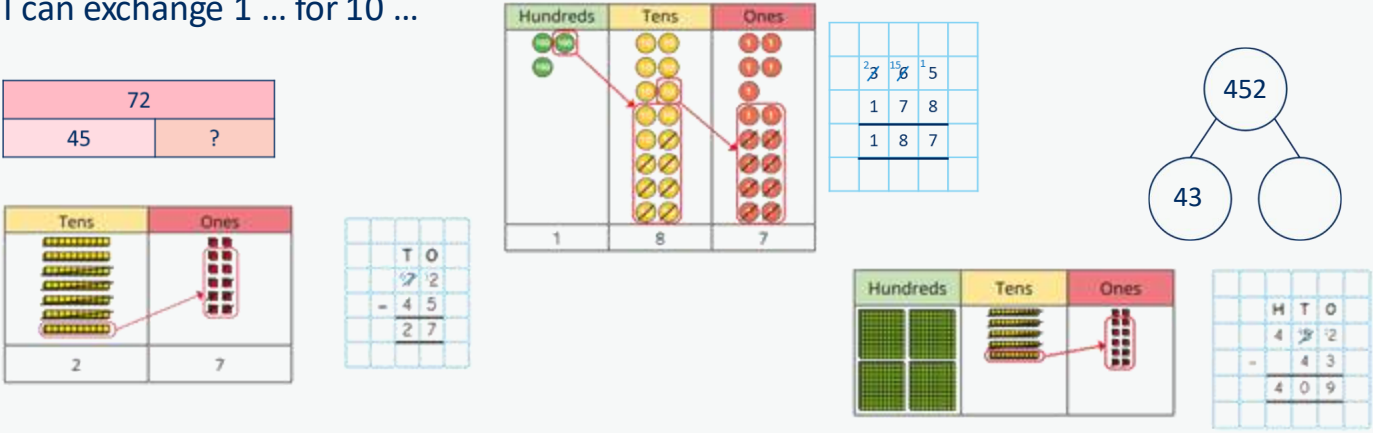
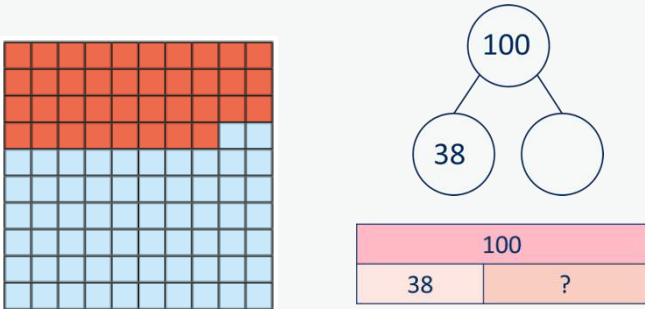
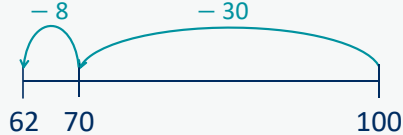
Subtraction

Progression of skills	Key representations		
<p>Subtract two 2-digit numbers (not across a ten)</p>	<p>... ones – ... ones = ... ones ... tens – ... tens = ... tens</p>  	 <p>3 ones – 1 one = 2 ones 4 tens – 2 tens = 2 tens 2 tens and 2 ones = 22</p>	
<p>Subtract two 2-digit numbers (across a ten)</p> <p>Begin to exchange 1 ten for 10 ones.</p>	<p>I need to make an exchange because I do not have enough ones to subtract ... ones.</p>  	   <p>3 ones – 5 ones (I need to exchange 1 ten for 10 ones)</p> <p>13 ones – 5 ones = 8 ones 3 tens – 2 tens = 1 ten 1 ten and 8 ones = 18</p>	
<p>Missing numbers</p> <p>Solve missing number problems and use the inverse to check.</p>	<p>How many do you need to subtract to make ...?</p>  <p>$10 - \square = 6$ $6 + \square = 10$</p>	<p>If ... is a whole and ... is a part, then ... is the other part.</p> <p>$7 - 3 = \square$ $\square + 3 = 7$</p> 	<p>... can be partitioned into ... and ...</p> <p>$18 - \square = 12 + 2$</p> 




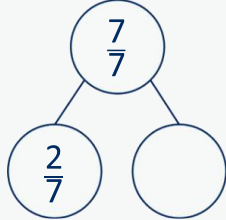

Subtraction

<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> <table border="1" data-bbox="576 525 1011 725"> <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> $444 - 2 =$ $444 - 20 =$ $444 - 200 =$ </p> <table border="1" data-bbox="1052 525 1313 725"> <thead> <tr> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p> $777 - 4 =$ $777 - 40 =$ $777 - 400 =$ </p>	Hundreds	Tens	Ones				H	T	O				<p>What patterns do you notice?</p> <p> $235 - 3 =$ $235 - 30 =$ $235 - 300 =$ </p> <p> $118 - \square = 111$ $181 - \square = 111$ $811 - \square = 111$ </p>																	
Hundreds	Tens	Ones																													
H	T	O																													
<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> <table border="1" data-bbox="576 1053 1031 1176"> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p></p> <table border="1" data-bbox="1350 1031 1694 1153"> <thead> <tr> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="1632 911 1931 996"> <tr> <td colspan="2">769</td> </tr> <tr> <td>147</td> <td>?</td> </tr> </table> <table border="1" data-bbox="1748 1031 1931 1210"> <thead> <tr> <th></th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td>7</td> <td>6</td> <td>9</td> </tr> <tr> <td>-</td> <td>1</td> <td>4</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Hundreds	Tens	Ones				769		147	?		H	T	O		7	6	9	-	1	4	7				
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769																															
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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> $100 - 38 = 62$ $100 - 62 = 38$ $62 = 100 - 38$ $38 = 100 - 62$ 

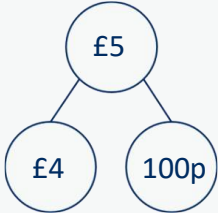
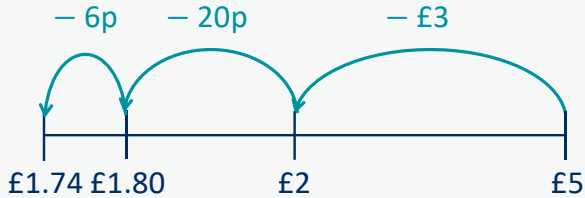
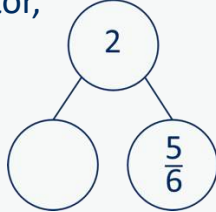
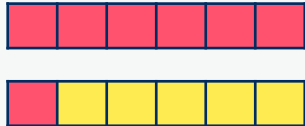

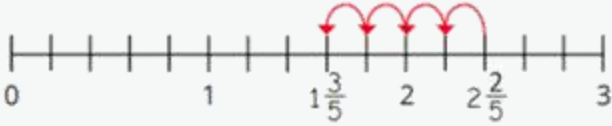

Subtraction

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;">  $\frac{5}{5} - \frac{1}{5}$ </div> <div style="display: flex; align-items: center; margin-bottom: 10px;">  $\frac{4}{5} - \frac{1}{5}$ </div> <div style="display: flex; align-items: center;">  $\frac{3}{5} - \frac{1}{5}$ </div> <div style="text-align: right; margin-top: 20px;">  </div> <div style="text-align: center; margin-top: 20px;">  </div>

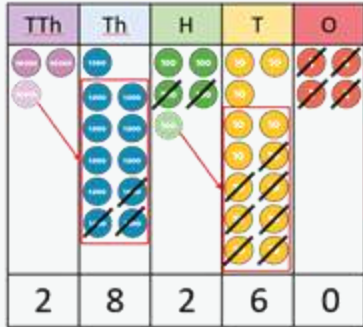
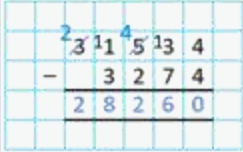
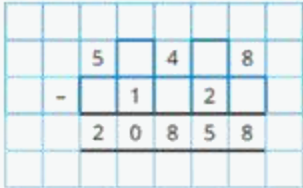

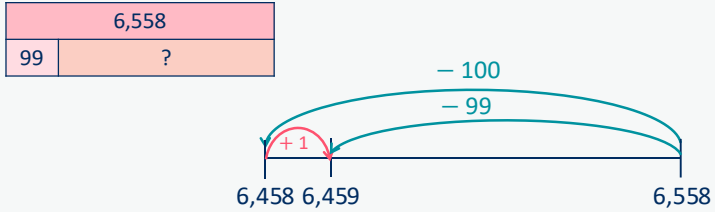
Subtraction

<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" data-bbox="576 564 1038 749"> <thead> <tr> <th>Thousands</th> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>1,000 1,000 1,000</td> <td>100 100 100 100</td> <td>10 10</td> <td>1 1 1 1 1</td> </tr> </tbody> </table> <p> $3,425 - 2 =$ $3,425 - 200 =$ $3,425 - 20 =$ $3,425 - 2,000 =$ </p>	Thousands	Hundreds	Tens	Ones	1,000 1,000 1,000	100 100 100 100	10 10	1 1 1 1 1	<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>																																				
Thousands	Hundreds	Tens	Ones																																											
1,000 1,000 1,000	100 100 100 100	10 10	1 1 1 1 1																																											
<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" data-bbox="1073 996 1570 1316"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>1,000 1,000 1,000</td> <td>100</td> <td>10 10 10</td> <td>1 1 1</td> </tr> <tr> <td></td> <td></td> <td>10 10 10</td> <td>1 1 1</td> </tr> <tr> <td></td> <td></td> <td>10 10 10</td> <td>1 1 1</td> </tr> <tr> <td></td> <td></td> <td>10 10 10</td> <td>1 1 1</td> </tr> <tr> <td></td> <td></td> <td>10 10 10</td> <td>1 1 1</td> </tr> </tbody> </table> <table border="1" data-bbox="1605 1035 1895 1282"> <thead> <tr> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>12</td> <td>16</td> <td></td> </tr> <tr> <td>-</td> <td>2</td> <td>14</td> <td>8</td> </tr> <tr> <td colspan="4"><hr/></td> </tr> <tr> <td>1</td> <td>0</td> <td>5</td> <td>8</td> </tr> </tbody> </table>		Th	H	T	O	1,000 1,000 1,000	100	10 10 10	1 1 1			10 10 10	1 1 1			10 10 10	1 1 1			10 10 10	1 1 1			10 10 10	1 1 1	Th	H	T	O	3	12	16		-	2	14	8	<hr/>				1	0	5	8
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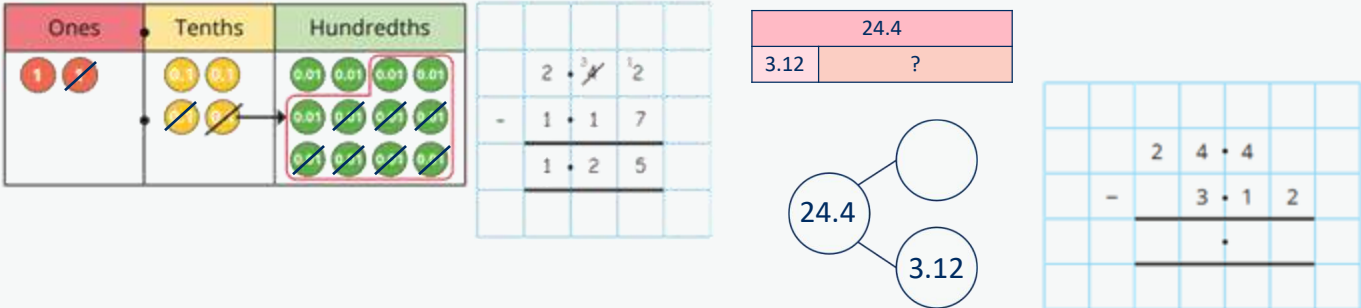
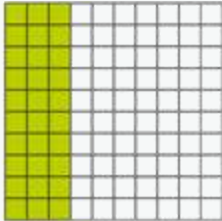
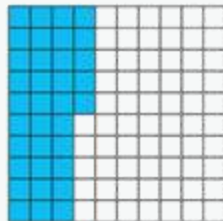
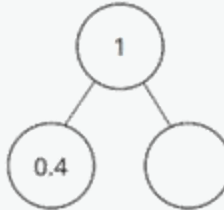

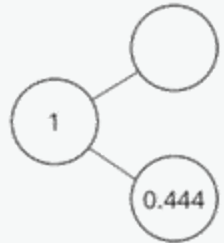



Subtraction

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>  	



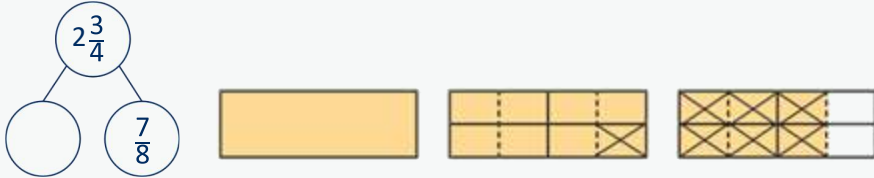
Subtraction

<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> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  $\frac{1}{3} - \frac{1}{15} = \frac{5}{15} - \frac{1}{15} = \frac{4}{15}$ </div> <div style="text-align: center;">  $\frac{2}{3} - \frac{2}{9} = \frac{6}{9} - \frac{2}{9} = \frac{4}{9}$ </div> </div> <div style="text-align: center; margin-top: 20px;">  </div>

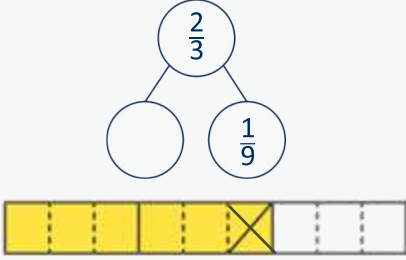
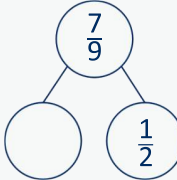
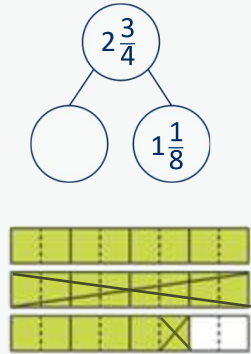
Subtraction

<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>	<table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>23</td><td>¹4</td><td>56</td><td>¹2</td><td>2</td><td>1</td><td></td><td></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><td></td><td></td></tr> <tr><td></td><td></td><td>1</td><td>6</td><td>1</td><td>9</td><td>0</td><td>0</td><td></td><td></td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td colspan="3">4,604</td></tr> <tr><td>2,354</td><td>750</td><td>?</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td></td><td></td><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></td><td>4</td><td>8</td><td>5</td><td></td><td></td><td></td></tr> <tr><td></td><td>-</td><td>3</td><td>6</td><td></td><td></td><td></td><td></td><td>4</td><td></td></tr> <tr><td></td><td></td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td></td><td></td><td></td></tr> </table>													2 3	¹ 4	5 6	¹ 2	2	1				-	1	8	4	3	2	1					1	6	1	9	0	0			4,604			2,354	750	?													8		4	8	5					-	3	6					4				5	5	5	5	5			
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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 data-bbox="644 411 963 689" style="text-align: center;"> <p>A pyramid diagram showing the order of operations from top to bottom: $()$, powers, \times and \div, and $+$ and $-$.</p> </div> <div data-bbox="1135 382 1819 743" style="text-align: center;"> <p>Two dot diagrams illustrating the order of operations. The first shows 8 minus 2 times 3, where 6 dots are crossed out, leaving 2. The second shows (8 minus 2) times 3, where 2 dots are crossed out from a group of 8, leaving 6, which is then multiplied by 3 to get 18.</p> <p>$8 - 2 \times 3 = 2$ $(8 - 2) \times 3 = 18$</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-around;"> <div data-bbox="592 825 1183 972" style="text-align: center;"> <p>A number line from -5 to 5. Red arrows show jumps of 1 unit to the left from -1 to -2, -2 to -3, -3 to -4, and -4 to -5.</p> <p>$-1 - 4 = -5$</p> </div> <div data-bbox="592 1082 1183 1239" style="text-align: center;"> <p>A number line from -5 to 5. Red arrows show jumps of 1 unit to the left from 1 to 0, 0 to -1, -1 to -2, and -2 to -3.</p> <p>$1 - 4 = -3$</p> </div> </div>	<div style="text-align: center;"> <p>A number line from -5 to 5. Red arcs show the distance between -5 and -1, which is 4 units.</p> <p>The difference between -5 and -1 is 4</p> </div> <div style="text-align: center; margin-top: 20px;"> <p>A number line from -5 to 5. Red arcs show the distance between -5 and 5, which is 10 units.</p> <p>The difference between 5 and -5 is 10</p> </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>  $2\frac{3}{4} - 1\frac{1}{8} = 1\frac{5}{8}$

Progression of skills - Multiplication

Year group	Skill
Nursery	<ul style="list-style-type: none">Continue with counting and subitising skills as a foundation for later work on equal groups. (see addition and subtraction sections)
Reception	<ul style="list-style-type: none">Double to 10Make equal groups
Year 1	<ul style="list-style-type: none">Count in 2s, 5s and 10sAdd equal groupsMake arraysMake doubles

Progression of skills - Multiplication

Year group	Skill
Year 2	<ul style="list-style-type: none">• Link repeated addition and multiplication• Use arrays• Double• The 2 times-table• The 10 times-table• The 5 times-table• Missing numbers
Year 3	<ul style="list-style-type: none">• The 3 times-table• The 4 times-table• The 8 times-table• Related facts• Multiply a 2-digit number by a 1-digit number - no exchange• Multiply a 2-digit number by a 1-digit number - with exchange• Scaling• Correspondence problems

Progression of skills - Multiplication

Year group	Skill
Year 4	<ul style="list-style-type: none">• Times-table facts to 12×12• Multiply by 1 and 0• Multiply 3 numbers• Factor pairs• Multiply by 10 and 100• Related facts• Mental strategies• Multiply a 2 or 3-digit number by a 1-digit number• Scaling• Correspondence problems



Progression of skills - Multiplication

Year group	Skill
Year 5	<ul style="list-style-type: none">• Multiples and factors• Square and cube numbers• Multiply numbers up to 4 digits by a 1-digit number• Multiply numbers up to 4 digits by a 2-digit number• Multiply by 10, 100 and 1,000• Mental strategies• Multiply fractions by a whole number• Multiply mixed numbers by a whole number• Find the whole

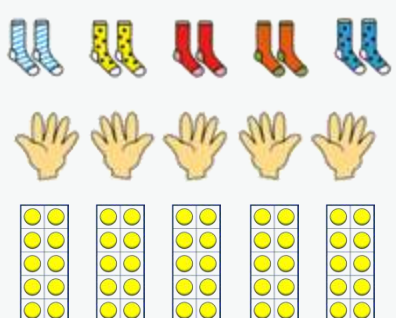


Progression of skills - Multiplication

Year group	Skill
Year 6	<ul style="list-style-type: none">• Multiply numbers up to 4 digits by a 2-digit number• Multiply by 10, 100 and 1,000• Order of operations• Multiply decimals by integers• Multiply fractions by fractions• Find the whole• Calculations involving ratio


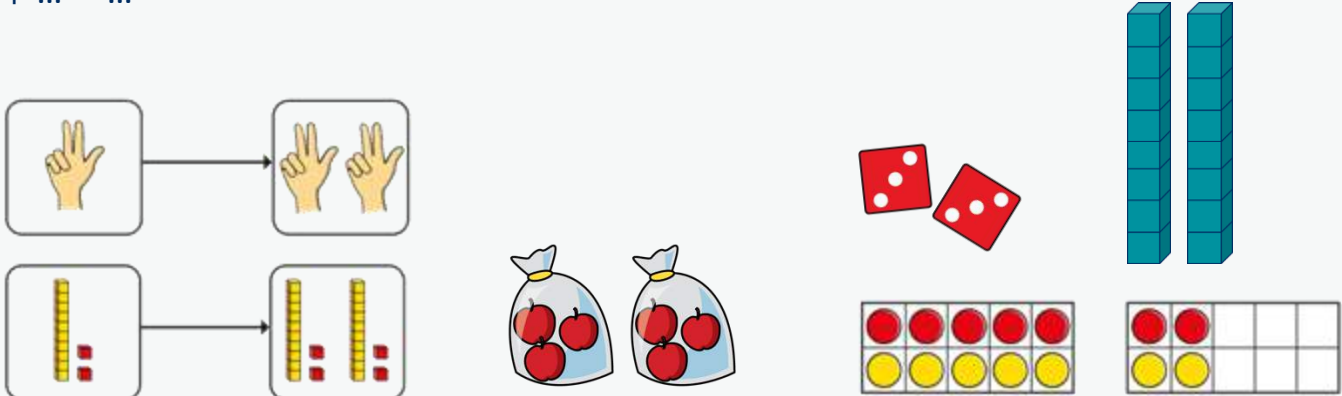
Multiplication

<p>Reception</p>	<ul style="list-style-type: none"> • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
<p>Progression of skills</p>	<p>Key representations</p>
<p>Double to 10</p> <p>Prompt children to notice that double means twice as many and to notice that there are two equal groups.</p>	<p>Double ... is is double ...</p> 
<p>Make equal groups</p> <p>Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.</p>	<p>There are ... groups of ... There are ... altogether.</p> 











Multiplication

<p>Year 1</p>	<ul style="list-style-type: none"> Count in multiples of twos, fives and tens. Solve one-step problems involving multiplication, using concrete objects, pictorial representations and arrays with the support of the teacher. 																																																												
<p>Progression of skills</p>	<p>Key representations</p>																																																												
<p>Count in 2s, 5s and 10s</p> <p>Begin by counting objects that naturally come in 2s, 5s and 10s, for example pairs of socks or fingers.</p>	<p>There are ... equal groups of ... There are ... altogether.</p> 	<p>Continue to colour in ...s What do you notice?</p> <table border="1" data-bbox="1098 671 1471 856"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	<p>Complete the number track/number line by counting in ...s.</p> <table border="1" data-bbox="1512 685 1947 742"> <tr> <td>5</td> <td>10</td> <td>15</td> <td>20</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> 	5	10	15	20				
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<p>Add equal groups (repeated addition)</p> <p>Children should be able to write a repeated addition to represent equal groups and to draw pictures or use objects to represent a repeated addition.</p>	<p>There are ... groups of ... There are ... altogether.</p>  <p>$10 + 10 + 10 = 30$</p> <p>$5 + 5 + 5 + 5 = 20$</p>		<p>What is the same? What is different?</p> <p>$2 + 2 + 2 =$</p> <p>$5 + 5 + 5 =$</p> <p>$10 + 10 + 10 =$</p> <p>Use objects or a drawing to represent the equal groups and find how many in total.</p>																																																										

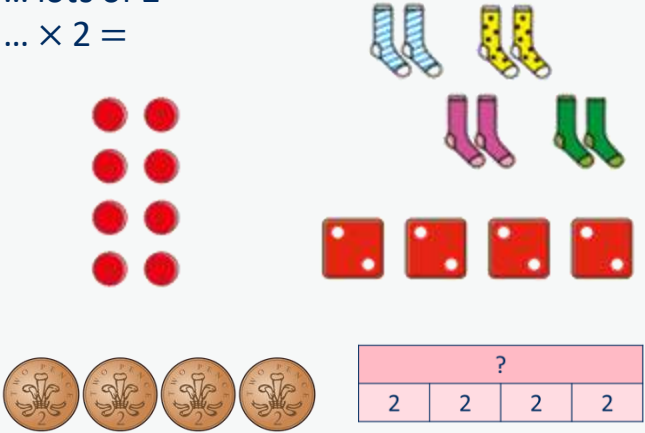

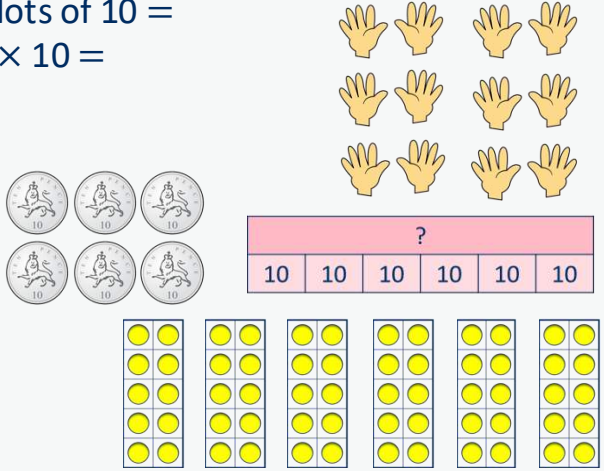

Multiplication

Progression of skills	Key representations
<p>Make arrays</p> <p>Children use their knowledge of adding equal groups to arrange objects in columns and rows.</p>	<p>There are ... rows of ... There are ... altogether. There are ... columns of ... There are ... altogether.</p> 
<p>Make doubles</p> <p>Children understand that doubles are two equal groups. Children may begin to explore doubles beyond 20 using base 10</p>	<p>Double ... is + ... = ...</p> 




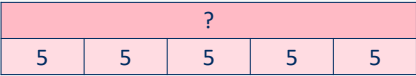


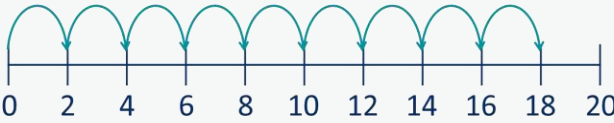
Multiplication

<p>Year 2</p>	<ul style="list-style-type: none"> Recall and use multiplication facts for the 2, 5 and 10 multiplication tables. Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (\times) and equals ($=$) signs. Show that multiplication of two numbers can be done in any order (commutative). 													
<p>Progression of skills</p>	<p>Key representations</p>													
<p>Link repeated addition and multiplication</p> <p>Encourage children to make the link between repeated addition and multiplication.</p>	<p>There are ... equal groups with ... in each group. There are ... altogether.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center;">6</td></tr> <tr><td style="text-align: center;">3</td><td style="text-align: center;">3</td></tr> </table> </div> <div style="text-align: left;"> <p>$3 + 3 = 6$ $2 \times 3 = 6$</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <tr><td colspan="4" style="text-align: center;">20</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">5</td><td style="text-align: center;">5</td><td style="text-align: center;">5</td></tr> </table> </div> <div style="text-align: left;"> <p>$5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$</p> </div> </div>		6		3	3	20				5	5	5	5
6														
3	3													
20														
5	5	5	5											
<p>Use arrays</p> <p>Encourage children to see that multiplication is commutative.</p>	<p>There are ... rows with ... in each row. There are ... columns with ... in each column.</p> <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  <p>3 lots of 5 = 15 $5 + 5 + 5 = 15$</p> </div> <div style="text-align: center;">  <p>5 lots of 3 = 15 $3 + 3 + 3 + 3 + 3 = 15$</p> </div> </div>	<p>I can see ... \times ... and ... \times ...</p> <p style="text-align: center;">$3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$</p>												
<p>Double</p> <p>Encourage children to make links with related facts.</p>	<p>Double ... is ...</p> <div style="display: flex; align-items: center;">  →  </div> <p style="margin-left: 100px;">Double 4 = 4 + 4 Double 4 is 8</p>	<p>Double ... is ... so double ... is ...</p> <div style="display: flex; align-items: center;">  →  </div> <p style="margin-left: 100px;">Double 4 is 8</p> <div style="display: flex; align-items: center;">  →  </div> <p style="margin-left: 100px;">Double 40 is 80</p>												






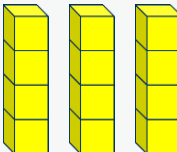


Multiplication

Progression of skills	Key representations																																									
<p>The 2 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Notice that all multiples of 2 are even numbers.</p>	<p>... lots of 2 = ... $\times 2 =$</p> 	<p>... times 2 is equal to ...</p> <table border="1" data-bbox="1384 344 1798 462"> <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> $1 \times 2 = 2$ $2 = 1 \times 2$ $2 \times 2 = 4$ $4 = 2 \times 2$ $3 \times 2 = 6$ $6 = 3 \times 2$ </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 10 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.</p>	<p>... lots of 10 = ... $\times 10 =$</p> 	<p>... times 10 is equal to ...</p> <table border="1" data-bbox="1384 825 1798 982"> <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> </table> <p> $1 \times 10 = 10$ $10 = 1 \times 10$ $2 \times 10 = 20$ $20 = 2 \times 10$ $3 \times 10 = 30$ $30 = 3 \times 10$ </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	31	32	33	34	35	36	37	38	39	40
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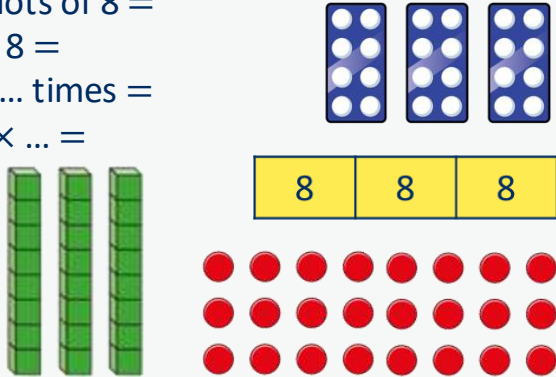

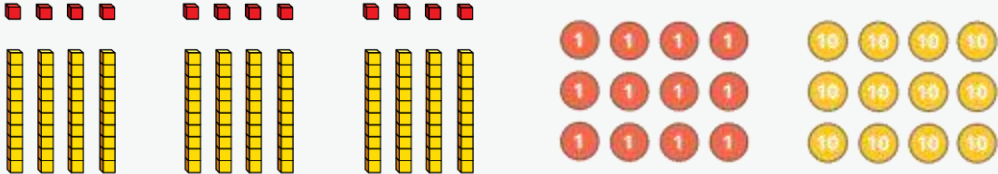
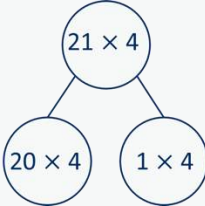
Multiplication

Progression of skills	Key representations																																									
<p>The 5 times-table</p> <p>Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.</p>	<p>... lots of 5 =</p> <p>... $\times 5 =$</p>    	<p>... times 5 is equal to ...</p> <table border="1" data-bbox="1384 337 1810 501"> <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> </table> <p> $1 \times 5 = 5$ $5 = 1 \times 5$ $2 \times 5 = 10$ $10 = 2 \times 5$ $3 \times 5 = 15$ $15 = 3 \times 5$ </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	31	32	33	34	35	36	37	38	39	40
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<p>Missing numbers</p> <p>Make links to known facts.</p>	<p>... is equal to ... groups of ...</p> <p>18 socks, how many pairs? </p> 	<p>... times ... is equal to ...</p> <p>$\square \times 2 = 18$</p> <p>$18 = 2 \times \square$</p>																																								


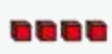





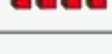



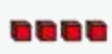





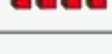


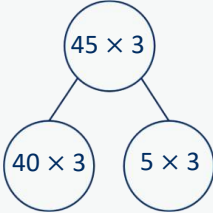













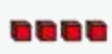





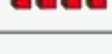








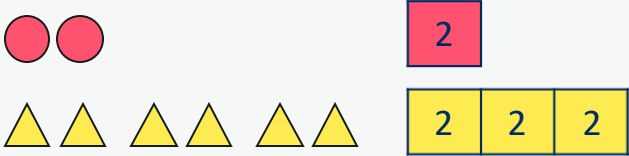
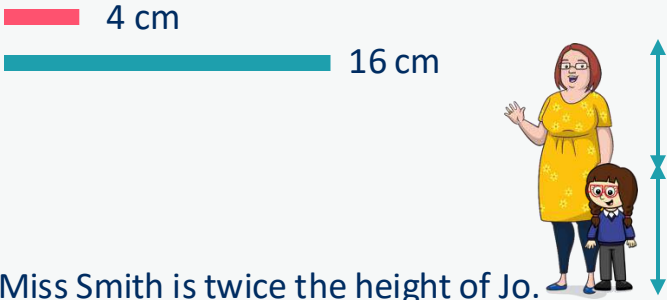
Multiplication

<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 ... = </p>	<p>... times 3 is equal to ...</p> <table border="1" data-bbox="1346 664 1833 806"> <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 ... = </p>	<p>... times 4 is equal to ...</p> <table border="1" data-bbox="1346 1021 1833 1163"> <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" data-bbox="1334 334 1866 486"> <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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<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" data-bbox="582 1079 913 1308"> <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>10</td><td>0</td></tr> <tr><td>0</td><td>2</td></tr> <tr><td>0</td><td>2</td></tr> </tbody> </table> <p>$30 \times 2 = 60$ $2 \times 2 = 4$ $32 \times 2 = 64$</p>  <table border="1" data-bbox="1566 1079 1914 1308"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>20</td><td>0</td></tr> <tr><td>10</td><td>0</td></tr> <tr><td>10</td><td>0</td></tr> <tr><td>0</td><td>4</td></tr> <tr><td>0</td><td>4</td></tr> </tbody> </table>		Tens	Ones	30	0	20	0	10	0	0	2	0	2	Tens	Ones	20	0	10	0	10	0	0	4	0	4						
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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" data-bbox="588 386 946 718"> <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> </tbody> </table> <p>$20 \times 4 = 80$ $4 \times 4 = 16$</p> <p>$24 \times 4 = 96$</p>	Tens	Ones											 <table border="1" data-bbox="1520 496 1908 689"> <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						
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<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>  <p>There are 3 times as many triangles as circles.</p>	<p>... is ... times the size of is ... times the length/height of ...</p>  <p>Miss Smith is twice the height of Jo.</p>																				

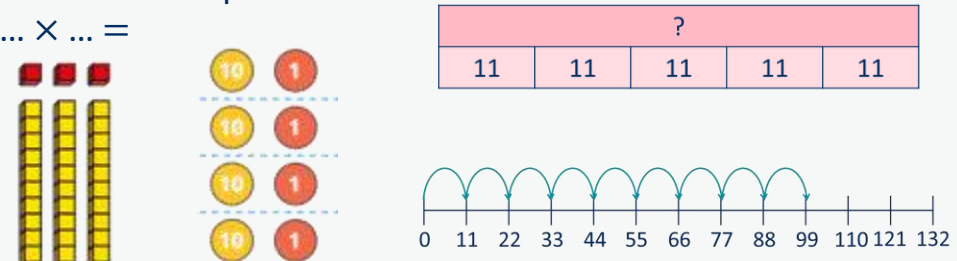
Multiplication

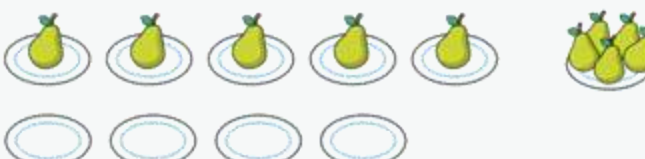
Progression of skills	Key representations								
<p>Correspondence problems (How many ways?)</p> <p>Encourage children to work systematically to find all the different possible combinations.</p>	<p>For every ... , there are ... possible ... There are ... \times ... possibilities altogether.</p> <div data-bbox="590 506 969 706"></div> <table border="1" data-bbox="996 365 1290 714"><thead><tr><th data-bbox="996 365 1141 401">hats</th><th data-bbox="1145 365 1290 401">scarves</th></tr></thead><tbody><tr><td data-bbox="996 404 1141 504">blue </td><td data-bbox="1145 404 1290 504"> </td></tr><tr><td data-bbox="996 506 1141 606">orange </td><td data-bbox="1145 506 1290 606"> </td></tr><tr><td data-bbox="996 609 1141 709">purple </td><td data-bbox="1145 609 1290 709"> </td></tr></tbody></table> <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								
blue 	 								
orange 	 								
purple 	 								

Multiplication


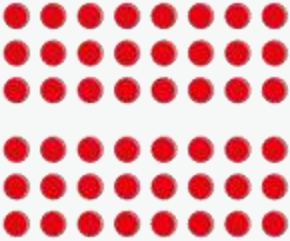
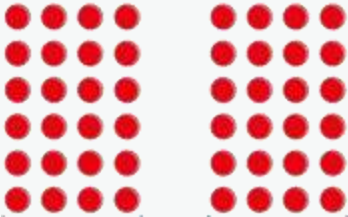
Year 4	<ul style="list-style-type: none"> Recall multiplication facts for multiplication tables up to 12×12 Use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental 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.
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Progression of skills	Key representations
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<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" style="float: right;"> <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 style="width: 100%;"> <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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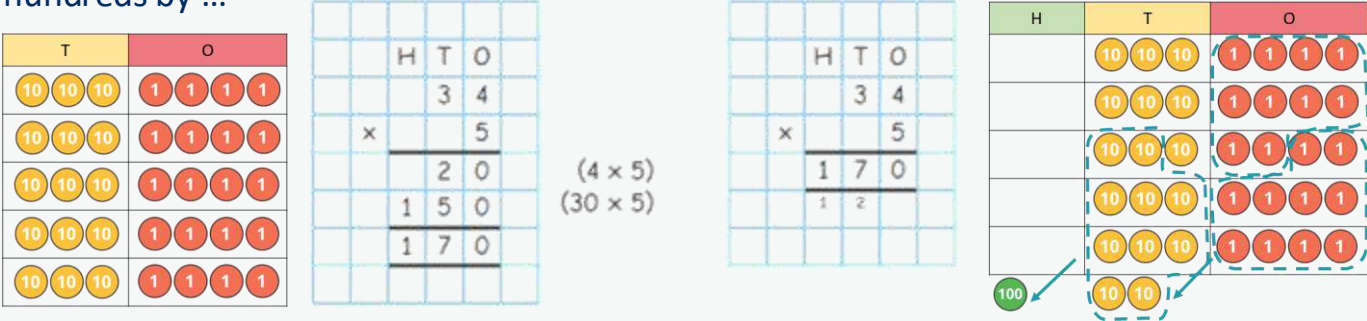
Multiplication

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 ... $\times 12 = \dots \times \dots \times \dots$</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;"> <tr><th style="background-color: #d9ead3;">H</th><th style="background-color: #fff2cc;">T</th><th style="background-color: #f4cccc;">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;"> <tr><th style="background-color: #d9ead3;">Th</th><th style="background-color: #d9ead3;">H</th><th style="background-color: #fff2cc;">T</th><th style="background-color: #f4cccc;">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" data-bbox="1197 1062 1937 1310"> <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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