


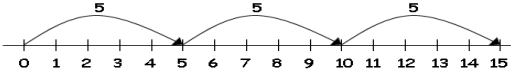
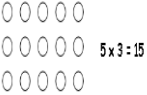




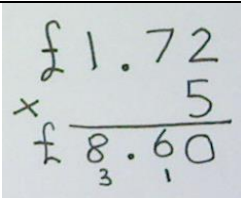

# Multiplication

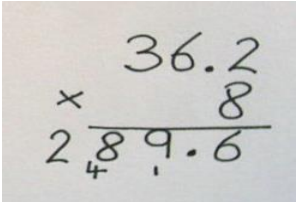
Year Group	Learning Intention	Strategy	Resources	End of year expectation
Early Years	<p>Begin counting in 10s</p> <p>Begin counting in 2s</p> <p>Problem solving - applying knowledge</p>	  <p>Can you count in <u>twos</u>? Let's <u>count</u> the children in the line at the door.</p>	<p>Fingers, chanting</p> <p>Practical line/ real objects</p> <p>Counting</p> <p>Practical line/real objects</p> <p>Chanting</p>	<p>Children count reliably with numbers from 1-20, place them in order and say which number is one more or one less than a given number.</p> <p>Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.</p> <p>They solve problems, including doubling, halving and sharing.</p>
Year 1	<p>Count in 10s</p> <p>Count in 5s</p> <p>Count in 2s</p> <p>Problem solving - applying knowledge</p>	<p>10, 20, 30, 40, 50, 60, 70, 80, 90, 100</p> <p>5, 10, 15, 20, 25, 30, 35, 40, 45, 50</p> <p>2, 4, 6, 8, 10, 12, 14, 16, 18, 20</p> <p>Ria has <u>3</u>, <u>10p</u> coins in her purse. How much does she have <u>altogether</u>?</p>	<p>Counting objects in groups</p> <p>Whole class chanting</p> <p>Hundred square</p> <p>Number line</p> <p>Images</p>	<p>Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</p>

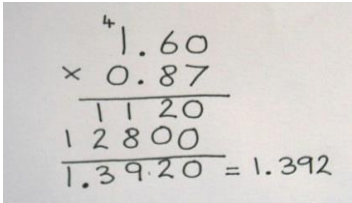
		<p>There are 2 lollies in one bag. How many lollies are there in 3 bags?</p> 																																																				
Year 2	<p>Counting in 2s, 3s, 5s and 10s</p> <p>Introduce 'x' sign</p> <p>Multiplication as repeated addition</p> <p>Repeated addition on number line</p> <p>Know by heart 2, 5 and 10 times tables</p> <p>Multiplication as arrays</p> <p>Inverse calculations</p> <p>Missing number sentences</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> </table> <p><math>3 \times 5 = 15</math>    Three lots of five    <math>5+5+5 = 15</math></p> <p><math>3 \times 5 = 5+5+5</math></p>  <p><math>3 \times 10 = 30</math>   <math>4 \times 2 = 8</math>   <math>5 \times 5 = 25</math>   <math>6 \times 10 = 60</math>   <math>8 \times 2 = 16</math>   <math>2 \times 5 = 10</math></p>  <p><math>5 \times 3 = 15</math> <math>3 \times 5 = 15</math></p> <p><math>5 \times 4 = 20</math>   so   <math>20 \div 4 = 5</math> and <math>20 \div 5 = 4</math></p> <p><math>7 \times \square = 14</math>                      <math>14 = \square \times 7</math></p> <p><math>\square \times 2 = 14</math>                      <math>14 = 2 \times \square</math></p> <p><math>\square \times \nabla = 14</math>                      <math>14 = \square \times \nabla</math></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	41	42	43	44	45	46	47	48	49	50	<p>Whole class chanting, hundred square, number line</p> <p>Diagrams, counters</p> <p>Objects, hundred square, number line</p> <p>Learn by rote, chanting</p> <p>Mental strategies, diagrams, pencil and paper method.</p> <p>Mental strategies, learn by rote,</p>	<p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p> <p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</p> <p>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p>
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11	12	13	14	15	16	17	18	19	20																																													
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31	32	33	34	35	36	37	38	39	40																																													
41	42	43	44	45	46	47	48	49	50																																													

	<p>Problem solving - applying knowledge</p>	<p>There are <u>3</u> boats on the River Thames. Each motorboat has <u>5</u> people on it. How many people are there <u>altogether</u>?</p>	<p>Pencil and paper method, times tables facts.</p>																																																																																																																										
<p>Year 3</p>	<p>Introduce 3,4 and 8 times tables</p> <p>Introduce x table square</p> <p>Partitioning</p> <p>Introduce grid method TU x U</p> <p>Problem solving - applying knowledge</p>	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td></td><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>1</td><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>2</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td></tr> <tr><td>3</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td></tr> <tr><td>4</td><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td></tr> <tr><td>5</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr> <tr><td>6</td><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>56</td><td>60</td></tr> <tr><td>7</td><td>7</td><td>14</td><td>21</td><td>28</td><td>35</td><td>42</td><td>49</td><td>56</td><td>63</td><td>70</td></tr> <tr><td>8</td><td>8</td><td>16</td><td>24</td><td>32</td><td>40</td><td>48</td><td>56</td><td>64</td><td>72</td><td>80</td></tr> <tr><td>9</td><td>9</td><td>18</td><td>27</td><td>36</td><td>45</td><td>54</td><td>63</td><td>72</td><td>81</td><td>90</td></tr> <tr><td>10</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td></tr> </table> $\begin{array}{r} 38 \times 5 = 190 \\ 30 \times 5 = 150 \\ 8 \times 5 = \underline{40} + \\ 190 \end{array}$ <p>TU x U 23 x 8 Children will approximate first 23 x 8 is approximately 20 x 8 = 160</p> $\begin{array}{r} \times \quad 20 \quad 3 \\ 8 \quad \boxed{160} \quad \boxed{24} \\ \hline \quad \quad \quad 160 \\ \quad \quad \quad + \quad 24 \\ \hline \quad \quad \quad 184 \end{array}$ <p>There are <u>12</u> pencils in a box. I bought <u>5</u> boxes. How many pencils do I have now?</p>		1	2	3	4	5	6	7	8	9	10	1	1	2	3	4	5	6	7	8	9	10	2	2	4	6	8	10	12	14	16	18	20	3	3	6	9	12	15	18	21	24	27	30	4	4	8	12	16	20	24	28	32	36	40	5	5	10	15	20	25	30	35	40	45	50	6	6	12	18	24	30	36	42	48	56	60	7	7	14	21	28	35	42	49	56	63	70	8	8	16	24	32	40	48	56	64	72	80	9	9	18	27	36	45	54	63	72	81	90	10	10	20	30	40	50	60	70	80	90	100	<p>Mental strategies</p>	<p>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p> <p>Write and calculate mathematical statements for multiplication and 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</p> <p>Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</p>
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<p><b>Year 4</b></p>	<p><b>Times tables up to 12x12</b></p> <p>Continue grid method HTU x U</p> <p>Introduce column method, only times one digit. TU x U</p> <p>Column method HTU x U</p>	<p><b>HTU x U</b>  <math>346 \times 9</math>                  Children will approximate first  <math>346 \times 9</math> is approximately <math>350 \times 10 = 3500</math></p> <table style="margin-left: 20px;"> <tr> <td>x</td> <td>300</td> <td>40</td> <td>6</td> <td></td> </tr> <tr> <td>9</td> <td>2700</td> <td>360</td> <td>54</td> <td></td> </tr> </table> <div style="margin-left: 200px;"> <math display="block">\begin{array}{r} 2700 \\ + 360 \\ + 54 \\ \hline 3114 \\ \text{11} \end{array}</math> </div> <div style="margin-left: 200px; margin-top: 20px;"> <math display="block">\begin{array}{r} 34 \\ \times 2 \\ \hline 68 \end{array}</math> </div> <p><b>HTU x U</b></p> <p style="text-align: center;"><b>123 x 5</b></p> <table style="margin-left: 20px;"> <tr> <td style="text-align: center;">1st Step</td> <td style="text-align: center;">2nd Step</td> <td style="text-align: center;">3rd Step</td> </tr> <tr> <td style="text-align: center;"> <math display="block">\begin{array}{r} 123 \\ \times 5 \\ \hline 5 \\ \hline \end{array}</math> </td> <td style="text-align: center;"> <math display="block">\begin{array}{r} 123 \\ \times 5 \\ \hline 15 \\ \hline \end{array}</math> </td> <td style="text-align: center;"> <math display="block">\begin{array}{r} 123 \\ \times 5 \\ \hline 615 \\ \hline \end{array}</math> </td> </tr> </table>	x	300	40	6		9	2700	360	54		1st Step	2nd Step	3rd Step	$\begin{array}{r} 123 \\ \times 5 \\ \hline 5 \\ \hline \end{array}$	$\begin{array}{r} 123 \\ \times 5 \\ \hline 15 \\ \hline \end{array}$	$\begin{array}{r} 123 \\ \times 5 \\ \hline 615 \\ \hline \end{array}$	<p>Learn by rote</p>	<p>Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></p> <p>Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p> <p>Recognise and use factor pairs and commutativity in mental calculations</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p> <p>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>
x	300	40	6																	
9	2700	360	54																	
1st Step	2nd Step	3rd Step																		
$\begin{array}{r} 123 \\ \times 5 \\ \hline 5 \\ \hline \end{array}$	$\begin{array}{r} 123 \\ \times 5 \\ \hline 15 \\ \hline \end{array}$	$\begin{array}{r} 123 \\ \times 5 \\ \hline 615 \\ \hline \end{array}$																		

	<p>Column method in the context of money.</p> <p>Problem solving - applying knowledge</p>	 <p>A farmer has <u>47</u> potato plants in a field. How many plants does he have in <u>6</u> fields?</p>														
<p>Year 5</p>	<p>Grid method TU x TU</p> <p>Column method U,th x U Know that the decimal points line up under each other.</p>	<p><b>TU x TU</b> 72 x 38 Children will approximate first 72 x 38 is approximately 70 x 40 = 2800</p> <table border="1"> <tr> <td>x</td> <td>70</td> <td>2</td> <td></td> </tr> <tr> <td>30</td> <td>2100</td> <td>60</td> <td></td> </tr> <tr> <td>8</td> <td>560</td> <td>16</td> <td></td> </tr> </table> <p>2100 + 560 + 60 + 16 <u>2736</u> 1</p> <p><b>U.th x U</b> 4.7 x 4 is approximately 5 x 4 = 20</p> 	x	70	2		30	2100	60		8	560	16		<p>Mental Strategies</p>	<p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers .</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers . Establish whether a number up to 100 is prime and recall prime numbers up to 19</p> <p>Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</p> <p>Multiply and divide numbers mentally drawing upon known facts</p> <p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)</p> <p>Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p>
x	70	2														
30	2100	60														
8	560	16														

	<p>Column method TU/HTU x TU</p> <p>Column method U.th x U</p> <p>ThHTU x U/TU</p> <p>Problem solving - applying knowledge</p>	<p>HTU x TU</p> $\begin{array}{r} 123 \\ \times 45 \\ \hline 615 \\ 4920 \\ \hline 5535 \end{array}$  $\begin{array}{r} 3216 \\ \times \phantom{00}3 \\ \hline 9648 \end{array}$ <p>A school raises money for charity. If <u>261</u> children brought in <u>£3 each</u>, how much did they raise <u>altogether</u>? They need to raise <u>£1000</u>. How much <u>more</u> do they need to collect?</p>		<p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign .Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p>
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<p><b>Multiplying decimals</b> <b>6</b></p>	<p>Consolidate all previous methods and use them confidently in every day work.</p> <p>Problem solving - applying knowledge</p>	 <p>On Saturday, a group of <u>31</u> people go to the cinema. They each pay <u>£4.42</u> for a ticket. What is the <u>total</u> cost of the tickets?</p>	<p><b>Mental strategies</b></p>	<p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Identify common factors, common multiples and prime numbers</p> <p>Use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>Solve problems involving addition, subtraction, multiplication and division</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>
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