





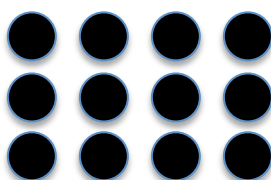


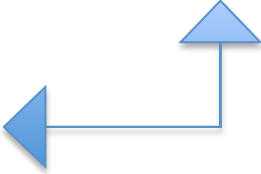
Multiplication at Falconbrook Primary School

Handout for Parents

*Make practicing number work fun, when possible present it like a game...and always do it **together**.*

Steps	Examples
<p><u>Step 1</u></p> <p>Multiplication as counting groups of familiar things</p>	<p>Children identify sequences in repeated patterns: counting in 2s, 5s and 10s.</p> <p>How many...eyes, fingers and toes are there?</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>2 4 6 8 10 12 14 16 18 20</p>  </div> <div style="text-align: center;"> <p>5 10 15 20 25 30 35 40 45 50</p>  </div> <div style="text-align: center;"> <p>10 20 30 40 50 60 70 80 90 100</p>  </div> </div>
<p><u>Step 2</u></p> <p>Multiplication as adding groups of the same quantity</p>	<p>Children recognise multiplication as being the same as repeated addition; making links with counting in 2s, 5s and 10s.</p> <p>How many...eyes, fingers and toes are there?</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 20$</p>  <p>10 lots of 2 OR 10 groups of 2 makes 20 which is $10 \times 2 = 20$</p> </div> <div style="text-align: center;"> <p>$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 50$</p>  <p>10 lots of 5 OR 10 groups of 5 makes 50 which is $10 \times 5 = 50$</p> </div> <div style="text-align: center;"> <p>$10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 100$</p>  <p>10 lots of 10 OR 10 groups of 10 makes 100 which is $10 \times 10 = 100$</p> </div> </div>
<p><u>Step 3</u></p> <p>Multiplication as an Array</p>	<p>Children use their jottings to create arrays of multiplication facts:</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <p style="text-align: center;">$4 \times 3 = 12$</p>  <p>Turn array around (3 x 4) see how the answer is the same!</p> </div> <div style="width: 45%;"> <p>Arrays can also be used to support related division facts: $12 \div 3 = 4$ and $12 \div 4 = 3$.</p> </div> </div>

<p><u>Step 4</u></p> <p>Multiplication by 10, 100 and 1000</p>	<p>When multiplying by 10, 100 (and 1000), the number moves up the column on the place value chart, using zeros as place holders. Do NOT encourage your child to add zeros, as it would not work when multiplying numbers with a decimal point.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <table style="border-collapse: collapse;"> <tr> <td style="padding: 5px;">TH</td> <td style="padding: 5px;">H</td> <td style="padding: 5px;">T</td> <td style="padding: 5px;">Os.</td> <td style="padding: 5px;">$\frac{1}{10}$</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">←</td> <td style="color: red;">4</td> <td></td> <td style="color: blue;">(4 × 10 = 40)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">4</td> <td style="color: blue;">0</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">←</td> <td></td> <td style="color: red;">4</td> <td></td> <td style="color: blue;">(4 × 100 = 400)</td> </tr> <tr> <td></td> <td style="color: red;">4</td> <td style="color: blue;">0</td> <td style="color: blue;">0</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">←</td> <td></td> <td></td> <td style="color: red;">4</td> <td></td> <td style="color: blue;">(4 × 1000 = 4000)</td> </tr> <tr> <td style="color: red;">4</td> <td style="color: blue;">0</td> <td style="color: blue;">0</td> <td style="color: blue;">0</td> <td></td> <td></td> </tr> </table> <table style="border-collapse: collapse;"> <tr> <td style="color: green;">0</td> <td style="color: green;">.</td> <td style="color: green;">4</td> <td></td> <td style="color: blue;">(0.4 × 10 = 4)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">←</td> <td style="color: red;">4</td> <td></td> </tr> </table> </div>	TH	H	T	Os.	$\frac{1}{10}$				←	4		(4 × 10 = 40)			4	0				←		4		(4 × 100 = 400)		4	0	0			←			4		(4 × 1000 = 4000)	4	0	0	0			0	.	4		(0.4 × 10 = 4)			←	4	
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<p><u>Step 5</u></p> <p>Partitioning and Looping Method</p> <p>Using understanding of multiplication by 10.</p>	<p>Encourage your child to use jotting when calculating mentally.</p> <div style="text-align: center;"> $23 \times 5 =$ </div>																																																				
<p><u>Step 6</u></p> <p>Using understanding of multiplication by 10.</p>	<p>At this stage you are ready to record each step, of the calculation.</p> <div style="text-align: center;"> $38 \times 4 =$ </div> <div style="text-align: right; padding-right: 50px;"> <p>As your child gains confidence, have a go at using the steps 7 then 8 below - grid method and compact method.</p> </div>																																																				
<p><u>Step 7</u></p> <p>Grid Method</p> <p>Using understanding of multiplication by 10.</p>	<div style="display: flex; align-items: center; justify-content: center;"> <table style="border-collapse: collapse; margin-right: 20px;"> <tr> <td colspan="3" style="text-align: center;">$38 \times 4 =$</td> </tr> <tr> <td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">X</td> <td style="border-bottom: 1px solid black; padding: 5px;">30</td> <td style="border-bottom: 1px solid black; padding: 5px;">8</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">4</td> <td style="padding: 5px;">120</td> <td style="padding: 5px;">32</td> </tr> </table> <table style="border-collapse: collapse; margin-right: 20px;"> <tr> <td style="padding: 5px;">120</td> <td></td> </tr> <tr> <td style="padding: 5px;">+ 32</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">152</td> <td></td> </tr> </table> </div>	$38 \times 4 =$			X	30	8	4	120	32	120		+ 32		152																																						
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<p><u>Step 8</u></p> <p>Compact Methods</p>	<p>38 × 4 =</p> $\begin{array}{r} 38 \\ \times 4 \\ \hline 152 \end{array}$  <p>Encourage your child to cross out numbers that have been carried as a reminder that they need to be added on when finding the total.</p>									
<p><u>Step 9</u></p> <p>Grid Method to illustrate the Expanded Vertical Method.</p> <p>Using understanding of multiplication by 100.</p>	<p>123 × 5 =</p> <table border="1" data-bbox="432 645 847 875"> <tr> <td>X</td> <td>100</td> <td>20</td> <td>3</td> </tr> <tr> <td>5</td> <td>500</td> <td>100</td> <td>15</td> </tr> </table> $\begin{array}{r} 123 \\ \times 5 \\ \hline 500 \\ 100 \\ + 15 \\ \hline 615 \end{array}$ <p>As your child gains confidence, use bigger numbers.</p>	X	100	20	3	5	500	100	15	
X	100	20	3							
5	500	100	15							
<p><u>Step 10</u></p> <p>Grid Method to illustrate the Expanded Vertical Method.</p>	<p>56 × 27 =</p> <table border="1" data-bbox="432 1171 847 1402"> <tr> <td>X</td> <td>50</td> <td>6</td> </tr> <tr> <td>20</td> <td>1000</td> <td>120</td> </tr> <tr> <td>7</td> <td>120</td> <td>42</td> </tr> </table> $\begin{array}{r} 56 \\ \times 27 \\ \hline 1000 \\ 120 \\ 350 \\ + 42 \\ \hline 1512 \end{array}$ <p>As your child gains confidence, use bigger numbers.</p>	X	50	6	20	1000	120	7	120	42
X	50	6								
20	1000	120								
7	120	42								
<p><u>Step 11</u></p> <p>Expanded Vertical Method with Decimal Numbers</p>	<p>£3.24 × 5 =</p> $\begin{array}{r} \text{£ } 3.24 \\ \times 5 \\ \hline 0.20 \\ + 1.00 \\ \hline 15.00 \\ \text{£ } 16.20 \end{array}$ <p>→ 4p × 5 = 20p → 20p × 5 = £1.00 → £3 × 5 = £15.00</p> <p>Use real coins to help your child become familiar and gain confidence when handling money.</p>									

<p><u>Step 12</u></p> <p>Compact Method with Decimal Numbers</p> <p>The National curriculum states that children should be using this method in Year 4 and should know all Times Table facts to 12 x 12.</p>	<p>£ 3.24 × 5 =</p> $ \begin{array}{r} \text{£ } 3.24 \\ \times \quad 5 \\ \hline \text{£ } 16.20 \\ \begin{array}{l} \text{1} \\ \text{2} \end{array} \end{array} $ <p>Encourage your child to cross out numbers that have been carried as a reminder that they need to be added on when finding the total.</p>
<p><u>Step 13</u></p> <p>Compact Method Also known as Formal Written Method</p> <p>The National curriculum states that children should be using this method in Year 5.</p>	<p>56 × 27 =</p> $ \begin{array}{r} 56 \\ \times 27 \\ \hline 392 \\ 1120 \\ \hline 1512 \\ \text{1} \end{array} $ <p>Children who are not at this stage by Autumn term of Year 5, will be supported to move swiftly through the previous stages in order to meet this standards as soon as possible.</p>
<p><u>Step 14</u></p> <p>Compact Method Also known as Formal Written Method using larger numbers</p> <p>The National curriculum states that children should be using this method in Year 6.</p>	<p>12 345 × 36 =</p> <p>Children who are not at this stage by Autumn term of Year 6, will be supported to move swiftly through the previous stages in order to meet this standards as soon as possible.</p>