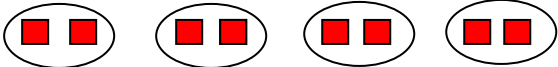

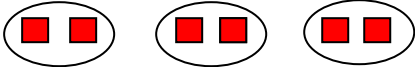

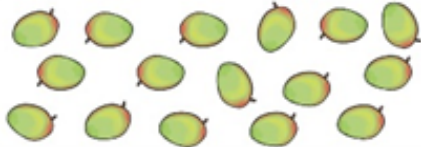
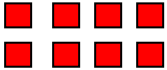


# **MULTIPLICATION POLICY**

**UPDATED DECEMBER 2019**

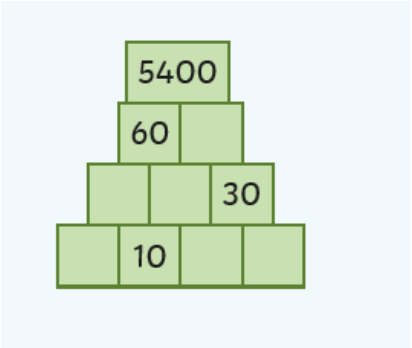
**Birkwood Primary School**  
**Calculation Policy (Multiplication)**

Stage	Key Vocabulary	How it looks in practice	Resources	Mastery Examples
1	<ul style="list-style-type: none"> <li>-Counting</li> <li>-2's</li> <li>-Groups</li> <li>-Equal</li> <li>-Add</li> <li>-Lots</li> </ul>	<p><b>Mostly pictorial representations:</b></p> <p><b>Grouping:</b></p>  <p>How many groups of 2 do we have?</p> <p><i>*The opportunity for the children to use concrete apparatus and physically count and see is vital at this stage.</i></p>	Counters, Small toys, Buttons, Cubes, Pegs, Fingers, Socks and Whiteboards.	Count the pairs of shoes.  How many shoes has Alex got all together?  
2	<ul style="list-style-type: none"> <li>-Counting</li> <li>-2's</li> <li>-5's</li> <li>-10's</li> <li>-Groups</li> <li>-Equal</li> <li>-Add</li> <li>-Lots</li> <li>-Altogether</li> </ul>	<p><b>Mostly pictorial representations:</b></p> <p><b>Grouping:</b></p>  <p style="text-align: center;"> <math>2 + 2 + 2</math>  <b>3 Groups of two</b>  <math>3 \times 2</math> </p> <p><b>Number tracks to count:</b></p>  <p><i>Can we count up in twos?</i></p>	Counters, Small toys, Buttons, Cubes, Pegs, Fingers, Socks and Whiteboards.	How many mangoes altogether? How many groups of two can you make? Could you circle groups of two mangoes?  
3	<ul style="list-style-type: none"> <li>-Lots of</li> <li>-Groups of</li> <li>-Times</li> <li>-Multiply</li> <li>-Multiplied by</li> <li>-Multiple of</li> <li>-Repeated</li> <li>-Group in pairs</li> </ul>	<p><b>Pictorial representations:</b></p>  <p style="margin-left: 100px;"> <math>4 \times 2 = 8</math>  <math>2 \times 4 = 8</math> </p> <p><b>Repeated addition:</b> <math>5 + 5 + 5 = 3</math> lots of 5 OR  <math>3</math> times 5 = <math>(3 \times 5)</math> OR <math>(5 \times 3)</math></p>	Counters, Small toys, Buttons, Cubes, Pegs, Number grids Coins	Are these statements true or false? <b>EXPLAIN YOUR REASONING.</b> $2 \times 10 = 4 \times 3$  $3 \times 7 = 2 \times 10$  $2 \times 14 = 4 \times 7$

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Stage	Key Vocabulary	How it looks in practice	Resources	Mastery Examples																														
4	<ul style="list-style-type: none"> <li>-Lots of</li> <li>-Groups of</li> <li>-Times</li> <li>-Multiply</li> <li>-Multiplied by</li> <li>-Multiple of</li> <li>-Repeated</li> <li>-Group in pairs</li> <li>-Row</li> <li>-Column</li> <li>-Double</li> <li>-Product</li> </ul>	<p><b>Grid Method (TU X U) (Partitioning)</b></p> <p>23 x 8=</p> <table style="margin-left: 100px; border-collapse: collapse;"> <tr> <td style="padding-right: 20px;"></td> <td style="padding-right: 20px; text-align: center;">20</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="padding-right: 10px; vertical-align: middle;">8</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">160</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">24</td> </tr> </table> <p style="text-align: right; margin-right: 100px;">=184</p> <p><i>*Children will be encouraged to use rounding to estimate the answer before using the grid method. This will allow them to check their answers.</i></p>		20	3	8	160	24	Numicon Place value cards Dienes Number line Number grid Coins	<p>Are these statements true or false?</p> <p>8 x 23 = 194</p> <p>Any number multiplied by an even number produces an odd number.</p> <p>23 x 8 = 22 x 9</p>																								
	20	3																																
8	160	24																																
5	<ul style="list-style-type: none"> <li>-Lots of</li> <li>-Groups of</li> <li>-Times</li> <li>-Multiply</li> <li>-Multiplied by</li> <li>-Multiple of</li> <li>-Repeated</li> <li>-Group in pairs</li> <li>-Row</li> <li>-Column</li> <li>-Double</li> <li>-Product</li> </ul>	<p><b>Grid Method (HTU X U) (Partitioning)</b></p> <p>225 x 8=</p> <table style="margin-left: 100px; border-collapse: collapse;"> <tr> <td style="padding-right: 20px;"></td> <td style="padding-right: 20px; text-align: center;">200</td> <td style="padding-right: 20px; text-align: center;">20</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="padding-right: 10px; vertical-align: middle;">8</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1600</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">160</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">40</td> </tr> </table> <p style="text-align: right; margin-right: 100px;">=1800</p> <p>Leading to <b>short multiplication</b> (use place value equipment to support understanding)</p> <table style="margin-left: 150px; border-collapse: collapse;"> <tr><td style="padding-right: 10px;"></td><td style="text-align: right;">225</td></tr> <tr><td style="padding-right: 10px;">X</td><td style="text-align: right;">8</td></tr> <tr><td></td><td style="text-align: right; border-top: 1px solid black;">40</td></tr> <tr><td></td><td style="text-align: right; padding-top: 5px;">160</td></tr> <tr><td></td><td style="text-align: right; border-top: 1px solid black; padding-top: 5px;">1600</td></tr> <tr><td></td><td style="text-align: right; padding-top: 5px;">1800</td></tr> </table> <p><i>*AS ABOVE- Children will be encouraged to use rounding to estimate the answer before using the grid method. This will allow them to check their answers.</i></p>		200	20	5	8	1600	160	40		225	X	8		40		160		1600		1800	Dienes Place value mats whiteboards	<p>Could you find at least 3 factor pairs of 3484?</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center;">3484</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> </table>	3484									
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Stage	Key Vocabulary	How it looks in practice	Resources	Mastery Examples						
6	<ul style="list-style-type: none"> <li>-Times</li> <li>-Multiply</li> <li>-Multiplied by</li> <li>-Multiple of</li> <li>-Repeated</li> <li>-Group in pairs</li> <li>-Row</li> <li>-Column</li> <li>-Double</li> <li>-Product</li> </ul>	<p><b>Grid method (ThHTU x U; HTU x TU; TU x TU)</b></p> <p>74 x 39=                      70              4</p> <table border="1" style="margin-left: 100px;"> <tr> <td style="padding-right: 10px;">30</td> <td style="padding: 5px;">2100</td> <td style="padding: 5px;">120</td> </tr> <tr> <td style="padding-right: 10px;">9</td> <td style="padding: 5px;">630</td> <td style="padding: 5px;">36</td> </tr> </table> <p style="text-align: right; margin-right: 100px;">=2886</p> <p>Leading to: <b>Long Multiplication:</b></p> $\begin{array}{r} 74 \\ \times 39 \\ \hline 666 \\ 2220 \\ \hline 2886 \end{array}$	30	2100	120	9	630	36	Place value mats whiteboards	<p>Complete the multiplication triangle.</p> 
30	2100	120								
9	630	36								
7	<ul style="list-style-type: none"> <li>-Times</li> <li>-Multiply</li> <li>-Multiplied by</li> <li>-Multiple of</li> <li>-Repeated</li> <li>-Group in pairs</li> <li>-Row</li> <li>-Column</li> <li>-Double</li> <li>-Product</li> <li>-Money</li> <li>-Decimals</li> </ul>	<p>Extend to using <b>short multiplication</b> and <b>long multiplication</b> for decimals.</p> <p>37.51 x 8=</p> <table border="1" style="margin-left: 100px;"> <tr> <td style="padding-right: 10px;">8</td> <td style="padding: 5px;">240</td> <td style="padding: 5px;">56</td> <td style="padding: 5px;">40</td> <td style="padding: 5px;">0.08</td> </tr> </table> <p style="text-align: right; margin-right: 100px;">=296.48</p> <p><b>Short Multiplication</b></p> $\begin{array}{r} 37.51 \\ \times 8 \\ \hline 8 \\ 40 \\ 56.00 \\ 240.00 \\ \hline 296.48 \end{array}$	8	240	56	40	0.08	Place value resources, Whiteboards, Maths books (CM squared) Grids	<p>Seven pupils bought cinema tickets at £8.50 each. 8 pupils went to the cinema. How much did it cost for all of the tickets?</p> <p>A group 4 of friends saved £37.50 each for their holiday. How much did they save altogether?</p>	
8	240	56	40	0.08						

## Monitoring and Review

The Governing Body reviews this policy every 2 years. The Governors may, however, review the policy earlier than this, if the government introduces new regulations, or if the governing body receives recommendations on how the policy might be improved. This policy will be reviewed in December 2021.

Signed \_\_\_\_\_ Headteacher

Date \_\_\_\_\_

Signed \_\_\_\_\_ Chair of Governors

Date \_\_\_\_\_

