

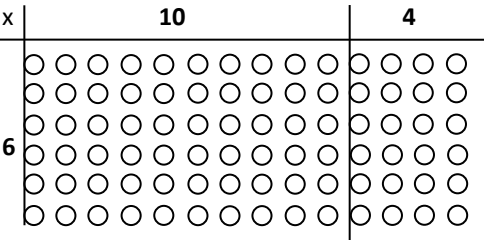


St Francis RC Primary School – Calculation Policy

Multiplication																																										
Year 1	Year 2	Year 3																																								
<p>Double song/Arrays/Repeated addition/'Lots of Counting on number line</p> <p>Multiplication is related to doubling and counting groups of the same size.</p> <p>Children should be exposed to everyday versions of arrays e.g. egg boxes, baking trays, ice cubes and wrapping paper. They will use these practical resources to problem solve questions such as 'How many eggs would we need to fill the box?'</p> <p>Children will count in groups of 2s, 5s and 10s. Eg. 2s socks, shoes, legs 5s fingers, gloves, toes 10s fingers, toes</p> <p>Arrays – look at columns and rows</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p>Arrays Repeated addition X tables (around the world game)</p> <p>Children will begin to develop their understanding of multiplication as repeated addition – link to arrays. This will support with the development of the grid method.</p> <p>They should use jottings and counters and cubes to support calculation.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○</p> <p>$3 + 3 + 3 + 3 + 3 = 15$</p> </div> <div style="text-align: center;"> <p>○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○</p> <p>$5 + 5 + 5 = 15$</p> </div> </div> <p>Children should know that multiplication is commutative so 3×5 has the same answer as 5×3.</p> <p>Children will learn the 2, 5, 10 times tables.</p>	<p>Arrays/Repeated addition Multiplication and division relationship</p> <p>Children should continue to use multiplication as repeated addition linked to arrays as this will support the grid method.</p> <p>They should use jottings and crosses on squared paper to support calculation.</p> <table border="1" style="width: 100%; text-align: center;"> <tr><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>X</td><td></td></tr> <tr><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>X</td><td>X</td><td></td></tr> <tr><td>X</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>X</td><td></td></tr> <tr><td>X</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>$4 \times 7 = 7 + 7 + 7 + 7 = 28$</p> <p>Children can begin to partition numbers to multiply if confident.</p> $38 \times 5 = (30 \times 5) + (8 \times 5)$ $= 150 + 40$ $= 190$ <p>Children will learn the 3, 4, 6, 7, 8, 9, 11, 12 times tables.</p>	x	x	x	x	x	x	X		x	x	x	x	x	X	X		X	x	x	x	x	x	X		X	x	x	x	x	x	x									
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Year 4	Year 5	Year 6																																																																																																		
<p>Partition/Grid method/Odd column - 4M Children will use partitioning to help organise multiplication calculations into the Grid Method.</p> <p>x</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">10</td> <td style="padding: 5px;">4</td> </tr> </table>  <p>(6 x 10) + (6 x 4) = 60 + 24 = 84</p> <p>This will be for calculations such as: TUxU / TUxTU/ and HTU x U. Children should also estimate first.</p> <p>23 x 8</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">x 20</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">160</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">8</td> <td style="border-right: 1px solid black; padding: 5px;">160</td> <td style="padding: 5px;">24</td> </tr> <tr> <td colspan="2"></td> <td style="padding: 5px;">+ 24</td> </tr> <tr> <td colspan="2"></td> <td style="padding: 5px;">184</td> </tr> </table> <p>For calculations involving HTUxTU, children will use the standard column method.</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">38</td> <td style="padding: 5px;">472</td> </tr> <tr> <td style="padding: 5px;">x 7</td> <td style="padding: 5px;">x 54</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">56 (8 x 7)</td> <td style="border-top: 1px solid black; padding: 5px;">1888</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">210 (30 x 7)</td> <td style="border-top: 1px solid black; padding: 5px;">23600</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">266</td> <td style="border-top: 1px solid black; padding: 5px;">25488</td> </tr> <tr> <td style="padding: 5px;">(Expanded)</td> <td style="padding: 5px;">(Compact)</td> </tr> </table> <p>NB – children will only be taught the column method when they confident and ready.</p>	10	4	x 20	3	160	8	160	24			+ 24			184	38	472	x 7	x 54	56 (8 x 7)	1888	210 (30 x 7)	23600	266	25488	(Expanded)	(Compact)	<p>Grid/Partition Children will use partitioning to help organise multiplication calculations into the Grid Method.</p> <p>This will be for calculations such as: TUxU / TUxTU/ and HTU x U. 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Children should also estimate first.</p> <p>346 x 9</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">x 300</td> <td style="border-right: 1px solid black; padding: 5px;">40</td> <td style="padding: 5px;">6</td> <td style="padding: 5px;">2700</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">9</td> <td style="border-right: 1px solid black; padding: 5px;">2700</td> <td style="border-right: 1px solid black; padding: 5px;">360</td> <td style="padding: 5px;">54</td> </tr> <tr> <td colspan="3"></td> <td style="padding: 5px;">3114</td> </tr> </table> <p>4.9 x 3</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">x 4</td> <td style="padding: 5px;">0.9</td> <td style="padding: 5px;">12</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">3</td> <td style="border-right: 1px solid black; padding: 5px;">12</td> <td style="padding: 5px;">2.7</td> </tr> <tr> <td colspan="2"></td> <td style="padding: 5px;">14.7</td> </tr> </table> <p>For calculations involving HTUxTU, children will use the standard column method.</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">38</td> <td style="padding: 5px;">472</td> </tr> <tr> <td style="padding: 5px;">x 7</td> <td style="padding: 5px;">x 54</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">56 (8 x 7)</td> <td style="border-top: 1px solid black; padding: 5px;">1888</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">210 (30 x 7)</td> <td style="border-top: 1px solid black; padding: 5px;">23600</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">266</td> <td style="border-top: 1px solid black; padding: 5px;">25488</td> </tr> <tr> <td style="padding: 5px;">(Expanded)</td> <td style="padding: 5px;">(Compact)</td> </tr> </table> <p>NB – children will only be taught the column method when they confident and ready.</p>	x 300	40	6	2700	9	2700	360	54				3114	x 4	0.9	12	3	12	2.7			14.7	38	472	x 7	x 54	56 (8 x 7)	1888	210 (30 x 7)	23600	266	25488	(Expanded)	(Compact)	<p>Children will use partitioning to help organise multiplication calculations into the Grid Method.</p> <p>This will be for calculations such as: TUxU / TUxTU/ and HTU x U. 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Children should also estimate first.</p> <p>72 x 38</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">x 30</td> <td style="padding: 5px;">8</td> <td style="padding: 5px;">2100</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">70</td> <td style="border-right: 1px solid black; padding: 5px;">2100</td> <td style="padding: 5px;">560</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">2</td> <td style="border-right: 1px solid black; padding: 5px;">60</td> <td style="padding: 5px;">16</td> </tr> <tr> <td colspan="2"></td> <td style="padding: 5px;">+ 16</td> </tr> <tr> <td colspan="2"></td> <td style="padding: 5px;">2736</td> </tr> </table> <p>4.92 x 3</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">x 4</td> <td style="padding: 5px;">0.9</td> <td style="padding: 5px;">0.02</td> <td style="padding: 5px;">12</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">3</td> <td style="border-right: 1px solid black; padding: 5px;">12</td> <td style="padding: 5px;">2.7</td> <td style="padding: 5px;">2.7</td> </tr> <tr> <td colspan="2"></td> <td style="padding: 5px;">+ 0.06</td> <td style="padding: 5px;">14.76</td> </tr> </table> <p>For calculations involving HTUxTU, children will use the standard column method.</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">38</td> <td style="padding: 5px;">472</td> </tr> <tr> <td style="padding: 5px;">x 7</td> <td style="padding: 5px;">x 54</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">56 (8 x 7)</td> <td style="border-top: 1px solid black; padding: 5px;">1888</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">210 (30 x 7)</td> <td style="border-top: 1px solid black; padding: 5px;">23600</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 5px;">266</td> <td style="border-top: 1px solid black; padding: 5px;">25488</td> </tr> <tr> <td style="padding: 5px;">(Expanded)</td> <td style="padding: 5px;">(Compact)</td> </tr> </table> <p>NB – children will only be taught the column method when they confident and ready.</p>	x 30	8	2100	70	2100	560	2	60	16			+ 16			2736	x 4	0.9	0.02	12	3	12	2.7	2.7			+ 0.06	14.76	38	472	x 7	x 54	56 (8 x 7)	1888	210 (30 x 7)	23600	266	25488	(Expanded)	(Compact)
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