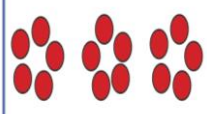
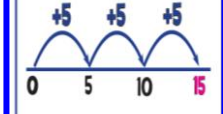
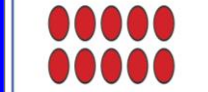
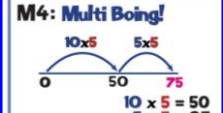


St Mary's RC Primary School Written Calculation Policy - Multiplication

Year		How it will look in written form																																																																																																																																										
Y1																																																																																																																																												
Y2	<ul style="list-style-type: none"> calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (x) and equals (=) signs 	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M1: Repeated Addition <small>(Groups)</small></p>  <p>$5 \times 3 = 5 + 5 + 5 = 15$</p> <p><small>*Multiplying 5 ones '5, 1 time', which gives 15 ones of 1*</small></p> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M2: Repeated Addition <small>(Number Line)</small></p>  <p>$5 \times 3 = 5 + 5 + 5 = 15$</p> <p><small>*5 ones 5 times '5, 1 time'</small></p> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>(M3: Arrays)</p>  <p><small>*2 groups of 5 counters' or '5 groups of 2 counters' - '10 counters altogether'</small></p> </div> </div>																																																																																																																																										
Y3	<ul style="list-style-type: none"> write <i>estimate</i> 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 	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M5: Grid Method <small>Short Multiplication</small></p> <table border="1" style="margin: 5px auto;"> <tr><td>x</td><td>10</td><td>5</td></tr> <tr><td>5</td><td>50</td><td>25</td></tr> </table> <p>$50 + 25 = 75$</p> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M4: Multi Boing!</p>  <p>$15 \times 5 = 75$</p> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M4a: Partitioning</p> <p>$15 \times 5 = 75$</p> <p>$10 \times 5 = 50$</p> <p>$5 \times 5 = 25$</p> <p>$50 + 25 = 75$</p> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M6: Expanded Column</p> <table style="margin: 5px auto;"> <tr><td></td><td>15</td></tr> <tr><td>x</td><td>5</td></tr> <tr><td></td><td>25 (5 x 5)</td></tr> <tr><td></td><td>50 (5 x 10)</td></tr> <tr><td></td><td>75</td></tr> </table> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M7: Column Multiplication</p> <table style="margin: 5px auto;"> <tr><td></td><td>H</td><td>T</td><td>U</td></tr> <tr><td></td><td>1</td><td>5</td><td></td></tr> <tr><td>x</td><td></td><td>5</td><td></td></tr> <tr><td></td><td></td><td>7</td><td>5</td></tr> <tr><td></td><td></td><td></td><td>2</td></tr> </table> </div> </div>	x	10	5	5	50	25		15	x	5		25 (5 x 5)		50 (5 x 10)		75		H	T	U		1	5		x		5				7	5				2																																																																																																						
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Y4	<ul style="list-style-type: none"> <i>Estimate and multiply two-digit and three-digit numbers</i> by a one-digit number using a formal written layout <i>including grid method</i> <i>Use mental arithmetic strategies when appropriate, e.g. partitioning,</i> <i>Doubling numbers 1-100 as a strategy</i> <p><i>multiply whole numbers and those involving decimals by 10 and 100</i></p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M5b: Grid Method <small>Short Multiplication</small></p> <table border="1" style="margin: 5px auto;"> <tr><td>x</td><td>100</td><td>40</td><td>7</td></tr> <tr><td>4</td><td>400</td><td>160</td><td>28</td></tr> </table> <p>$400 + 160 + 28 = 588$</p> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M7: Column Multiplication</p> <table style="margin: 5px auto;"> <tr><td></td><td>H</td><td>T</td><td>U</td></tr> <tr><td></td><td>1</td><td>4</td><td>7</td></tr> <tr><td>x</td><td></td><td></td><td>4</td></tr> <tr><td></td><td></td><td>5</td><td>8</td></tr> <tr><td></td><td></td><td></td><td>2</td></tr> </table> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M6: Expanded Column</p> <table style="margin: 5px auto;"> <tr><td></td><td>H</td><td>T</td><td>U</td></tr> <tr><td></td><td>1</td><td>4</td><td>7</td></tr> <tr><td>x</td><td></td><td></td><td>4</td></tr> <tr><td></td><td></td><td>2</td><td>8 (4 x 7)</td></tr> <tr><td></td><td></td><td>1</td><td>6 (4 x 40)</td></tr> <tr><td></td><td></td><td>4</td><td>0 (4 x 100)</td></tr> <tr><td></td><td></td><td></td><td>5</td></tr> <tr><td></td><td></td><td></td><td>8</td></tr> </table> </div> </div>	x	100	40	7	4	400	160	28		H	T	U		1	4	7	x			4			5	8				2		H	T	U		1	4	7	x			4			2	8 (4 x 7)			1	6 (4 x 40)			4	0 (4 x 100)				5				8																																																																														
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Y5	<ul style="list-style-type: none"> multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, (<i>including grid</i>) including long multiplication for two-digit numbers multiply numbers mentally drawing upon known facts <i>Use mental arithmetic strategies when appropriate, e.g. partitioning</i> <p><i>multiply whole numbers and those involving decimals by 10, 100 and 1000</i></p>	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid blue; padding: 5px; width: 45%;"> <p>M8a: Grid Method <small>Long Multiplication</small></p> <table border="1" style="margin: 5px auto;"> <tr><td>x</td><td>200</td><td>40</td><td>3</td></tr> <tr><td>60</td><td>12000</td><td>2400</td><td>180 = 14,580</td></tr> <tr><td>8</td><td>1600</td><td>320</td><td>24 = 1,944</td></tr> </table> <p>$14580 + 1944 = 16,524$</p> </div> <div style="border: 1px solid blue; padding: 5px; width: 45%;"> <p>M9a: Long Multiplication <small>Column</small></p> <table style="margin: 5px auto;"> <tr><td></td><td>T</td><td>H</td><td>T</td><td>U</td></tr> <tr><td></td><td>2</td><td>4</td><td>3</td><td></td></tr> <tr><td>x</td><td></td><td></td><td>6</td><td>8</td></tr> <tr><td></td><td></td><td>1</td><td>9</td><td>4</td></tr> <tr><td></td><td></td><td>1</td><td>4</td><td>5</td></tr> <tr><td></td><td></td><td></td><td>8</td><td>0 (60 x 243)</td></tr> <tr><td></td><td></td><td></td><td></td><td>1</td></tr> <tr><td></td><td></td><td></td><td></td><td>6</td></tr> <tr><td></td><td></td><td></td><td></td><td>5</td></tr> <tr><td></td><td></td><td></td><td></td><td>2</td></tr> <tr><td></td><td></td><td></td><td></td><td>4</td></tr> </table> </div> <div style="border: 1px solid blue; padding: 5px; width: 45%;"> <p>M8c: Decimal Grid <small>Short Multiplication</small></p> <table border="1" style="margin: 5px auto;"> <tr><td>x</td><td>3</td><td>0.6</td></tr> <tr><td>4</td><td>12</td><td>2.4</td></tr> </table> <p>$12 + 2.4 = 14.4$</p> </div> <div style="border: 1px solid blue; padding: 5px; width: 45%;"> <p>M9c: Column Multiplication</p> <table style="margin: 5px auto;"> <tr><td></td><td>T</td><td>U</td><td>.</td><td>T</td></tr> <tr><td></td><td>3</td><td>.</td><td>6</td><td></td></tr> <tr><td>x</td><td></td><td></td><td>4</td><td></td></tr> <tr><td></td><td></td><td></td><td>2</td><td>.</td></tr> <tr><td></td><td></td><td></td><td>1</td><td>2</td></tr> <tr><td></td><td></td><td></td><td></td><td>4</td></tr> <tr><td></td><td></td><td></td><td></td><td>.</td></tr> <tr><td></td><td></td><td></td><td></td><td>4</td></tr> </table> </div> </div>	x	200	40	3	60	12000	2400	180 = 14,580	8	1600	320	24 = 1,944		T	H	T	U		2	4	3		x			6	8			1	9	4			1	4	5				8	0 (60 x 243)					1					6					5					2					4	x	3	0.6	4	12	2.4		T	U	.	T		3	.	6		x			4					2	.				1	2					4					.					4																									
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Y6	<ul style="list-style-type: none"> multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication perform mental calculations, including with mixed operations and large numbers <p><i>Use mental arithmetic strategies when appropriate, e.g. partitioning,</i></p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M8e: Grid Method <small>Long Multiplication</small></p> <table border="1" style="margin: 5px auto;"> <tr><td>x</td><td>7</td><td>0.3</td><td>0.08</td></tr> <tr><td>6</td><td>42</td><td>1.8</td><td>0.48</td></tr> </table> <p>$42 + 1.8 + 0.48 = 44.28$</p> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M9f: Long Multiplication <small>Column Method</small></p> <table style="margin: 5px auto;"> <tr><td></td><td>T</td><td>U</td><td>.</td><td>T</td></tr> <tr><td></td><td>2</td><td>4</td><td>.</td><td>3</td></tr> <tr><td>x</td><td></td><td></td><td>2</td><td>5</td></tr> <tr><td></td><td></td><td>1</td><td>2</td><td>.</td></tr> <tr><td></td><td></td><td>1</td><td>2</td><td>.</td></tr> <tr><td></td><td></td><td></td><td>5</td><td>0 (0.5 x 24.3)</td></tr> <tr><td></td><td></td><td></td><td>4</td><td>8 (2 x 24.3)</td></tr> <tr><td></td><td></td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td></td><td></td><td>7</td></tr> <tr><td></td><td></td><td></td><td></td><td>5</td></tr> <tr><td></td><td></td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td></td><td></td><td>7</td></tr> <tr><td></td><td></td><td></td><td></td><td>5</td></tr> </table> </div> <div style="border: 1px solid blue; padding: 5px; width: 30%;"> <p>M9g: Long Multiplication <small>Column</small></p> <table style="margin: 5px auto;"> <tr><td></td><td>T</td><td>H</td><td>T</td><td>U</td></tr> <tr><td></td><td>3</td><td>7</td><td>8</td><td>6</td></tr> <tr><td>x</td><td></td><td></td><td>4</td><td>8</td></tr> <tr><td></td><td></td><td>3</td><td>0</td><td>2</td></tr> <tr><td></td><td></td><td>3</td><td>0</td><td>2</td></tr> <tr><td></td><td></td><td>1</td><td>5</td><td>1</td></tr> <tr><td></td><td></td><td></td><td>4</td><td>4</td></tr> <tr><td></td><td></td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td></td><td></td><td>8</td></tr> <tr><td></td><td></td><td></td><td></td><td>2</td></tr> <tr><td></td><td></td><td></td><td></td><td>8</td></tr> <tr><td></td><td></td><td></td><td></td><td>2</td></tr> <tr><td></td><td></td><td></td><td></td><td>8</td></tr> </table> </div> </div>	x	7	0.3	0.08	6	42	1.8	0.48		T	U	.	T		2	4	.	3	x			2	5			1	2	.			1	2	.				5	0 (0.5 x 24.3)				4	8 (2 x 24.3)					0					7					5					0					7					5		T	H	T	U		3	7	8	6	x			4	8			3	0	2			3	0	2			1	5	1				4	4					0					8					2					8					2					8
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