



Learning through hard work, friendship and fun.



Calculation Policy
Reviewed September 2015

Calculation Policy Forward - Reviewed September 2015

Please note:

All methods for the 4 calculations in this policy will be shown and taught to the children at school. If children know other methods from elsewhere, we are happy for them to use it (if efficient!), but we will only teach the given methods.

Children working at mastery standard (what we call 3) in numeracy can select their own methods for calculations, whether from our policy or not.

Mental methods will be developed and consolidated and children should draw on a written method if they cannot tackle a calculation mentally (possibly with informal jottings).

If you have any queries at all do not guess! Ask the numeracy designated teacher or a member of staff.

	EYFS	EYFS	KS1	KS2	Additional for KS2
Addition	Counting forwards in 1s Large number tracks-jumping along.	Counting on and back in 1s Use large number tracks to jump along (forwards and back) Number bonds to 10 Use signs + = Know doubles to 5 + 5 in head Addition with apparatus or a given (published) number line or number track to 10 Recording pictorial with matching digits Use fingers to count on	Make inverse connections Add multiples of 10 up to 100 using 100 square Use 100 square and 10s and units apparatus Use fingers or apparatus to count on Use given number line or 100 square (counting on) (2 digit + 2 digit) Partition to add (2 nd number only) 59 + 15 = 59 + 10 =69 69 + 5 = 74 Therefore 59 + 15 is 74	Use this to lead up to column method <u>if necessary</u> $\begin{array}{r} 374 \\ 495+ \\ \hline 9 \\ 160 \\ 700 \\ \hline 869 \end{array}$ Traditional column method $374 + 495$ $\begin{array}{r} 374 \\ 4_195+ \\ \hline 869 \end{array}$	

	EYFS	EYFS	KS1	KS2	Additional for KS2
Subtraction		<p>Take away objects or apparatus from a group. OR take away visuals from IWB.</p> <p>Use known number bonds to 10</p> <p>Subtraction with apparatus or a given (published) numberline to 20.</p> <p>Recording pictorial with matching digits.</p> <p>Use signs - =</p>	<p>Make inverse connections</p> <p>Subtract multiples of 10 up to 100 using 100 square and then in head counting back in 10s</p> <p>To know halves up to half of 20 (and link to doubling)</p> <p>Find the difference (less than 10) by counting on, on fingers</p> <p>Symbols to stand for unknown eg $10 - \Delta = 3$</p> <p>Partition numbers 45-12 (jottings to show 12 is 10 and 2)</p> <p>45-10=35 35-2 = 33</p>	<p>Use this to lead up to column method <u>if necessary</u>.</p> $\begin{array}{r} 59 \\ \underline{32} \\ 7 \\ \underline{20} \\ 27 \end{array}$ $\begin{array}{r} 204 \\ \underline{96} \\ \hline \end{array}$ $\begin{array}{r} 100 \quad 90 \quad 14 \\ \underline{200 \quad 00 \quad 4} \\ 90 \quad 6 \\ 100 \quad 0 \quad 8 \end{array}$ <p>100 + 0 + 8 → 108</p> <p>932 - 457 becomes</p> $\begin{array}{r} ^8 ^{12} ^1 \\ ^8 ^3 ^2 \\ - ^4 ^5 ^7 \\ \hline ^4 ^7 ^5 \end{array}$ <p>Answer: 475</p>	

	EYFS	EYFS	KS1	KS2	Additional for KS2																																																																							
Multiplication		Sorting apparatus in same sized groups. Counting in groups of same size, eg counting in 2s, 5s, 10s	Learn times tables by chanting x1,2,5,10 Relate multiplication to repeated addition eg $5 + 5 + 5 = 3 \times 5$ Describe an array eg: • • • • • • • • • • $5 \times 2 = 10$ Learn x2, 5, 10 using number stick	Learn times tables to 12×12 Multiply by multiple of 10 by knowledge of HTU: <i>I know $3 \times 5 = 15$, so therefore I know $3 \times 50 = 150$</i> GRID METHOD TO BE USED AS A JOTTING TO SUPPORT MENTAL METHODS $32 \times 6 = 192$ <table style="margin-left: auto; margin-right: auto;"> <tr><td></td><td style="border-right: 1px solid black; border-bottom: 1px solid black;">30</td><td style="border-bottom: 1px solid black;">2</td></tr> <tr><td style="border-right: 1px solid black;">6</td><td style="border-right: 1px solid black;">180</td><td>12</td></tr> </table> $180 + 12 = 192$		30	2	6	180	12	Additional for KS2 Short multiplication (when multiplying up to x12) 2741×6 becomes <table style="margin-left: auto; margin-right: auto;"> <tr><td></td><td style="text-align: right;">2</td><td style="text-align: right;">7</td><td style="text-align: right;">4</td><td style="text-align: right;">1</td></tr> <tr><td></td><td></td><td></td><td></td><td style="text-align: right;">6</td></tr> <tr><td style="text-align: right;">×</td><td></td><td></td><td></td><td style="text-align: right;">6</td></tr> <tr><td></td><td style="border-top: 1px solid black;">1</td><td style="border-top: 1px solid black;">6</td><td style="border-top: 1px solid black;">4</td><td style="border-top: 1px solid black;">4</td></tr> <tr><td></td><td></td><td style="text-align: center;">4</td><td style="text-align: center;">2</td><td></td></tr> </table> Answer: 16 446 Long multiplication (when multiplying by x13 or higher) 124×26 becomes <table style="margin-left: auto; margin-right: auto;"> <tr><td></td><td style="text-align: right;">1</td><td style="text-align: right;">2</td><td></td><td></td></tr> <tr><td></td><td style="text-align: right;">1</td><td style="text-align: right;">2</td><td style="text-align: right;">4</td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td style="text-align: right;">6</td></tr> <tr><td style="text-align: right;">×</td><td></td><td style="text-align: right;">2</td><td style="text-align: right;">6</td><td></td></tr> <tr><td></td><td style="border-top: 1px solid black;">7</td><td style="border-top: 1px solid black;">4</td><td style="border-top: 1px solid black;">4</td><td></td></tr> <tr><td></td><td style="border-top: 1px solid black;">2</td><td style="border-top: 1px solid black;">4</td><td style="border-top: 1px solid black;">8</td><td style="border-top: 1px solid black;">0</td></tr> <tr><td></td><td style="border-top: 1px solid black;">3</td><td style="border-top: 1px solid black;">2</td><td style="border-top: 1px solid black;">2</td><td style="border-top: 1px solid black;">4</td></tr> <tr><td></td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td></tr> </table> Answer: 3224 Be aware of eg 124×96 where numbers written in small print can be confused.		2	7	4	1					6	×				6		1	6	4	4			4	2			1	2				1	2	4						6	×		2	6			7	4	4			2	4	8	0		3	2	2	4		1	1		
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Division		<p>Group apparatus (eg 14 shoes, put into 2s)</p> <p>Sharing apparatus between a number of people (eg 15 sweets shared between 5 people)</p>	<p>Learn inverses of known multiplications and use vocabulary sharing or grouping</p> <p>Remainders for calculations relating to $\times 2, 5, 10$ by counting in that number (grouping) and seeing what is left over.</p> <p>Pictorial sharing</p> <p>$12 \div 4 =$</p>  <p>3 (in each plate)</p>	<p>Divisions of all numbers up to 100 either with or without remainders (whole numbers), by counting in given divisor and seeing if there are any 'left over' (grouping)</p> <p>~Ie using associated multiplication facts.</p>	<p>Additional for KS2</p> <p><u>Short division</u> This is when dividing by numbers between 1 and 12 inclusive</p> <p>$432 \div 5$ becomes</p> $\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$ <p>Answer: 86 remainder 2</p> <p><u>Long division</u> (this method used to be called <u>chunking</u>)</p> <p>This is when dividing by numbers above 9</p> <p>$432 \div 15$ becomes</p> $\begin{array}{r} 28 \text{ r } 12 \\ 15 \overline{) 432} \\ \underline{30} \\ 132 \\ \underline{120} \\ 120 \\ \underline{120} \\ 0 \end{array}$ <p>Answer: 28 remainder 12</p> <p>Remainders can be expressed as whole numbers left over, or fractions or decimals</p>