



**Church of England
Primary School**

Calculation Policy

Review Frequency	Three Yearly	Review date	June 2022
Governor Approval (date)	June 6 th 2019	Website	YES

Swaffham Bulbeck Primary School

Written Calculation Policy for Foundation and Key Stages 1 – 2

Written by M. Lee April 2016

Swaffham Bulbeck Primary School

Pencil and paper procedures

Background to the policy

This policy contains the key pencil and paper procedures that will be taught within our school. It has been written to ensure consistency and progression throughout the school and reflects a whole school agreement.

Although the focus of the policy is on pencil and paper procedures it is important to recognise that the ability to calculate mentally lies at the heart of the Primary National Strategy for mathematics. The mental methods in the *Primary Framework for teaching mathematics* will be taught systematically from Reception onwards and pupils will be given regular opportunities to develop the necessary skills. However mental calculation is not at the exclusion of written recording and should be seen as complementary to and not as separate from it. In every written method there is an element of mental processing. Sharing written methods with the teacher encourages children to think about the mental strategies that underpin them and to develop new ideas. Therefore written recording both helps children to clarify their thinking and supports and extends the development of more fluent and sophisticated mental strategies.

During their time at this school children will be encouraged to see mathematics as both a written and spoken language. Teachers will support and guide children through the following important stages:

- developing the use of pictures and a mixture of words and symbols to represent numerical activities;
- using standard symbols and conventions;
- use of jottings to aid a mental strategy;
- use of pencil and paper procedures;
- use of a calculator.

This policy concentrates on the introduction of standard symbols, the use of the empty number line as a jotting to aid mental calculation and on the introduction of pencil and paper procedures. It is important that children do not abandon jottings and mental methods once pencil and paper procedures are introduced. Therefore children will always be encouraged to look at a calculation/problem and then decide which is the best method to choose – pictures, mental calculation with or without jottings, structured recording or a calculator. Our long-term aim is for children to be able to select an efficient method of their choice (whether this be mental, written or in upper Key Stage 2 using a calculator) that is appropriate for a given task. They will do this by always asking themselves:

‘Can I do this in my head?’

‘Can I do this in my head using drawings or jottings?’

‘Do I need to use a pencil and paper procedure?’

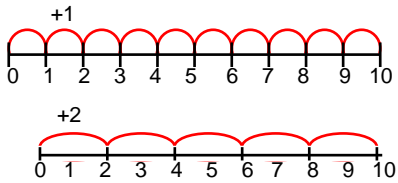
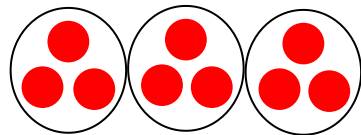
‘Do I need a calculator?’

Although the policy is divided into stages of mathematical calculation development which align roughly to the equivalent year group, it is important to note that children should not be bound by this. Pupils are encouraged to choose the calculation that is best suited to their individual needs and so, pupils are free to use methods below or beyond the suggested timescale of development.

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FOUNDATION STAGE

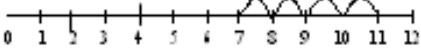
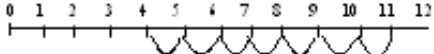
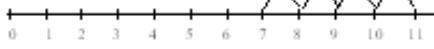

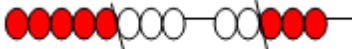

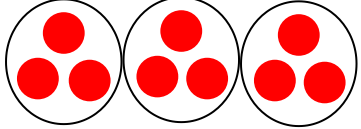
In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting, Use language such as ‘more’ or ‘less’ to compare two numbers, Find one more or less than a number from one to ten.

Addition	Subtraction	Multiplication	Division
<p><u>Using number lines</u></p> <p>Teachers should:</p> <ul style="list-style-type: none"> work with children to build up empty number lines with floor number lines, washing lines, table top number lines. begin to draw blank number lines. model to children how to draw their own number lines starting at 0. model counting on using written number lines and blank number lines. <p>Children should be given opportunity to:</p> <ul style="list-style-type: none"> Jump forward along a number line Jump on in multiples of 1 Jump on in multiples of 2 	<p><u>Using number lines</u></p> <p>Teachers should:</p> <ul style="list-style-type: none"> work with children to build up empty number lines with floor number lines, washing lines, table top number lines. begin to draw blank number lines. model to children how to draw their own number lines starting at 5, 10, 20. model counting back using written number lines and blank number lines. <p>Children should be given opportunity to:</p> <ul style="list-style-type: none"> Jump back along a number line e.g. 5 to 0, 1 to 0, 20 to 0 Jumping back in multiples of 1 e.g. 7 to 6, 14 to 13 	<p><u>Counting in multiples</u></p> <ul style="list-style-type: none"> Children should count in 2's, 5's and 10's. 	<p><u>Comparing and sharing</u></p> <p>Children should be given opportunity to:</p> <ul style="list-style-type: none"> Solve problems like in the classroom or in role play e.g. placing 5 sweets into bags. They should talk about and record in their own way how the problem was solved. Understand and share equal groups e.g. 9 beads are shared equally into 3 bags. 

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Stage 1

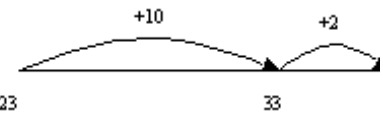
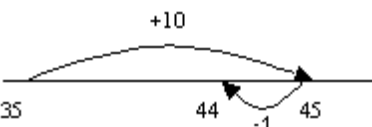
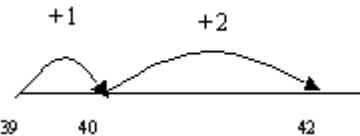
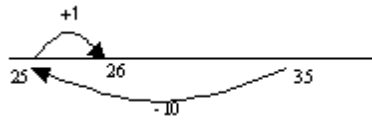
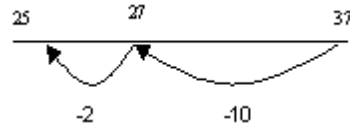


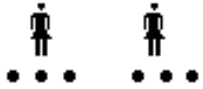
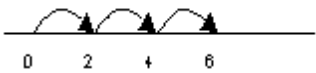
Teach number bonds to 10, addition and subtraction, doubling to 20, counting in 2s, 5s and 10s

Addition	Subtraction	Multiplication	Division
<p><u>+ and = signs and missing numbers</u></p> <p> $3 + 4 = _$ $_ = 3 + 4$ $3 + _ = 7$ $7 = _ + 4$ $_ + 4 = 7$ $7 = 3 + _$ $_ + _ = 7$ $7 = _ + _$ </p> <p>Promoting covering up of operations and numbers</p> <p><u>Number lines (numbered)</u></p> <p>7 + 4</p>  <p>Recording by:</p> <ul style="list-style-type: none"> • Drawing jumps on prepared number lines • Constructing number lines <p>Teacher can:</p> <ul style="list-style-type: none"> • Model number lines with missing numbers • Model jottings appropriate for larger numbers • Model use of 100 square 	<p><u>Pictures/Mark Making</u></p> <p>Sam spent 4p. What was his change from 10p</p> <p><u>- and = signs with missing numbers</u></p> <p> $7 - 3 = _$ $_ = 7 - 3$ $7 - _ = 4$ $4 = _ - 3$ $_ - 3 = 4$ $4 = 7 - _$ $_ - _ = 4$ $4 = _ - _$ </p> <p><u>Number lines (numbered)</u></p> <p>11 - 7</p> <p>Counting back is always under the line</p>  <p>Counting on between 7 and 11</p>  <p>Recording by:</p> <ul style="list-style-type: none"> • drawing jumps on prepared number lines, more able encouraged to draw their own number lines <p>Teacher should:</p> <ul style="list-style-type: none"> • Model appropriate jottings for larger numbers • Model use of 100 square 	<p><u>Pictures and Symbols</u></p> <p>There are 3 sweets in one bag. How many sweets are there in 5 bags?</p>  <p>Teacher should:</p> <ul style="list-style-type: none"> • Use a number line when problem solving. • Use practical equipment, such as bead strings to model groups. 	<p><u>Pictures/Mark Making</u></p> <p>There are twelve children who arrange themselves into 6 teams. How many children are in each team?</p>  <p>9 sweets are shared out between 3 children. How many sweets do they get each?</p> 

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Stage 2

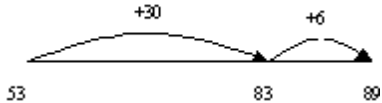
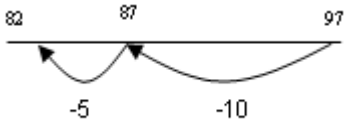
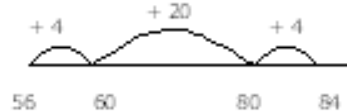

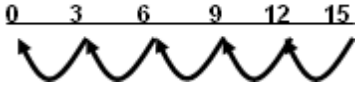
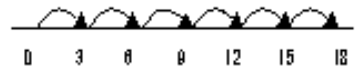
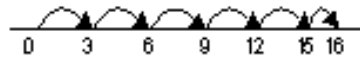
Times tables to be taught are 2s, 5s, and 10s and 4s for the more able.

Addition	Subtraction	Multiplication	Division								
<p><u>+ and = signs and missing numbers</u> Continue using a range of equations as in Y1, but with appropriate, larger numbers Extend to: $14 + 5 = 10 + _$ then adding three numbers $30 + 20 + _ = 100$ $35 = 1 + _ + 5$</p> <p><u>Partition into tens and ones and recombine</u></p> <p>$12 + 23 = 10 + 2 + 20 + 3$ = 30 + 5 = 35</p> <p>Refine to partitioning the second number only:</p> <p>$23 + 12 = 23 + 10 + 2$ = 33 + 2 = 35</p>  <p>Add 9, 19 or 11, 21 by adding 10/20 and adjusting by 1</p> <p>$35 + 9 = 44$</p>  <p>N.B. Children need to understand the concept that there can sometimes be multiple correct answers.</p>	<p><u>- and = signs and missing numbers</u> Continue using a range of equations as in Y1 but with appropriate, larger numbers.</p> <p><u>Find a small difference by counting on</u></p> <p>$42 - 39 = 3$</p>  <p><u>Subtracting 9 or 11. Begin to add/subtract 19 or 21</u></p> <p>$35 - 9 = 26$</p> <p>N.B. Model subtraction under the number line</p>  <p>Use known number facts and place value to subtract (partition second number only)</p> <p>$37 - 12 = 37 - 10 - 2$ = 27 - 2 = 25</p> 	<p><u>x and = signs and missing numbers</u></p> <p>$_ \times 2 = _$ $_ = 2 \times 7$ $7 \times _ = 14$ $14 = _ \times 7$ $_ \times 2 = 14$ $14 = 2 \times _$ $_ \times _ = 14$ $14 = _ \times _$</p> <p><u>Arrays and repeated addition</u></p>  <p>4 x 2 or 2 x 4 or 4 + 4</p> <p>Or repeated addition</p> <p>$2 + 2 + 2 + 2$</p>  <p>0 1 2 3 4 5 6 7 8</p> <p>Doubling multiples of 5 up to 50</p> <p>$15 \times 2 = 30$</p> <p><u>Partition</u></p> <p>$15 \times 2 =$</p> <p>$10 \times 2 = 20$ $5 \times 2 = 10$ $20 + 10 = 30$ or</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>x</td><td>2</td></tr> <tr><td>10</td><td>20</td></tr> <tr><td>5</td><td>10</td></tr> <tr><td></td><td>30</td></tr> </table>	x	2	10	20	5	10		30	<p><u>÷ and = signs and missing numbers</u></p> <p>$6 \div 2 = _$ $_ = 6 \div 2$ $6 \div _ = 3$ $3 = 6 \div _$ $_ \div 2 = 3$ $3 = _ \div 2$ $3 = _ \div _$</p> <p><u>Understand division as sharing and grouping</u></p> <p><u>Sharing</u> 6 sweets are shared between 2 people. How many will they have each?</p>  <p><u>Grouping</u> There are 6 sweets. How many people can have 2 each? (How many 2's in 6?)</p>  <p>0 2 + 6</p> <p>N.B. Aim to use known number facts, for example, dividing by two is the same as halving. Using the inverse operation where possible to check answers.</p>
x	2										
10	20										
5	10										
	30										

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Stage 3

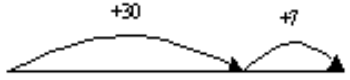
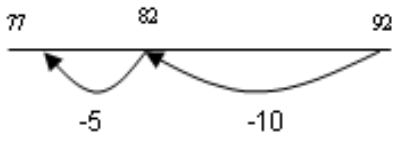
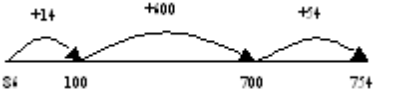
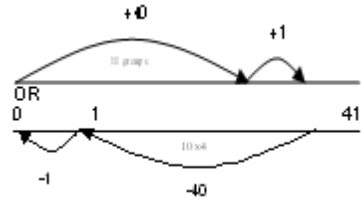
Times table to be taught are 3s, 4s, 6s and 8s (Revisit 2, 5, and 10), 7s and 9s for more able.

Addition	Subtraction	Multiplication	Division																																																				
<p><u>+ and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2, but with appropriate, larger numbers</p> <p><u>Partition into tens and ones and recombine</u> Partition both numbers and recombine. Refine to partitioning the second number only e.g.</p> $36 + 53 = 53 + 30 + 6$ $= 83 + 6$ $= 89$  <p><u>Add a near multiple of 10 to a two-digit number</u> Continue as in Y2 but with appropriate numbers e.g. $35 + 19$ is the same as $35 + 20 - 1$</p> <p><u>Recording by</u></p> <table style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;">80</td> <td style="padding-right: 10px;">3</td> <td style="padding-left: 20px;">$83 + 42 = 125$</td> </tr> <tr> <td style="padding-right: 10px;">+ 40</td> <td style="padding-right: 10px;">2</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">120</td> <td style="border-top: 1px solid black; padding-top: 2px;">5</td> <td></td> </tr> </table> <table style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;">83</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">+ 42</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">5</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">120</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">125</td> <td></td> </tr> </table>	80	3	$83 + 42 = 125$	+ 40	2		120	5		83		+ 42		5		120		125		<p><u>- and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2 but with appropriate numbers.</p> <p><u>Find a small difference by counting on</u> Continue using a range of equations as in Y1 & Y2 but with appropriate numbers e.g. $102 - 97 = 5$</p> <p><u>Subtract mentally a near multiple of 10 to or from a two digit number</u> Continue as in Y2 but with appropriate numbers e.g. $78 - 49$ is the same as $78 - 50 + 1$ Use known number facts and place value to subtract</p> <p>Continue as in Y2 but with appropriate numbers e.g. $97 - 15 = 82$ N.B. Model subtraction under the number line</p>  <p><u>Recording by</u> Complimentary addition $84 - 56 = 28$</p>  <p><u>Expanded Method</u></p> <table style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;">300</td> <td style="padding-right: 10px;">20</td> <td style="padding-left: 10px;">7</td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">- 100</td> <td style="border-top: 1px solid black; padding-top: 2px;">10</td> <td style="border-top: 1px solid black; padding-top: 2px;">6</td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">200</td> <td style="border-top: 1px solid black; padding-top: 2px;">10</td> <td style="border-top: 1px solid black; padding-top: 2px;">1</td> </tr> </table>	300	20	7	- 100	10	6	200	10	1	<p><u>x and = signs and missing numbers</u> Continue using a range of equations as in Y2 but with appropriate numbers</p> <p>Number lines 6×3</p>  <p>Arrays and repeated addition. Continue to understand multiplication as repeated addition and continue to use arrays as in Y2.</p> <p>Doubling multiples of 5 up to 50 $35 \times 2 = 70$</p> <p><u>Partition</u> Use known number facts and place value to Carry out simple multiplications</p> <table style="margin-left: 20px; margin-top: 20px;"> <tr> <td style="padding-right: 5px;">x</td> <td style="border: 1px solid black; padding: 2px;">3</td> <td></td> </tr> <tr> <td style="padding-right: 5px;">30</td> <td style="border: 1px solid black; padding: 2px;">90</td> <td></td> </tr> <tr> <td style="padding-right: 5px;">5</td> <td style="border: 1px solid black; padding: 2px;">15</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">105</td> <td></td> </tr> </table> <table style="margin-left: 20px; margin-top: 20px;"> <tr> <td style="padding-right: 5px;">3</td> <td style="padding-right: 5px;">5</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">x 3</td> <td></td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">10</td> <td style="border-top: 1px solid black; padding-top: 2px;">5</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding-top: 2px;">1</td> <td></td> <td></td> </tr> </table> <p>2 digits x 1 digit Written as a column the addition is vertical.</p> <p>2 digits x 1 digit Extend to the compact method.</p>	x	3		30	90		5	15			105		3	5		x 3			10	5		1			<p><u>÷ and = signs and missing numbers</u> Continue using a range of equations as in Y2 but with appropriate numbers</p> <p><u>Understand division as sharing and grouping</u></p> <p><u>Sharing</u> 15 shared between 3 (can use Y2 example)</p>  <p><u>Grouping</u> How many 3's make 18?</p>  <p><u>Remainders</u> $16 \div 3 = 5r1$</p> <p><u>Sharing</u> 16 shared between 3. How many left over?</p> <p><u>Grouping</u> How many 3's make 16? How many left over?</p> 
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Stage 4

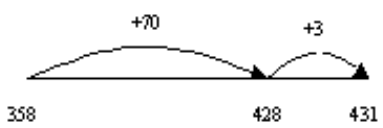
Times table to be taught are 7s, 9s, 11s and 12s(Revisit 2s, 3s, 4s, 5s, 6s, 8s and 10s)

Addition	Subtraction	Multiplication	Division																																																																																																												
<p><u>+ and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2, but with appropriate, larger numbers</p> <p><u>Partition into tens and ones and recombine</u> Either partition both numbers and recombine or partition the second number only e.g. $55 + 37 = 55 + 30 + 7$ $= 85 + 7$ $= 92$</p>  <p style="text-align: center;">55 85 92</p> <p><u>Add a near multiple of 10 then adjust</u> Continue as in Y2 and Y3 but with appropriate numbers e.g. $63 + 29$ is the same as $63 + 30 - 1$</p> <p><u>Recording by</u> $358 + 73 = 431$</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">300</td> <td style="text-align: right;">50</td> <td style="text-align: right;">8</td> <td style="text-align: right;">3</td> <td style="text-align: right;">5</td> <td style="text-align: right;">8</td> </tr> <tr> <td></td> <td style="text-align: right;">70</td> <td style="text-align: right;">3</td> <td style="text-align: right;">+</td> <td style="text-align: right;">7</td> <td style="text-align: right;">3</td> </tr> <tr> <td style="border-top: 1px solid black; text-align: right;">300</td> <td style="border-top: 1px solid black; text-align: right;">120</td> <td style="border-top: 1px solid black; text-align: right;">11</td> <td></td> <td style="border-top: 1px solid black; text-align: right;">1</td> <td style="border-top: 1px solid black; text-align: right;">1</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">1</td> <td style="text-align: right;">2</td> <td style="text-align: right;">0</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">3</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">4</td> <td style="text-align: right;">3</td> <td style="text-align: right;">1</td> </tr> </table> <p><u>Compact Method</u></p> <p>Formal method numbers carried underneath</p> $\begin{array}{r} 358 \\ + 73 \\ \hline 431 \\ 1 \end{array}$ <p>Extend to decimals in the context of money $\pounds 2.50 + \pounds 1.75 = \pounds 4.25$</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">£ 2.50</td> <td style="text-align: right;">£ 1.75</td> <td style="text-align: right;">£ 4.25</td> </tr> <tr> <td></td> <td style="text-align: right;">+ £ 1.75</td> <td></td> </tr> <tr> <td></td> <td style="border-top: 1px solid black; text-align: right;">£ 4.25</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">1</td> </tr> </table> <p><u>N.B. COMPACT METHOD CONSOLIDATED BY END OF YEAR 4</u> <u>Model negative numbers using a number line</u></p>	300	50	8	3	5	8		70	3	+	7	3	300	120	11		1	1				1	2	0				3	0	0				4	3	1	£ 2.50	£ 1.75	£ 4.25		+ £ 1.75			£ 4.25				1	<p><u>- and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2 but with appropriate numbers.</p> <p><u>Find a small difference by counting on</u> e.g. $5003 - 4996 = 7$ This can be modelled on an empty number line</p> <p><u>Subtract the nearest multiple of 10, then adjust</u> Continue as in Y2 but with appropriate numbers</p> <p><u>Use known number facts and place value to subtract</u> e.g. $92 - 15 = 77$</p>  <p style="text-align: center;">77 82 92</p> <p><u>Recording by</u></p> <p><u>Complimentary addition</u> $754 - 86 = 668$</p>  <p style="text-align: center;">54 100 700 754</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">3</td> <td style="text-align: right;">2¹</td> <td style="text-align: right;">17</td> <td rowspan="4" style="vertical-align: middle;">Teach the compact method.</td> </tr> <tr> <td style="text-align: right;">-</td> <td style="text-align: right;">1</td> <td style="text-align: right;">18</td> </tr> <tr> <td></td> <td style="text-align: right;">2</td> <td style="text-align: right;">09</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	3	2 ¹	17	Teach the compact method.	-	1	18		2	09				<p><u>x and = signs and missing numbers</u> Continue using a range of equations as in Y2 but with appropriate numbers</p> <p><u>Partition - Mental</u> $23 \times 4 = 92$ $23 \times 4 = (20 \times 4) + (3 \times 4)$ $= (80) + (12)$ $= 92$</p> <p>You can also use the grid method below</p> <p><u>Recording by</u></p> <p><u>Grid method</u> 23×7 is approximately $20 \times 10 = 200$, using known number facts</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">x</td> <td style="border: 1px solid black; text-align: center;">7</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">20</td> <td style="border: 1px solid black; text-align: center;">140</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">3</td> <td style="border: 1px solid black; text-align: center;">21</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; text-align: center;">161</td> <td></td> </tr> </table> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">x</td> <td style="border: 1px solid black; text-align: center;">70</td> <td style="border: 1px solid black; text-align: center;">2</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">30</td> <td style="border: 1px solid black; text-align: center;">2100</td> <td style="border: 1px solid black; text-align: center;">60</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">8</td> <td style="border: 1px solid black; text-align: center;">560</td> <td style="border: 1px solid black; text-align: center;">16</td> </tr> <tr> <td></td> <td style="border: 1px solid black; text-align: center;">2660</td> <td style="border: 1px solid black; text-align: center;">76</td> </tr> </table> <p style="margin-left: 20px;">3 digits x 2 digit</p> <p>Remaining addition to be completed outside the grid</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">2</td> <td style="text-align: right;">6</td> <td style="text-align: right;">6</td> <td style="text-align: right;">0</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">7</td> <td style="text-align: right;">6</td> </tr> <tr> <td style="border-top: 1px solid black; text-align: right;">2</td> <td style="border-top: 1px solid black; text-align: right;">7</td> <td style="border-top: 1px solid black; text-align: right;">3</td> <td style="border-top: 1px solid black; 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Swaffham Bulbeck Primary School - Calculation Policy

Stage 5

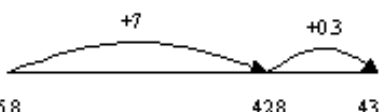
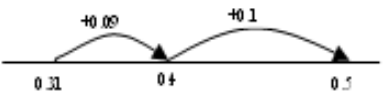
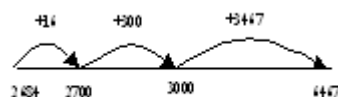
Revisit and consolidate all tables.

Addition	Subtraction	Multiplication	Division									
<p><u>+ and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2, but with appropriate, larger numbers</p> <p><u>Partition into hundreds, tens and ones and recombine</u> Either partition both numbers and recombine or partition the second number only e.g. $358 + 73 = 358 + 70 + 3$ $= 428 + 3$ $= 431$</p>  <p>358 428 431</p> <p><u>Add or subtract a near multiple of 10 or 100 then adjust</u> Continue as in Y2, Y3 and Y4 but with appropriate numbers e.g. $458 + 79$ is the same as $458 + 80 - 1$</p> <p><u>Recording by</u> Formal method, showing numbers carried underneath $358 + 73 = 431$</p> $\begin{array}{r} 358 \\ + 73 \\ \hline 431 \end{array}$ <p>Extend to numbers with at least four digits</p> $\begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \end{array}$ <p>Revert to expanded methods if the children experience difficulties. Extend to decimals (same number of d.p.) and adding several numbers (with different numbers of digits) <u>Reinforce negative numbers using a number line.</u></p>	<p><u>- and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2 but with appropriate numbers.</p> <p><u>Find a small difference by counting on</u> e.g. $8006 - 2993 = 5013$ This can be modelled on an empty number line</p> <p><u>Subtract the nearest multiple of 10, then adjust</u> Continue as in Y2, Y3 and Y4 but with appropriate numbers</p> <p><u>Use known number facts and place value to subtract</u></p> <p><u>Recording by</u></p> $\begin{array}{r} 754 \\ - 246 \\ \hline 508 \end{array}$ <p>Carrying 2 times</p> $\begin{array}{r} 763 \\ - 246 \\ \hline 517 \end{array}$ <p>Revert to number line if children experience difficulties.</p>	<p><u>x and = signs and missing numbers</u> Continue using a range of equations as in Y2 but with appropriate numbers</p> <p><u>Partition - Mental</u> $47 \times 6 = 92$ $47 \times 6 = (40 \times 6) + (7 \times 6)$ $= (240) + (42)$ $= 282$</p> $\begin{array}{r} 87 \\ \times 6 \\ \hline 42 \\ 522 \\ \hline 522 \end{array}$ <p>You can also use the grid method below</p> <p><u>Recording by</u> Grid method - Consolidate from Y4 72×38 is approximately $70 \times 40 = 2800$, using known number facts.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>x</td><td>70</td><td>2</td></tr> <tr><td>30</td><td>2100</td><td>60</td></tr> <tr><td>8</td><td>560</td><td>16</td></tr> </table> <p>Extend to simple decimals with one d.p. Formal method leading x by 2 digit number. Moving to formal methods of multiplication for decimals. Carrying numbers underneath.</p> <p><u>Always start with the units!</u></p> $\begin{array}{r} 126 \\ \times 14 \\ \hline 504 \\ 1260 \\ \hline 1764 \end{array}$ <p>1st 2nd</p> $\begin{array}{r} 126 \\ \times 14 \\ \hline 504 \\ 1260 \\ \hline 1764 \end{array}$ <p>3rd</p> $\begin{array}{r} 126 \\ \times 14 \\ \hline 504 \\ 1260 \\ \hline 1764 \end{array}$	x	70	2	30	2100	60	8	560	16	<p><u>÷ and = signs and missing numbers</u> Continue using a range of equations as in Y2 but with appropriate numbers</p> <p><u>Sharing and Grouping</u></p> <p>Continue to understand division as both sharing and grouping (repeated subtraction)</p> <p><u>Remainders</u> Quotients expressed as fractions or decimal fractions $61 \div 4 = 15 \frac{1}{4}$ or 15.25</p> <p>Children can use any appropriate methods to record and calculate.</p> <p><u>Formal recording by</u> (Consolidation of Y4) Chunking for 2 digit numbers $256 \div 13$</p> $\begin{array}{r} 256 \\ 13 \overline{) 256} \\ \underline{130} \\ 126 \\ \underline{91} \\ 35 \\ \underline{26} \\ 9 \end{array}$ <p style="text-align: right;">19 r 9</p> <p>Formal method to be more focused</p> $3 \overline{) 114} \begin{array}{l} 114 \\ \underline{33} \\ 81 \\ \underline{63} \\ 18 \\ \underline{18} \\ 0 \end{array}$
x	70	2										
30	2100	60										
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Swaffham Bulbeck Primary School - Calculation Policy

Stage 6

Revisit and consolidate all tables.

Addition	Subtraction	Multiplication	Division																																																																																																																																		
<p><u>+ and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2, but with appropriate, larger numbers</p> <p><u>Partition into hundreds, tens and ones and recombine</u> Either partition both numbers and recombine or partition the second number only e.g. $35.8 + 73 = 35.8 + 70 + 0.3$ $= 42.8 + 0.3$ $= 43.1$</p>  <p>$35.8 \qquad\qquad\qquad 42.8 \qquad\qquad\qquad 43.1$</p> <p><u>Add or subtract a near multiple of 10, 100 or 1000, then adjust</u> Continue as in Y2, Y3, Y4 and Y5 but with appropriate numbers, including extending to adding 0.9, 1.9, 2.9 etc.</p> <p><u>Recording by</u> Extend to numbers with any number of digits and decimals with 1 and 2 d.p. e.g. $124.9 + 117.25 = 242.15$</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td>1</td><td>2</td><td>4</td><td>.</td><td>9</td><td>0</td></tr> <tr><td>+</td><td>1</td><td>1</td><td>7</td><td>.</td><td>2</td><td>5</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>2</td><td>4</td><td>2</td><td>.</td><td>1</td><td>5</td></tr> <tr><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td></td></tr> </table> <p>N.B. A zero has been placed after the nine so each number has the same number of decimal places (place value).</p> <p>Revert to expanded methods if the children experience difficulties. Extend to decimals (with either 1 or 2 d.p.)</p>		1	2	4	.	9	0	+	1	1	7	.	2	5		2	4	2	.	1	5		1	1					<p><u>- and = signs and missing numbers</u> Continue using a range of equations as in Y1 & Y2 but with appropriate numbers.</p> <p><u>Find a small difference by counting on</u> e.g. $0.5 - 0.31 = 0.19$ This can be modelled on an empty number line</p>  <p><u>Subtract the nearest multiple of 10, 100 or 1000, then adjust</u> Continue as in Y2, Y3, Y4 and Y5 but with appropriate numbers</p> <p>Use known number facts and place value to subtract</p> <p><u>Recording by</u> Complimentary addition $6467 - 2684 = 3783$</p>  <p>OR $6467 - 2684 = 3783$</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td>6⁵</td><td>4¹³</td><td>1⁶</td><td>7</td></tr> <tr><td>-</td><td>2</td><td>6</td><td>8</td><td>4</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>3</td><td>7</td><td>8</td><td>3</td></tr> </table> <p>N.B. In some cases a number line is useful, for example, $2008 - 467$.</p>		6 ⁵	4 ¹³	1 ⁶	7	-	2	6	8	4		3	7	8	3	<p><u>x and = signs and missing numbers</u> Continue using a range of equations as in Y2 but with appropriate numbers</p> <p><u>Partition - Mental</u> $87 \times 6 = 522$ $87 \times 6 = (80 \times 6) + (7 \times 6)$ $= (480) + (42)$ $= 522$</p> <p>written</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td></td><td>8</td><td>7</td></tr> <tr><td>x</td><td>5</td><td>6</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>52</td><td>2</td></tr> <tr><td></td><td>4</td><td></td></tr> </table> <p>You can also use the grid method below</p> <p><u>Recording by</u> Grid method - Consolidate from Y4 372×24 is approximately $400 \times 20 = 8000$</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr><td>x</td><td>300</td><td>70</td><td>2</td></tr> <tr><td>20</td><td>6000</td><td>1400</td><td>40</td></tr> <tr><td>4</td><td>1200</td><td>280</td><td>8</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>7200</td><td>1680</td><td>48</td></tr> </table> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr><td></td><td>3</td><td>7</td><td>2</td></tr> <tr><td>x</td><td>2</td><td>2</td><td>4</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>1</td><td>4</td><td>8</td></tr> <tr><td></td><td>7</td><td>4</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>8</td><td>9</td><td>2</td></tr> </table> <p>3 digits x 2 digit - Remaining addition to be completed outside the grid</p> <p>Extend to simple decimals with up to 2 d.p. Moving to formal methods of multiplication for decimals, carrying numbers underneath.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr><td></td><td>8</td><td>.</td><td>6</td><td>8</td><td>x</td><td>4</td><td>=</td><td>32</td></tr> <tr><td>x</td><td>3</td><td>4</td><td>.</td><td>4</td><td>0.6</td><td>x</td><td>4</td><td>=</td><td>2.4</td></tr> <tr style="border-top: 1px solid black;"><td></td><td>3</td><td>4</td><td>.</td><td>4</td><td></td><td></td><td></td><td></td><td>34.4</td></tr> <tr><td></td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>		8	7	x	5	6		52	2		4		x	300	70	2	20	6000	1400	40	4	1200	280	8		7200	1680	48		3	7	2	x	2	2	4		1	4	8		7	4	0		8	9	2		8	.	6	8	x	4	=	32	x	3	4	.	4	0.6	x	4	=	2.4		3	4	.	4					34.4		2									<p><u>÷ and = signs and missing numbers</u> Continue using a range of equations as in Y2 but with appropriate numbers</p> <p><u>Sharing and Grouping</u> Continue to understand division as both sharing and grouping (repeated subtraction) $41 = (10 \times 4) + 1$</p> <p><u>Remainders</u> Quotients expressed as fractions or decimal fractions $61 \div 4 = 15 \frac{1}{4}$ or 15.25</p> <p>Children can use any appropriate methods to record and calculate.</p> <p><u>Formal recording by</u> (Consolidation of Y4 & Y5) Chunking for 2 digit numbers $296 \div 13$ (Demonstrate only - see Year 5)</p> <p>Formal method to be more focused</p> <p>More able children to extend single digit division to include decimal remainders to 3 figures.</p> <p style="color: blue;">It is essential that children make jottings for the formal method.</p>
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