



## Key Learning in Mathematics – Year 3

Number – number and place value	Number – addition and subtraction	Number – multiplication and division	
<ul style="list-style-type: none"> <li>Count from 0 in multiples of 4, 8, 50 and 100</li> <li>Count up and down in tenths</li> <li>Read and write numbers up to 1000 in numerals and in words</li> <li>Read and write numbers with one decimal place</li> <li>Identify, represent and estimate numbers using different representations (including the number line)</li> <li>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> <li>Identify the value of each digit to one decimal place</li> <li>Partition numbers in different ways (e.g. <math>146 = 100 + 40 + 6</math> and <math>146 = 130 + 16</math>)</li> <li>Compare and order numbers up to 1000</li> <li>Compare and order numbers with one decimal place</li> <li>Find 1, 10 or 100 more or less than a given number</li> <li>Round numbers to at least 1000 to the nearest 10 or 100</li> <li>Find the effect of multiplying a one- or two-digit number by 10 and 100, identify the value of the digits in the answer</li> <li>Describe and extend number sequences involving counting on or back in different steps</li> <li>Read Roman numerals from I to XII</li> <li>Solve number problems and practical problems involving these ideas</li> </ul>	<ul style="list-style-type: none"> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation</li> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context</li> <li>Recall/use addition/subtraction facts for 100 (multiples of 5 and 10)</li> <li>Derive and use addition and subtraction facts for 100</li> <li>Derive and use addition and subtraction facts for multiples of 100 totalling 1000</li> <li>Add and subtract numbers mentally, including:               <ul style="list-style-type: none"> <li>a three-digit number and ones</li> <li>a three-digit number and tens</li> <li>a three-digit number and hundreds</li> </ul> </li> <li>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</li> <li>Estimate the answer to a calculation and use inverse operations to check answers</li> <li>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</li> </ul>	<ul style="list-style-type: none"> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)</li> <li>Understand that division is the inverse of multiplication and vice versa</li> <li>Understand how multiplication and division statements can be represented using arrays</li> <li>Understand division as sharing and grouping and use each appropriately</li> <li>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li> <li>Derive and use doubles of all numbers to 100 and corresponding halves</li> <li>Derive and use doubles of all multiples of 50 to 500</li> <li>Write 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</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> <li>Solve problems, including missing number problems, involving multiplication and division (and interpreting remainders), including positive integer scaling problems and correspondence problems in which n objects are connected to m objects</li> </ul>	
		Measures	
<th>Number – fractions</th> <td></td> <td> <ul style="list-style-type: none"> <li>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</li> <li>Continue to estimate and measure temperature to the nearest degree (<math>^{\circ}\text{C}</math>) using thermometers</li> <li>Understand perimeter is a measure of distance around the boundary of a shape</li> <li>Measure the perimeter of simple 2-D shapes</li> <li>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> <li>Estimate/read time with increasing accuracy to the nearest minute</li> <li>Record/compare time in terms of seconds, minutes, hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon, midnight</li> <li>Know the number of seconds in a minute and the number of days in each month, year and leap year</li> <li>Compare durations of events [for example to calculate the time taken by particular events or tasks]</li> <li>Continue to recognise and use the symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds/pence</li> <li>Recognise that ten 10p coins equal £1 and that each coin is <math>\frac{1}{10}</math> of £1</li> <li>Add and subtract amounts of money to give change, using both £ and p in practical contexts</li> <li>Solve problems involving money and measures and simple problems involving passage of time</li> </ul> </td>	Number – fractions		<ul style="list-style-type: none"> <li>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</li> <li>Continue to estimate and measure temperature to the nearest degree (<math>^{\circ}\text{C}</math>) using thermometers</li> <li>Understand perimeter is a measure of distance around the boundary of a shape</li> <li>Measure the perimeter of simple 2-D shapes</li> <li>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> <li>Estimate/read time with increasing accuracy to the nearest minute</li> <li>Record/compare time in terms of seconds, minutes, hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon, midnight</li> <li>Know the number of seconds in a minute and the number of days in each month, year and leap year</li> <li>Compare durations of events [for example to calculate the time taken by particular events or tasks]</li> <li>Continue to recognise and use the symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds/pence</li> <li>Recognise that ten 10p coins equal £1 and that each coin is <math>\frac{1}{10}</math> of £1</li> <li>Add and subtract amounts of money to give change, using both £ and p in practical contexts</li> <li>Solve problems involving money and measures and simple problems involving passage of time</li> </ul>
	Geometry – properties of shapes		
	<ul style="list-style-type: none"> <li>Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</li> <li>Recognise angles as a property of shape or a description of a turn</li> <li>Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle</li> <li>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines</li> </ul>		
	Geometry – position and direction		
	<ul style="list-style-type: none"> <li>Describe positions on a square grid labelled with letters and numbers</li> </ul>		
	Statistics		
	<ul style="list-style-type: none"> <li>Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects</li> <li>Interpret and present data using bar charts, pictograms and tables</li> <li>Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables</li> </ul>		





**Arithmetic Expectations – Year 3**

Skills	Examples
<b>Counting</b>	
<b>Find 1, 10 or 100 more or less than a given number.</b>	$229 + 1 = \underline{\quad}$ $229 + 10 = \underline{\quad}$ $229 + 100 = \underline{\quad}$ $200 = \underline{\quad} + 1$ $479 + \underline{\quad} = 480$ $726 + \underline{\quad} = 826$ $400 - 1 = \underline{\quad}$ $261 - 10 = \underline{\quad}$ $\underline{\quad} = 812 - 100$
<b>Count from 0 in multiples of 4, 8, 50 and 100</b>	Count from 0 in fours Count from 0 in eights What number is missing from this counting sequence? 0, 8, 16, 32, 40, 48 What number would come next in this counting sequence? 0, 50, 100, 150, 200, $\underline{\quad}$ What number comes immediately after 600 when counting up in steps of 100?
<b>Count up and down in tenths.</b>	Count on from 0 in tenths. What would come next in this counting sequence? $0, \frac{1}{10}, \frac{2}{10}, \frac{3}{10}, \frac{4}{10}$  What is missing from this number sequence? $\frac{7}{10}, \frac{6}{10}, \frac{5}{10}, \frac{3}{10}, \frac{2}{10}$
<b>Number Facts</b>	
<b>Recall addition and subtraction facts for 100 (multiples of 5 and 10).</b>	$100 - 30 = \underline{\quad}$ $20 + \underline{\quad} = 100$ $100 = \underline{\quad} + 5$ $100 - 45 = \underline{\quad}$ $100 - \underline{\quad} = 15$ $65 = 100 - \underline{\quad}$
<b>Recall and use multiplication division facts for the 3, 4 and 8 multiplication tables.</b>	$6 \times 3 = \underline{\quad}$ $2 \times 4 = \underline{\quad}$ $4 \times 8 = \underline{\quad}$ $20 = 4 \times \underline{\quad}$ $21 = 3 \times \underline{\quad}$ $32 = \underline{\quad} \times 8$ $\underline{\quad} \times 4 = 28$ $30 \div 3 = \underline{\quad}$ $24 \div 4 = \underline{\quad}$ $72 \div 8 = \underline{\quad}$ $3 = 36 \div \underline{\quad}$ $\underline{\quad} = 32 \div 4$ $\underline{\quad} = 48 \div 6$
<b>Mental Calculation Strategies - Addition and Subtraction</b>	
<b>Identify and use knowledge of number bonds within a calculation.</b> <i>Concrete – tens frames, Diennes equipment, place value counters</i> <i>Pictorial – Diennes jottings, number line</i>	$42 + 38$ $42 + 30 + 8$ (recognising that 2 and 8 is a number bond to 10, so the answer will be a multiple of 10) $60 - 28$ $60 - 20 - 8$ (using knowledge that $10 - 8 = 2$ , so $40 - 8 = 32$ ) $120 - 50$ $120 - 20 - 30$ (using knowledge of number bonds to 100, leaving an answer of 70)
<b>Derive and use addition and subtraction facts for 100</b> <i>Concrete – Diennes equipment, place value counters, beadstring</i> <i>Pictorial – Number line</i>	$100 - 43 = \underline{\quad}$ $22 + \underline{\quad} = 100$ $100 = \underline{\quad} + 9$ $100 - 76 = \underline{\quad}$ $100 - \underline{\quad} = 48$ $66 = 100 - \underline{\quad}$
<b>Derive and use addition and subtraction facts for multiples of 100 that total 1000</b> <i>Concrete – Diennes equipment, place value counters</i> <i>Pictorial – Diennes jottings</i>	$1000 - 300 = \underline{\quad}$ $200 + \underline{\quad} = 1000$ $1000 = \underline{\quad} + 500$ $1000 - 400 = \underline{\quad}$ $1000 - \underline{\quad} = 100$ $600 = 1000 - \underline{\quad}$
<b>Reorder numbers in a calculation.</b> <i>Concrete – tens frames, Diennes equipment, place value counters</i> <i>Pictorial – Diennes jottings, number line</i>	$23 + 54$ $54 + 23$ $12 + 19 + 12$ $12 + 12 + 19$ (using knowledge of doubles) $6 + 8 + 4$ $6 + 4 + 8$ (using knowledge of number bonds to 10) $70 + 50 + 30$ $70 + 30 + 50$ (using knowledge of number bonds to 100)

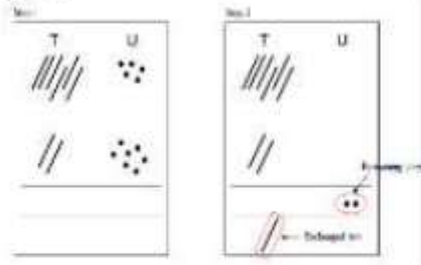
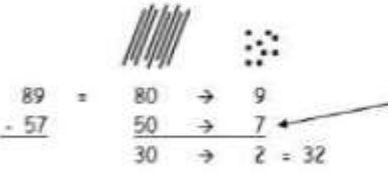

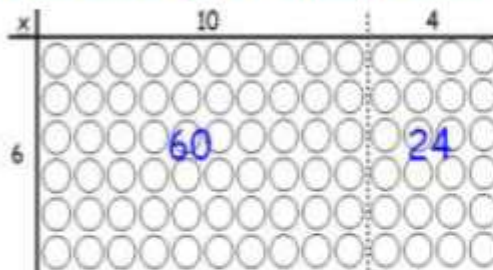
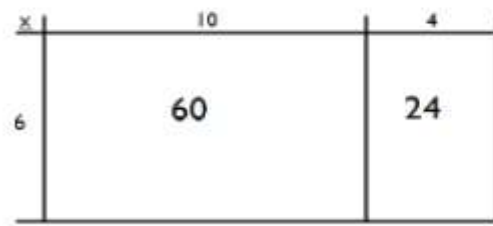


<p><b>Partition and combine multiples of hundreds, tens and ones.</b>  <i>Concrete – Diennes equipment, place value counters, beadstring</i>  <i>Pictorial – number line</i></p>	<p>526 + 200      counting on in hundreds            137 + 40      counting on in tens            272 + 8        counting on in ones (or using knowledge of bonds to 10)            428 – 200     counting back in hundreds            323 – 70      counting back in tens            693 – 8        counting back in ones            37 + 15        37 add 10 and 5 = 37 add 10 add 5 (crossing tens boundaries)            42 – 25        42 take away 20 and 5 = 42 take away 20 take away 5 (crossing tens boundaries)</p>
<p><b>Find differences by counting up through the next multiple of 10 or 100</b>  <i>Pictorial - number line</i></p>	<p>60 – 43    useful for time calculations, e.g. a journey time from 2:43 until 3:00            53 – 38    efficient because the numbers are close to each other            104 – 95   efficient because the numbers are close to each other            200 – 86   useful for money calculations, e.g. change from £2 when spending 86p</p>
<p><b>Bridge through 10 when adding or subtracting a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3 or 76 – 8 = 76 – 6 – 2 )</b>  <i>Pictorial - number line</i></p>	<p>35 + 7        as 35 + 5 + 2            97 + 6        as 97 + 3 + 3            178 + 5       as 178 + 2 + 3            42 – 7        as 42 – 2 – 5            204 – 6       as 204 – 4 – 2            371 – 5       as 371 – 1 – 4</p>
<p><b>Add or subtract 9, 19, 29 etc by rounding and compensating</b>  <i>Pictorial - number line</i></p>	<p>34 + 29       as 34 + 30 – 1            127 + 49     as 127 + 50 – 1            96 – 39       as 96 – 40 + 1            273 – 59      as 273 – 60 + 1</p>
<p><b>Mental Calculation Strategies – Multiplication and Division</b></p>	
<p><b>Derive and use doubles of all numbers to 100 and corresponding halves.</b>  <i>Concrete - Diennes equipment, place value counters</i>  <i>Pictorial – part – part – whole diagram</i></p>	<p>Double 46            Halve 86            29 + 29              Find half of 54            38 x 2                92 ÷ 2</p>
<p><b>Derive and use doubles of all multiples of 50 to 500</b>  <i>Concrete - Diennes equipment, place value counters</i>  <i>Pictorial – part – part – whole diagram</i></p>	<p>Double 350            400 + 400            450 x 2</p>
<p><b>Multiply a one- or two-digit number by 10 and a one-digit number by 100</b>  <i>Concrete - Diennes equipment, place value counters</i>  <i>Pictorial - place value chart</i></p>	<p>3 x 10            7 x 100            62 x 10</p>
<p><b>Within known tables, use related facts to multiply T0 by a one-digit number</b> NB T0 represents a two-digit multiple of ten.  <i>Concrete – Diennes equipment, place value counters</i>  <i>Pictorial – Diennes jottings</i></p>	<p>60 x 3            related to 6x3 because 60 x 3 = 10 x 6 x 3 which can be reordered to 6 x 3 x 10            50 x 4            related to 5 x 4 because 50 x 4 = 10 x 5 x 4 which can be reordered to 5 x 4 x 10            30 x 8            related to 3 x 8 because 30 x 8 = 10 x 3 x 8 which can be reordered to 3 x 8 x 10</p>



<p><b>Within known tables, use partitioning to multiply T1 by a one-digit number</b>  <i>Pictorial - Show array using squared paper.</i></p>	<p><math>31 \times 4 = 30 \times 4</math> add <math>1 \times 4</math> (said as 'thirty fours add one four')  <math>31 \times 4 = 120 + 4</math>  <math>31 \times 4 = 124</math></p> <p><math>61 \times 4</math>  <math>31 \times 8</math></p>
<p><b>Use compensation to multiply 19 by a one-digit number</b>  <i>Pictorial - Show array using squared paper.</i></p>	<p><math>19 \times 4 = 20 \times 4</math> subtract <math>1 \times 4</math> (said as 'twenty fours subtract one four')  <math>19 \times 4 = 80 - 4</math>  <math>19 \times 4 = 76</math></p> <p><math>19 \times 3</math>  <math>19 \times 5</math>  <math>19 \times 8</math></p>
<p><b>Use partitioning to double any two-digit number</b>  <i>Concrete - Diennes equipment, place value counters</i>  <i>Pictorial - Diennes jottings, part-part-whole diagram to double e.g. double 76</i></p>	<p>Double 39, double 52, double 85</p>
<p><b>Use related facts or partitioning to double any multiple of 50 to 500</b>  <i>Concrete - Diennes equipment, place value counters</i>  <i>Pictorial - Diennes jottings, part-part-whole diagram to double e.g. double 350</i></p>	<p>Double 250, double 450, double 150</p>
<p><b>Use related facts to divide T0 by a one-digit number</b>          NB T0 represents a multiple of ten  <i>Concrete - Diennes equipment, place value counters</i>  <i>Pictorial - Diennes jottings, division trio e.g. <math>8 \div 2 = 4</math> then <math>80 \div 20 = 4</math></i></p> <div style="display: flex; align-items: center; justify-content: center;">   </div>	<p><math>60 \div 3</math> related to <math>6 \div 3</math>  <math>80 \div 40</math> related to <math>8 \div 4</math>  <math>90 \div 3</math> related to <math>9 \div 3</math></p>
<p><b>Use partitioning to halve even numbers up to 200</b>  <i>Concrete - Diennes equipment, place value counters</i>  <i>Pictorial - Diennes jottings, part-part-whole diagram to halve e.g. halve 154</i></p>	<p>Find half of 162 by partitioning into 160 and 2          Find half of 94 by partitioning into 80 and 14          Find half of 136 by partitioning into 120 and 16</p>



Progression Towards Written Calculation Strategies – Addition																																																			
<p><b>Introduce column method of addition.</b>            Concrete – Diennes equipment, place value counters (if necessary)            Pictorial – Diennes jottings in column (to illustrate place value of each digit)</p>	<p>65+27</p>  <p>Written method</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>Step 1</td> <td>Step 2</td> <td>Step 3</td> </tr> <tr> <td></td> <td> <table style="border-collapse: collapse; text-align: center;"> <tr><td>T</td><td>U</td></tr> <tr><td>6</td><td>5</td></tr> <tr><td>+</td><td>2 7</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td></td></tr> </table> </td> <td> <table style="border-collapse: collapse; text-align: center;"> <tr><td>T</td><td>U</td></tr> <tr><td>6</td><td>5</td></tr> <tr><td>+</td><td>2 7</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td>2</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td></td></tr> </table> </td> <td> <table style="border-collapse: collapse; text-align: center;"> <tr><td>T</td><td>U</td></tr> <tr><td>6</td><td>5</td></tr> <tr><td>+</td><td>2 7</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td>2</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td>9</td><td>2</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td></td></tr> </table> </td> </tr> </table>		Step 1	Step 2	Step 3		<table style="border-collapse: collapse; text-align: center;"> <tr><td>T</td><td>U</td></tr> <tr><td>6</td><td>5</td></tr> <tr><td>+</td><td>2 7</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td></td></tr> </table>	T	U	6	5	+	2 7	-----				<table style="border-collapse: collapse; text-align: center;"> <tr><td>T</td><td>U</td></tr> <tr><td>6</td><td>5</td></tr> <tr><td>+</td><td>2 7</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td>2</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td></td></tr> </table>	T	U	6	5	+	2 7	-----			2	-----				<table style="border-collapse: collapse; text-align: center;"> <tr><td>T</td><td>U</td></tr> <tr><td>6</td><td>5</td></tr> <tr><td>+</td><td>2 7</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td>2</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td>9</td><td>2</td></tr> <tr><td colspan="2">-----</td></tr> <tr><td></td><td></td></tr> </table>	T	U	6	5	+	2 7	-----			2	-----		9	2	-----			
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Progression Towards Written Calculation Strategies – Subtraction																																																			
<p><b>Introduce column method of subtraction.</b>            Concrete – Diennes equipment, place value counters (if necessary)            Pictorial – Diennes jottings in column (to illustrate place value of each digit)</p>	<p>89 – 57</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>The calculation should be read as subtract 7 from 9 or 9 subtract 7.</p> </div> <p>Exchanging</p>  <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"> <math display="block">\begin{array}{r} 70 \\ - 40 \\ \hline 30 \end{array}</math> </td> <td style="text-align: center;"> <math display="block">\begin{array}{r} 80 \\ - 50 \\ \hline 30 \end{array}</math> </td> <td style="text-align: center;"> <math display="block">\begin{array}{r} 9 \\ - 7 \\ \hline 2 \end{array}</math> </td> <td style="text-align: center;"> <math display="block">= 32</math> </td> </tr> </table> <p>moving to</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"> <math display="block">\begin{array}{r} 60 \\ - 40 \\ \hline 20 \end{array}</math> </td> <td style="text-align: center;"> <math display="block">\begin{array}{r} 11 \\ - 1 \\ \hline 10 \end{array}</math> </td> <td style="text-align: center;"> <math display="block">= 25</math> </td> </tr> </table>	$\begin{array}{r} 70 \\ - 40 \\ \hline 30 \end{array}$	$\begin{array}{r} 80 \\ - 50 \\ \hline 30 \end{array}$	$\begin{array}{r} 9 \\ - 7 \\ \hline 2 \end{array}$	$= 32$	$\begin{array}{r} 60 \\ - 40 \\ \hline 20 \end{array}$	$\begin{array}{r} 11 \\ - 1 \\ \hline 10 \end{array}$	$= 25$																																											
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Progression Towards Written Calculation Strategies – Multiplication																																																			
<p><b>Multiplication of a two digit number by a one digit number – grid method</b>            Pictorial – rectangular arrays on squared paper</p>	 <p>60 + 24 = 84 So 14 x 6 = 84</p>  <p>60 + 24 = 84 So 14 x 6 = 84</p>																																																		



Progression Towards Written Calculation Strategies – Division		
<p><b>Division using a vertical number line to show efficient repeated subtraction</b> <i>Concrete – cubes, Diennes equipment</i> <i>Pictorial – number line</i></p>		
<b>Decision Making</b>		
<p>When calculating, children should ask themselves:</p> <ul style="list-style-type: none"><li>- do I know the answer because it is a fact I have learnt?</li><li>- can I work it out easily in my head?</li><li>- can I use some equipment or a jotting?</li><li>- do I need to use the written method?</li></ul>		

The strategies used within this document are taken from the Lancashire Mathematics Team Progression in Mental Calculation Strategies Policies and the Progression Towards Written Methods Policies.

See [www.lancsngfl.ac.uk/curriculum/primarymaths](http://www.lancsngfl.ac.uk/curriculum/primarymaths) for the full policies.



### Year 3 Mathematics Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Week 1</b>	<b>Unit 1</b> Place value, addition and subtraction	<b>Unit 5</b> Multiplication tables (3x and 4x)	<b>Unit 10</b> Place value, addition and subtraction	<b>Unit 15</b> 2-D shape	<b>Unit 20</b> Addition and subtraction	<b>Unit 25</b> Place value
<b>Week 2</b>		<b>Unit 6</b> Multiplication	<b>Unit 11</b> Multiplication	<b>Unit 16</b> Addition, subtraction and statistics		<b>Unit 21</b> Multiplication and division
<b>Week 3</b>	<b>Unit 2</b> Length and perimeter	<b>Unit 7</b> Division		<b>Unit 12</b> Fractions	<b>Unit 17</b> Fractions	
<b>Week 4</b>	<b>Unit 3</b> Statistics	<b>Unit 8</b> Time	<b>Unit 13</b> Division		<b>Unit 18</b> Position & direction	<b>Unit 23</b> Decimal place value
<b>Week 5</b>	<b>Unit 4</b> Addition and subtraction	<b>Unit 9</b> 3-D shape		<b>Unit 14</b> Volume, capacity and mass	<b>Unit 19</b> Time	
<b>Week 6</b>		Assess and review week	Assess and review week		Assess and review week	



YEAR 3	AUTUMN	
	Topic	Sequence of Learning
	<b>Number and place value Addition and subtraction</b>	<ul style="list-style-type: none"> <li>• Exchange 10 ones for 1 ten and vice versa</li> <li>• Exchange 10 tens for 1 hundred and vice versa</li> <li>• Identify and represent numbers up to 1000 using concrete materials such as base 10 apparatus</li> <li>• Partition a three-digit number into hundreds, tens and ones</li> <li>• Identify and represent numbers up to 1000 using models such as place value counters and arrow cards.</li> <li>• Partition a three-digit number into hundreds, tens and ones</li> <li>• Compare three or more numbers up to 1000 when represented using the same concrete materials saying which numbers are greater or less and use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> correctly.</li> <li>• Identify the multiples of 10 immediately before and after numbers with up to three-digits and round the numbers to the nearest ten.</li> <li>• Identify the number ten more/ ten less and one hundred more/ one hundred less than a given number with up to three-digits without crossing any boundaries.</li> <li>• Add and subtract a three-digit number and tens mentally with no boundaries crossed</li> <li>• Identify and describe the rule (addition or subtraction) in a number sequence by calculating the difference between two adjacent numbers</li> <li>• Extend number sequences by using the identified rule</li> <li>• Recognise addition calculations that require mental partitioning e.g. <math>37 + 25</math> and use this strategy where appropriate</li> <li>• Recognise subtraction calculations that require mental partitioning e.g. <math>42 - 17</math> and use this strategy where appropriate</li> </ul>
	<b>Length and perimeter</b>	<ul style="list-style-type: none"> <li>• Accurately draw 2-D shapes including with specific properties using squared and isometric paper</li> <li>• Measure lengths in cm and m</li> <li>• Add and subtract, including finding the difference between, lengths.</li> <li>• Measure lengths in mm</li> <li>• Add and subtract, including finding the difference between, lengths</li> <li>• Develop an understanding of perimeter using straws</li> <li>• Use counting to calculate the perimeter of a polygon drawn on squared cm paper</li> <li>• Use counting to calculate the perimeter of a polygon drawn on squared cm paper</li> <li>• Calculate the perimeter of a polygon where the lengths of sides are given</li> </ul>
	<b>Statistics</b>	<ul style="list-style-type: none"> <li>• Derive and use addition and subtraction facts for 100 using bead strings, a blank 10 by 10 grid etc.</li> <li>• Recognise that when calculating addition facts to 100 the 1s total 10 and the tens total 90</li> <li>• Collect data in a frequency table and use the data to draw a bar chart with a scale in ones.</li> <li>• Use data in a frequency table to draw a bar chart with a scale in twos.</li> <li>• Answer questions using data contained in a bar chart.</li> <li>• Solve one-step questions (for example, 'How many more?' and 'How many fewer?') using information presented in a bar chart or table</li> <li>• Present and interpret data using pictograms with a symbol representing 1, 2 or 10 (including half symbols).</li> <li>• Solve one-step questions (for example, 'How many more?' and 'How many fewer?') using information presented in a pictogram</li> </ul>
	<b>Addition and subtraction</b>	<ul style="list-style-type: none"> <li>• Add 2 two-digit numbers using formal written methods with exchange from ones into tens</li> <li>• Add 2 three-digit numbers using formal written methods with exchange from ones into tens</li> <li>• Add 2 three-digit numbers using formal written methods with exchange from ones into tens</li> <li>• Choose an appropriate strategy for a given addition calculation</li> <li>• Subtract 2 two-digit numbers using formal written methods with exchange from tens into ones</li> <li>• Subtract 2 three-digit numbers using formal written methods with exchange from tens into ones</li> <li>• Subtract 2 three-digit numbers using formal written methods with exchange from tens into ones</li> <li>• Choose an appropriate strategy for a given subtraction calculation</li> <li>• Use a formal written method of addition to make a given criteria, e.g. choose from a set of given numbers to make a total</li> <li>• Use a formal written method of subtraction to make a given criteria, e.g. choose from a set of given numbers to make a difference</li> </ul>
	<b>Multiplication tables (3x and 4x)</b>	<ul style="list-style-type: none"> <li>• Use arrays to understand the multiplication facts for the 3 and 4 multiplication tables (including commutativity)</li> <li>• Identify relationships within a multiplication square</li> <li>• Derive the 4-multiplication table from the 2-multiplication table by using doubling strategies</li> <li>• Understand the relationship between arrays and repeated addition</li> <li>• Represent multiplication as repeated addition on a number line</li> <li>• Derive facts from the 3 and 4 multiplication tables using known facts from the 1, 2, 5 and 10 multiplication tables</li> <li>• Extend number sequences by using an identified rule (counting in 3s, 4s, 10s and 100s)</li> <li>• Use single Venn and one criterion Carroll diagrams to compare and sort numbers</li> </ul>
	<b>Mental and written multiplication</b>	<ul style="list-style-type: none"> <li>• Use partitioning to derive doubles of all numbers to 50</li> <li>• Use an array to represent a teens number multiplied by a single digit number and partition the array into tens and ones to support calculating the product</li> <li>• Use partitioning to calculate a teens number multiplied by a single digit number (grid method)</li> </ul>





	<ul style="list-style-type: none"> <li>Use partitioning to calculate a teens number multiplied by a single digit number (grid method)</li> <li>To solve routine and non-routine problems involving multiplication</li> </ul>
<b>Mental and written division</b>	<ul style="list-style-type: none"> <li>Understand division as sharing and grouping</li> <li>Use concrete or pictorial representations to derive the division facts related to the multiplication facts that they know</li> <li>Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know</li> <li>Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know using greater multiples of the divisor</li> <li>Use concrete materials to show division as repeated subtraction for numbers beyond the multiplication facts that they know including those that have a remainder</li> </ul>
<b>Time</b>	<ul style="list-style-type: none"> <li>Tell and write time on an analogue clock to o'clock, quarter past (15 minutes past), half past (30 minutes past) and quarter to (15 minutes to)</li> <li>Tell and write the time on an analogue clock to 5 minutes – past and to</li> <li>Tell and write the time on an analogue clock to 5 minutes – past and to</li> <li>Tell and write the time on an analogue clock to the nearest minute – past</li> <li>Tell and write the time on an analogue clock to the nearest minute – to</li> <li>Know that there are 60 seconds in a minute</li> <li>Record time in seconds and minutes</li> <li>Compare two time intervals which are in the same unit</li> </ul>
<b>3D Shape</b>	<ul style="list-style-type: none"> <li>Identify and describe the properties of 3-D shapes, including the number of edges, faces and vertices</li> <li>Use construction materials such as Clix or Polydron to make 3-D shapes</li> <li>Make the skeletons of 3-D shapes using straws and Playdoh</li> <li>Identify horizontal and vertical lines</li> <li>Use single Venn and one criterion Carroll diagrams to compare and sort 3-D shapes</li> </ul>

YEAR 3	SPRING	
	Topic	Sequence of Learning
	<b>Number and place value Addition and subtraction</b>	<ul style="list-style-type: none"> <li>Identify the multiples of 100 immediately before and after a given number</li> <li>Round numbers with up to three-digits to the nearest hundred, e.g. 356 rounds to 400</li> <li>Add a number up to three-digits and tens where the tens and hundreds digit changes, e.g. ten more than 397</li> <li>Add a number up to three-digits and ones where the ones, tens and hundreds digit changes, e.g. one more than 499</li> <li>Subtract a number up to three-digits and tens where the tens and hundreds digit changes, e.g. ten less than 407</li> <li>Subtract a number up to three-digits and ones where the ones, tens and hundreds digit changes, e.g. one less than 500</li> <li>Recognise addition calculations that require mental compensation e.g. <math>129 + 49</math> and use this strategy where appropriate</li> <li>Recognise subtraction calculations that require mental compensation e.g. <math>175 - 39</math> and use this strategy where appropriate</li> </ul>
	<b>Multiplication</b>	<ul style="list-style-type: none"> <li>Use partitioning to derive doubles of all numbers to 100.</li> <li>Use arrays to understand the multiplication and division facts for the 8 multiplication table</li> <li>Derive the 8 multiplication table from the 4 multiplication table</li> <li>Use Venn and Carroll diagrams to compare and sort numbers</li> <li>Use concrete materials to model the effect of multiplying a two-digit number by 10</li> <li>Describe the effect of multiplying a two-digit number by ten</li> <li>Multiply a multiple of 10 by a one-digit number, e.g. <math>60 \times 4</math></li> <li>Use partitioning to calculate a two-digit number multiplied by a single digit number using grid method</li> <li>Use rounding to estimate the answer to a calculation</li> <li>Use partitioning to calculate a two-digit number multiplied by a single digit number using grid method</li> <li>Within known tables, use partitioning to multiply T1 by a one-digit number</li> <li>Use rounding to estimate the answer to a calculation</li> <li>Use compensation to multiply 19 by a single digit number</li> <li>Solve positive integer scaling problems</li> <li>Solve correspondence problems in which n objects are connected to m objects. (finding all possibilities)</li> </ul>
	<b>Fractions</b>	<ul style="list-style-type: none"> <li>Recognise fractions of a shape, set of objects or quantity (with small denominators)</li> <li>Recognise and use fractions as numbers (on a bar model and demarcated number line)</li> <li>Estimate the position of a fraction on a number line</li> <li>Use concrete materials to find unit fractions (with denominators of ten or less) of a set of objects</li> <li>Use concrete materials to find non-unit fractions (with denominators of ten or less) of a set of objects</li> </ul>



	<ul style="list-style-type: none"> <li>Use pictorial representations, e.g. bar model, to find unit fractions of a set of objects</li> <li>Use pictorial representations, e.g. bar model, to find non-unit fractions of a set of objects</li> <li>Solve problems involving fractions</li> </ul>
<b>Division</b>	<ul style="list-style-type: none"> <li>Use partitioning to derive and use halves of multiples of 10 where the tens digit is odd</li> <li>Use partitioning to derive and use halves of all even numbers to 100</li> <li>Use a horizontal number line to show division as repeated subtraction including numbers beyond the multiplication facts that they know</li> <li>Use a vertical number line to show division as repeated subtraction including numbers beyond the multiplication facts that they know using greater multiples of the divisor</li> <li>Use a vertical number line to show division as repeated subtraction for numbers beyond the multiplication facts that they know using greater multiples of the divisor (including remainders)</li> <li>Use division to identify unlabelled marks on a scale</li> <li>Read different scales to the nearest whole unit</li> </ul>
<b>Volume, capacity and mass</b>	<ul style="list-style-type: none"> <li>Estimate, measure and compare the volume/capacity of different containers</li> <li>Find the difference between the volume/capacities of containers</li> <li>Measure and add the volume/capacity of different containers</li> <li>Estimate, measure and compare the mass of different objects</li> <li>Find the difference between the masses of objects</li> <li>Measure and add the mass of different objects</li> </ul>
<b>2D Shape</b>	<ul style="list-style-type: none"> <li>Recognise angles as a description of a turn</li> <li>Recognise quarter, half, three-quarter and full turns from different starting points as an appropriate number of right angles</li> <li>Recognise where sides meet at a vertex in a shape that an angle is created</li> <li>Recognise a drawn right angle when presented in any orientation</li> <li>Identify pairs of perpendicular and parallel lines</li> <li>Sort 2-D shapes according to their properties - Venn with two intersecting sets and two criteria Carroll diagrams (perpendicular, parallel, right angles)</li> <li>Draw 2-D shapes with specific properties (perpendicular, parallel, right angles)</li> </ul>
<b>Addition and subtraction Statistics</b>	<ul style="list-style-type: none"> <li>Add two numbers with three digits using formal written methods of columnar addition with exchange from ones into tens and tens into hundreds, e.g. <math>468 + 356</math></li> <li>Use rounding to estimate, and inverse to check, the answer to a calculation</li> <li>Subtract numbers with three digits using formal written methods of columnar subtraction with exchange from tens into ones and hundreds into tens, e.g. <math>426 - 357</math></li> <li>Use rounding to estimate, and inverse to check, the answer to a calculation</li> <li>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</li> <li>Present data using bar charts with a scale in fives or tens</li> <li>Select the most appropriate scale when representing data in a bar chart</li> <li>Interpret information in a bar chart to solve two-step questions</li> <li>Select the most appropriate key when representing data in a pictogram</li> <li>Interpret information in a pictogram to solve two-step questions</li> </ul>
<b>Fractions</b>	<ul style="list-style-type: none"> <li>Show practically or pictorially that a fraction is one whole number divided by another</li> <li>Use pictorial representations, including the number line, to compare and order fractions with the same denominator</li> <li>Use pictorial representations to compare and order unit fractions</li> <li>Use concrete and pictorial representations to recognise where fractions are equivalent</li> <li>Add fractions to make one whole</li> <li>Subtract fractions from one whole</li> <li>Add fractions with the same denominator within one whole</li> <li>Subtract fractions with the same denominator within one whole</li> <li>Add and subtract fractions with the same denominator within one whole</li> </ul>
<b>Position and direction (linked to fractions)</b>	<ul style="list-style-type: none"> <li>Describe positions on a square grid labelled with letters and numbers</li> <li>Use a grid to describe position, direction and movement in a straight line</li> <li>Use a grid to describe position, direction, movement and turn</li> </ul>
<b>Time</b>	<ul style="list-style-type: none"> <li>Tell the time on an analogue clock for minutes past and to, e.g. 33 minutes past 4 and 27 minutes to 5</li> <li>Tell the time on a digital clock to the nearest minute and know whether this is before or after midday</li> <li>Solve time problems working within the hour boundary</li> <li>Solve time problems working across the hour boundary</li> <li>Solve calendar problems working across the month boundary</li> </ul>



YEAR 3 SUMMER	
Topic	Sequence of Learning
<b>Addition and subtraction</b>	<ul style="list-style-type: none"> <li>Add more than two numbers with three digits using formal written methods of columnar addition with exchange from ones into tens and tens into hundreds including when the 'carried' amount has more than one ten e.g. <math>326 + 147 + 219</math>. Include adding more than two numbers with different amounts of digits, e.g. <math>268 + 34 + 356</math></li> <li>Use rounding to estimate, and inverse to check, the answer to a calculation</li> <li>Identify missing digits in columnar addition calculations</li> <li>Subtract numbers with different numbers of digits up to three digits, using formal written methods of columnar subtraction with exchange from tens into ones and hundreds into tens, e.g. <math>334 - 68</math> using the place value columns to set the calculation out correctly. Include examples with zero used as a place holder, e.g. <math>304 - 168</math></li> <li>Use rounding to estimate, and inverse to check, the answer to a calculation</li> <li>Identify missing digits in columnar subtraction calculations</li> <li>Recognise addition calculations that require bridging through a multiple of 10 or 100 efficiently</li> <li>Recognise subtraction calculations that require bridging through a multiple of 10 or 100 efficiently</li> <li>Recognise calculations that require counting on mentally to find the difference</li> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved</li> </ul>
<b>Multiplication and division</b>	<ul style="list-style-type: none"> <li>Describe and extend number sequences involving counting on or back in different steps (including 4, 8, 50 and 100)</li> <li>Identify and describe the rule in a number sequence by calculating the step size between non-adjacent numbers in the sequence</li> <li>Use the grid method to solve a two-digit by one-digit multiplication</li> <li>Use rounding to estimate the answer to a calculation</li> <li>Use the grid method to solve multiplication problems including positive integer scaling problems</li> <li>Use rounding to estimate the answer to a calculation</li> <li>Identify missing numbers in grid method calculations</li> <li>Choose an appropriate strategy to solve a multiplication calculation based upon the numbers involved</li> <li>Use a vertical number line to show division as repeated subtraction for numbers beyond the multiplication facts that they know using repeated greater multiples of the divisor (include remainders)</li> <li>Use rounding to estimate the answer to a calculation</li> <li>Use a vertical number line to show division as repeated subtraction for numbers beyond the multiplication facts that they know using efficient greater multiples of the divisor (include remainders)</li> <li>Use rounding to estimate the answer to a calculation</li> <li>Solve division problems that require the interpretation of remainders</li> <li>Choose an appropriate strategy to solve a division calculation based upon the numbers involved</li> </ul>
<b>2D Shape</b>	<ul style="list-style-type: none"> <li>Identify whether an angle is greater or less than a right angle</li> <li>Accurately draw 2-D shapes with specific properties (including angles)</li> <li>Measure the perimeter of simple polygons by measuring each side using a ruler and calculating the total</li> </ul>
<b>Decimal place value</b>	<ul style="list-style-type: none"> <li>Use concrete representations, e.g. straws, to understand the relationship between fractional tenths and decimal tenths</li> <li>Identify the value of each digit to one decimal place</li> <li>Know the decimal point separates whole numbers and decimal fractions</li> <li>Use concrete representations, e.g. place value counters, to understand the relationship between fractional tenths and decimal tenths</li> <li>Divide a one-digit number by 10 and describe the effect using a place value chart.</li> <li>Count up and down in fractional and decimal tenths</li> <li>Identify fractional and decimal tenths on number lines</li> <li>Compare numbers with one decimal place</li> <li>Order numbers with one decimal place</li> </ul>
<b>3D Shape</b>	<ul style="list-style-type: none"> <li>Recognise and describe 3-D shapes in different orientations, e.g. Which of these shapes has five faces?</li> <li>Sort 3-D shapes according to their properties - Venn with two intersecting sets and two criteria Carroll diagrams</li> </ul>
<b>Place value</b>	<ul style="list-style-type: none"> <li>Read Roman numerals from I to XII</li> <li>Estimate and place numbers on a range of number lines</li> <li>Estimate and place numbers on a range of number lines</li> <li>Read scales for mass, volume/capacity and temperature</li> <li>Solve non-routine problems involving rounding</li> </ul>
<b>Calculation</b>	<ul style="list-style-type: none"> <li>Estimate the answer to a calculation (all four operations)</li> <li>Choose and use an appropriate strategy to solve a variety of calculations</li> <li>Solve one and two step problems involving money</li> <li>Use bar modelling to solve addition and subtraction problems</li> <li>Use inverse operations to check answers</li> <li>Use bar modelling to solve multiplication and division problems Use inverse operations to check answers</li> </ul>
<b>Fractions</b>	<ul style="list-style-type: none"> <li>Identify fractions with the same denominators on a number line (marked and unmarked)</li> </ul>



Ellel St. John's CofE Primary School **Year 3 Maths Curriculum**

		<ul style="list-style-type: none"><li>• Compare and order fractions with the same denominators</li><li>• Compare and order unit fractions by positioning them including on a number line</li><li>• Recognise and show, using diagrams, equivalent fractions with small denominators – applying in different contexts</li><li>• Use pictorial representations, e.g. bar model, to find non-unit fractions of a set of objects beyond multiplication table knowledge (using a multiplication grid)</li></ul>
	<b>Statistics</b>	<ul style="list-style-type: none"><li>• Pose a question and identify what data to collect to answer the question</li><li>• Collect and record data</li><li>• Present data in a bar chart with an appropriate scale</li><li>• Present data in a pictogram with an appropriate key</li><li>• Use and interpret data from bar charts and pictograms to answer questions</li><li>• Compare and evaluate representations of data</li><li>• Solve problems involving statistics (convert between different representations, incomplete sets of data, matching tables to graphs etc.)</li></ul>
	<b>Time</b>	<ul style="list-style-type: none"><li>• Record and compare time in terms of seconds, minutes and hours</li><li>• Tell and write the time from an analogue clock including using Roman numerals</li><li>• Tell and write the time from a 12 hour digital clock</li><li>• Solve problems involving time</li></ul>