

## The LIFE Colchester Curriculum for Maths



## Years 1 and 2

### Subject Intent Statement

The Colchester School's Primary Maths Curriculum allows our children to learn in small, concise steps, enabling them to achieve fluency and understanding using the White Rose scheme.

All children are given the opportunities and support to become confident and successful mathematicians. Skills covered within their learning encourages children to achieve more within the next stage(s) of their education. The use of manipulatives within our curriculum compliments the concrete, pictorial and abstract opportunities to explore maths, supporting high quality teaching.

The Colchester Schools' Primary Maths Curriculum enables our children to make progress using carefully thought-out tasks and skilfully planned questioning. We ensure pupils progress together; tasks are designed with boundless creativity in mind to allow for both fluency and reasoning challenges to deepen their understanding of concepts and procedures. Daily starter tasks which include both fluency and reasoning questions ensure knowledge is regularly consolidated and revisited. Children complete regular independent challenges to inform teaching and assessments. During lessons, the children are encouraged to work compassionately together, either in pairs or as part of working groups, to help support the learning of the children in their community.

In summary, our spiral curriculum enables the chance to be optimistic, with the opportunity of challenge with no ceiling, allowing the children to have high aspirations and achieve to the best of their abilities and giving them the platform to succeed in the next step of their educational journey and leave The Colchester Schools with a life-long appetite for Maths.

Topic	Key knowledge	Skills Progression		Vocabulary	Rationale
<p><b>Place Value</b></p>	<p>In Year 1, children will continue to develop the strong grounding in number begun in the EYFS. They will build on their understanding of numbers to 10, the relationships between them and the patterns within these numbers, focusing on being able to count confidently to and beyond 100, as well as write these numbers in numerals. It is essential that children continue to have frequent and varied opportunities to build and apply their understanding in a range of contexts and using concrete resources and pictorial representations.</p> <p>In Year 2, children will begin to hone their understanding of place value, representing numbers in various ways and recognising the value of each digit in a number with up to two digits. They will build on the language used for comparing and ordering numbers introduced in Reception and Year 1 and begin to use the <math>&gt;</math>, <math>&lt;</math> and <math>=</math> signs to express these ideas. They will begin to apply their knowledge of place value and number facts to solve problems.</p>	<p><u>Year 1</u></p> <ul style="list-style-type: none"> <li>Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.</li> <li>Count, read and write numbers to 100 in numerals.</li> <li>Count in multiples of twos, fives and tens.</li> <li>Given a number, identify one more and one less.</li> <li>Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.</li> <li>Read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<p><u>Year 2</u></p> <ul style="list-style-type: none"> <li>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.</li> <li>Recognise the place value of each digit in a two-digit number (tens, ones).</li> <li>Identify, represent and estimate numbers using different representations, including the number line.</li> <li>Compare and order numbers from 0 up to 100; use <math>&gt;</math>, <math>&lt;</math> and <math>=</math> signs.</li> <li>Read and write numbers to at least 100 in numerals and in words.</li> <li>Use place value and number facts to solve problems.</li> </ul>	<p>count</p> <p>order</p> <p>compare</p> <p>forwards</p> <p>backwards</p> <p>numerals</p> <p>digit</p> <p>one more</p> <p>one less</p> <p>equal to</p> <p>sort</p> <p>represent</p> <p>multiples</p> <p>partitioning</p> <p>ones</p> <p>tens</p>	<p>Place value is taught as part of the National Curriculum.</p> <p>Place value is the most important concept when teaching mathematics; it underpins the rest of the curriculum and provides an essential foundation of mathematical understanding.</p> <p>It is crucial that learners have a secure understanding of place value, otherwise they will face issues trying to access the rest of the mathematics curriculum.</p> <p>Each class begins the academic year with a block of teaching on this area to ensure learners are ready to progress.</p>

<p><b>Addition and Subtraction</b></p>	<p>In Year 1, children will build on their knowledge of number bonds to 5 and 10 to recall number bonds to 20 and related subtraction facts. They will begin to express and interpret addition and subtraction calculations using appropriate mathematical symbols.</p> <p>In both Year 1 and 2, children will begin to solve a range of addition and subtraction problems, using concrete objects and pictorial representations to support their understanding. In Year 2, these will draw on pupils' wider knowledge of quantities and measures, and provide opportunities to secure their knowledge of written methods for addition and subtraction.</p> <p>In Year 2, pupils will develop increased fluency with addition and subtraction facts to 20, then apply this knowledge to deriving number bonds to 100. They will explore the idea that addition is commutative, while subtraction is not, and learn how the inverse relationship between addition and subtraction can be used to check calculations and solve problems.</p>	<p><u>Year 1</u></p> <ul style="list-style-type: none"> <li>● Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs.</li> <li>● Represent and use number bonds and related subtraction facts within 20;</li> <li>● Add and subtract one-digit and two-digit numbers to 20, including zero.</li> <li>● Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = ? - 9</math>.</li> </ul>	<p><u>Year 2</u></p> <ul style="list-style-type: none"> <li>● Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures, and applying their increasing knowledge of mental and written methods.</li> <li>● Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.</li> <li>● Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers, adding three one-digit numbers.</li> </ul>	<p>add</p> <p>addition</p> <p>subtract</p> <p>subtraction</p> <p>difference</p> <p>equals</p> <p>facts</p> <p>inverse</p> <p>sum</p> <p>commutative</p> <p>2 digit-number</p>	<p>Addition and subtraction are taught as part of the National Curriculum.</p> <p>The related concepts of addition and subtraction have real-life application for the children, e.g. going to the shops with grown-ups and work out how much their X-Box game cost, figuring out how many squares to move in a board game and calculating how many football stickers you will have left.</p> <p>Learning addition and subtraction allows pupils to apply their place value knowledge in context, demonstrating that they have a secure understanding of the composition of numbers.</p>
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<p><b>Multiplication and division</b></p>	<p>In Year 1, pupils begin to explore concepts of multiplication and division through grouping and sharing small quantities. They start to make connections between arrays, number patterns and counting in twos, fives and tens.</p> <p>In Year 2, pupils are introduced to multiplication tables for the first time, developing fluency with the 2, 5 and 10 times tables and investigating patterns and relationships. They begin to use and recall facts for other multiplication tables, and to use these to solve multiplication and division calculations. They explore the link between</p>	<p><u>Year 1</u></p> <ul style="list-style-type: none"> <li>● Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</li> </ul>	<p><u>Year 2</u></p> <ul style="list-style-type: none"> <li>● Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</li> <li>● Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs.</li> </ul>	<p>Multiplication</p> <p>Division</p> <p>Arrays</p> <p>Commutative</p> <p>Multiplication tables</p> <p>Repeated addition</p>	<p>Multiplication and division are taught as part of the National Curriculum.</p> <p>As with addition and subtraction, multiplication and division have various real-life uses which makes this topic an essential and exciting one.</p> <p>Due to the link between multiplication and repeated addition, this topic naturally allows the journey to continue from learning about addition and subtraction. Without a solid understanding of these operations, children</p>

	<p>multiplication and repeated addition, and apply their knowledge in various real-life contexts, including measures and grouping and sharing objects.</p>		<ul style="list-style-type: none"> <li>● Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</li> <li>● Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>		<p>will be unable to succeed in more advanced mathematical concepts, such as fractions, which they will cover later in the year.</p> <p>Building their understanding of multiplication tables, identifying relationships and describing patterns will underpin work on algebra in Upper KS2.</p>
<p><b>Fractions</b></p>	<p>In Year 1, pupils are introduced to the concept of finding <math>\frac{1}{2}</math> and <math>\frac{1}{4}</math> using shapes, objects and quantities.</p> <p>In Year 2, pupils are introduced to a greater range of fractions, including their first examples of non-unit fractions, e.g. <math>\frac{3}{4}</math>. They continue to explore the concept of fractions as equal parts of a quantity, set of objects or shape. They begin to solve real-life problems involving fractions.</p>	<p><u>Year 1</u></p> <ul style="list-style-type: none"> <li>● Recognise, find and name a half as one of two equal parts of an object, shape or quantity.</li> <li>● Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</li> </ul>	<p><u>Year 2</u></p> <ul style="list-style-type: none"> <li>● Recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity.</li> <li>● Write simple fractions, for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{1}{2}</math> and <math>\frac{2}{4}</math>.</li> </ul>	<p>Whole</p> <p>Half</p> <p>Quarter</p> <p>Equal parts</p> <p>Three quarters</p> <p>Third</p> <p>Equivalents fractions</p> <p>Unit fraction</p> <p>Non-unit fraction</p>	<p>Fractions is taught as part of the National Curriculum.</p> <p>The fractions topic naturally follows on from the learning on multiplication and division, as pupils need to have a secure understanding of sharing and grouping in order to understand that fractions are always equal parts of a set or quantity.</p> <p>This topic will be one of the children's first experiences of a mathematical concept</p>

				Numerator Denominator One whole	beyond the four operations of addition, subtraction, multiplication and division, and it clearly builds on the skills and understanding they have accrued whilst studying these topics.
<b>Measure (length, height, weight and capacity)</b>	<p>In Year 1, children move on from using non-standard units of measure, e.g. the pencil is as long as four cubes, to using manageable common standard units.</p> <p>They begin to familiarise themselves with using rulers, weighing scales and other measuring tools. The concept of telling the time should be embedded throughout the school day as well as being taught discretely, e.g. 'It's half past 10 so it's time for assembly.'</p> <p>In Year 2, pupils continue to build their confidence with choosing and using appropriate standard units of measure and using measuring tools, becoming more accurate in reading different scales. They apply their knowledge of place value to compare and order measurements using inequality symbols, and solve simple, practical problems. They build on their understanding of the money</p>	<u>Year 1</u> <ul style="list-style-type: none"> <li>● Compare, describe and solve practical problems for length and height, mass and weight, capacity and volume, and time.</li> <li>● Measure and begin to record length and height, mass and weight, capacity and volume, and time.</li> <li>● Recognise and know the value of different denominations of coins and notes.</li> <li>● Sequence events in chronological order using appropriate language.</li> <li>● Recognise and use language relating to dates, including days of the week, weeks, months and years.</li> <li>● Tell the time to the hour and half past the hour, and show these times by drawing hands on a clock.</li> </ul>	<u>Year 2</u> <ul style="list-style-type: none"> <li>● Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.</li> <li>● Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =.</li> <li>● Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</li> <li>● Find different combinations of coins</li> </ul>	Compare Estimate Order Centimetre Metre Kilogram Gram Quarter Three quarters Litres Millimetres Temperature Celsius Month Year O'clock	<p>Measure is taught as part of the National Curriculum.</p> <p>Understanding how measurement works is crucial to being able to quantify the world around us - the skills pupils will begin to develop in this topic will go on to help them in everyday life well beyond primary school.</p> <p>Children continue to contextualise their understanding of the four operations by applying them to real-life contexts and practical activities, simultaneously developing their problem-solving skills.</p>

	<p>system to combine amounts to make different values, recognising that different combinations can be used to make the same amount; the practise using the £ and p symbols. Children move onto telling the time to the nearest quarter hour and then five minutes.</p>		<p>that equal the same amounts of money.</p> <ul style="list-style-type: none"> <li>● Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</li> <li>● Compare and sequence intervals of time.</li> <li>● Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.</li> <li>● Know the number of minutes in an hour and the number of hours in a day.</li> </ul>	<p>Half past</p> <p>Second</p> <p>Interval</p> <p>Quarter past/to</p> <p>Duration</p> <p>Pounds</p> <p>Pence</p> <p>Coins</p> <p>Notes</p> <p>Value</p> <p>change</p>	
<p><b>Geometry – Properties of Shape</b></p>	<p>In Year 1, pupils begin to recognise common 2-D and 3-D shapes, relating them to everyday objects. They recognise that a shape can be represented in different orientations or sizes, and that, for example, one square may not look exactly like another square.</p>	<p><u>Year 1</u></p> <ul style="list-style-type: none"> <li>● Recognise and name common 2-D and 3-D shapes.</li> </ul>	<p><u>Year 2</u></p> <ul style="list-style-type: none"> <li>● Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</li> <li>● Identify and describe the properties of 3-D shapes, including the</li> </ul>	<p>Sides</p> <p>Corners</p> <p>Properties</p> <p>Pyramids</p> <p>Faces</p> <p>Pentagon</p>	<p>Geometry is taught as part of the National Curriculum.</p> <p>As with measure, understanding geometry gives pupils the language they need to be able to make sense of the world around them and the objects they come across in their everyday lives.</p>

	<p>In Year 2, pupils build on their knowledge of 2-D and 3-D shapes and begin to describe their properties using mathematical language, although they continue to relate the shapes they are working with to everyday objects.</p>		<p>number of edges, vertices and faces.</p> <ul style="list-style-type: none"> <li>Identify 2-D shapes on the surface of 3-D shapes, e.g. a cuboid has both square and rectangular faces.</li> <li>Compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>	<p>Hexagon</p> <p>Lines of symmetry</p> <p>Properties</p> <p>Cylinder</p> <p>Edges</p> <p>Vertices</p> <p>Vertex</p>	<p>Discussing and categorising different shapes helps to develop problem-solving skills and improves children's ability to organise visual information. By convincing a partner that a shape cannot be a triangle because it has four sides, for instance, pupils practise their logical thinking and reasoning skills.</p> <p>Pupils will continue to use their skills in addition, subtraction, multiplication and division to solve problems.</p>
<p><b>Geometry – Position and Direction</b></p>	<p>Pupils in Year 1 will use the language of position, direction and motion and practise making given turns. They connect turning clockwise with the movements of the hands on a clock.</p> <p>In Year 2, pupils should work with patterns of shapes, including those in different orientations. Pupils use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots</p>	<p><u>Year 1</u></p> <ul style="list-style-type: none"> <li>Describe position, direction and movement, including whole, half, quarter and three-quarter turns.</li> </ul>	<p><u>Year 2</u></p> <ul style="list-style-type: none"> <li>Order and arrange combinations of mathematical objects in patterns and sequences.</li> <li>Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and</li> </ul>	<p>Position</p> <p>Direction</p> <p>Movement</p> <p>Whole turn</p> <p>Quarter turn</p> <p>Half turn</p> <p>Three-quarter turn</p> <p>Clock-wise</p>	<p>Geometry is taught as part of the National Curriculum.</p> <p>The study of positional language supports pupils in being able to respond to and give directions. As they move up the school, a secure grasp of this topic will enable pupils to understand more complex mathematical concepts including angles, coordinates and transformation. They will also apply their understanding to learning to code in computing.</p>

	using instructions given in right angles). Teachers should create opportunities for children to explore these ideas outside, and also incorporate the use of positional language into everyday conversation and instruction to consolidate pupils' understanding.		three-quarter turns (clockwise and anticlockwise).	Anti-clockwise Straight line Rotation Arrange Sequences	This block builds directly on pupils' learning about properties of shapes.
<b>Statistics</b>	<p>Pupils record, interpret, collate, organise and compare information. Pupils start by constructing and interpreting simple pictograms, tally charts, block diagrams and tables. They ask questions and answer problems related to these graphs and in doing so, reinforce their work on place value and the four rules. When it comes to pictograms, pupils understand that a simple picture is used to represent data. They may interpret them by counting in 2s, 5s and 10s, depending on their progress in other topics. They also use their ability to count in 5s to help them to find totals for categories in simple tally charts.</p> <p>More widely, pupils answer simple questions by counting the number of objects in specific categories, which they can sort by quantity. For example, given a tally chart detailing the favourite</p>		<p><u>Year 2</u></p> <ul style="list-style-type: none"> <li>● Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</li> <li>● Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</li> <li>● Ask and answer questions about totalling and comparing categorical data.</li> </ul>	Pictograms Tally chart Block diagram Category Sorting Totalling Comparing Horizontal Vertical	<p>Statistics is taught as part of the National Curriculum.</p> <p>The study of statistics offers an opportunity to reinforce pupils' understanding of number, place value and the four operations in the solving of problems. Pupils construct and interpret graphs and charts using real-life examples related to their own experiences, and make the most of using them in other areas of the curriculum, e.g. science.</p> <p>This block gives pupils the opportunity to apply their work on the four operations in a variety of contexts in order to interpret different types of charts and graphs and to pose their own questions.</p>

	ice-cream flavours of a group of children, they work out which flavour is the most liked.				Covering this content at this point in the year also ensures that pupils will be able to confidently apply their skills in constructing and interpreting charts and graphs in their science work across the year.
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