



### Becoming a Mathematician at Rimrose Hope

"The laws of nature are but the mathematical thoughts of God."

Euclid, Greek mathematician, often referred to as the "father of geometry".

A Year 1 Rimrose Hope mathematician will:	A Year 2 Rimrose Hope mathematician will:
<p>Number - number and place value</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; 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>Number - number and place value</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 and = 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>Number - addition and subtraction</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>Number - addition and subtraction</p> <ul style="list-style-type: none"> <li>○ solve problems with addition and subtraction:               <ul style="list-style-type: none"> <li>*using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>*applying their increasing knowledge of mental and written methods</li> </ul> </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:               <ul style="list-style-type: none"> <li>* a two-digit number and ones</li> <li>* a two-digit number and tens</li> <li>* two two-digit numbers</li> <li>* adding three one-digit numbers</li> </ul> </li> <li>○ show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> <li>○ recognise and use the inverse relationship between addition and</li> </ul>



	subtraction and use this to check calculations and solve missing number problems.
Number - multiplication and division	Number - multiplication and division
<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>	<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> <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>
Number - fractions	Number - fractions
<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>	<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 <math>6 = 3</math> and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</li> </ul>
Measurement	Measurement
<ul style="list-style-type: none"> <li>○ compare, describe and solve practical problems for: <ul style="list-style-type: none"> <li>* lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li>* mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li>* capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> <li>* time [for example, quicker, slower, earlier, later]</li> </ul> </li> <li>○ measure and begin to record the following: <ul style="list-style-type: none"> <li>* lengths and heights</li> <li>* mass/weight</li> <li>* capacity and volume</li> <li>* time (hours, minutes, seconds)</li> </ul> </li> <li>○ recognise and know the value of different denominations of coins and</li> </ul>	<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 (<math>^{\circ}\text{C}</math>); 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 <math>&gt;</math>, <math>&lt;</math> and <math>=</math></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 that equal the same amounts of money</li> <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> </ul>



<p>notes</p> <ul style="list-style-type: none"> <li>○ sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</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 draw the hands on a clock face to show these times.</li> </ul>	<ul style="list-style-type: none"> <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><b>Geometry - properties of shapes</b></p>	<p><b>Geometry - properties of shapes</b></p>
<ul style="list-style-type: none"> <li>○ recognise and name common 2-D and 3-D shapes, including: *2-D shapes [for example, rectangles (including squares), circles and triangles] *3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</li> </ul>	<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 number of edges, vertices and faces</li> <li>○ identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li> <li>○ compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>
<p><b>Geometry - position and direction</b></p>	<p><b>Geometry - position and direction</b></p>
<ul style="list-style-type: none"> <li>○ describe position, direction and movement, including whole, half, quarter and three-quarter turns.</li> </ul>	<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 three-quarter turns (clockwise and anticlockwise).</li> </ul>
	<p><b>Statistics</b></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>



### Becoming a Mathematician at Rimrose Hope

"Mathematics reveals its secrets only to those who approach it with pure love, for its own beauty."

Archimedes, Greek mathematician, physicist, engineer, inventor, and astronomer.

A Year 3 Rimrose Hope mathematician will:	A Year 4 Rimrose Hope mathematician will:
<b>Number - number and place value</b> <ul style="list-style-type: none"><li>○ count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</li><li>○ recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li><li>○ compare and order numbers up to 1000</li><li>○ identify, represent and estimate numbers using different representations</li><li>○ read and write numbers up to 1000 in numerals and in words</li><li>○ solve number problems and practical problems involving these ideas.</li></ul>	<b>Number - number and place value</b> <ul style="list-style-type: none"><li>○ count in multiples of 6, 7, 9, 25 and 1000</li><li>○ find 1000 more or less than a given number</li><li>○ count backwards through zero to include negative numbers</li><li>○ recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</li><li>○ order and compare numbers beyond 1000</li><li>○ identify, represent and estimate numbers using different representations</li><li>○ round any number to the nearest 10, 100 or 1000</li><li>○ solve number and practical problems that involve all of the above and with increasingly large positive numbers</li><li>○ read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</li></ul>
<b>Number - addition and subtraction</b> <ul style="list-style-type: none"><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>	<b>Number - addition and subtraction</b> <ul style="list-style-type: none"><li>○ add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li><li>○ estimate and use inverse operations to check answers to a calculation</li><li>○ solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li></ul>
<b>Number - multiplication and division</b> <ul style="list-style-type: none"><li>○ recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li></ul>	<b>Number - multiplication and division</b> <ul style="list-style-type: none"><li>○ recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li></ul>



<ul style="list-style-type: none"> <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>○ solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</li> </ul>	<ul style="list-style-type: none"> <li>○ use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</li> <li>○ recognise and use factor pairs and commutativity in mental calculations</li> <li>○ multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li>○ solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</li> </ul>
<p>Number - fractions</p>	<p>Number - fractions (including decimals)</p>
<ul style="list-style-type: none"> <li>○ count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</li> <li>○ recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators</li> <li>○ recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</li> <li>○ recognise and show, using diagrams, equivalent fractions with small denominators</li> <li>○ add and subtract fractions with the same denominator within one whole [for example, <math>5/7 + 1/7 = 6/7</math> ]</li> <li>○ compare and order unit fractions, and fractions with the same denominators</li> <li>○ solve problems that involve all of the above.</li> </ul>	<ul style="list-style-type: none"> <li>○ recognise and show, using diagrams, families of common equivalent fractions</li> <li>○ count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten</li> <li>○ solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number</li> <li>○ add and subtract fractions with the same denominator</li> <li>○ recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>○ recognise and write decimal equivalents to <math>1/4</math>, <math>\frac{1}{2}</math>, <math>3/4</math></li> <li>○ find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</li> <li>○ round decimals with one decimal place to the nearest whole number</li> <li>○ compare numbers with the same number of decimal places up to two decimal places</li> <li>○ solve simple measure and money problems involving fractions and decimals to two decimal places</li> </ul>
<p>Measurement</p>	<p>Measurement</p>
<ul style="list-style-type: none"> <li>○ measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g);</li> </ul>	<ul style="list-style-type: none"> <li>○ Convert between different units of measure [for example, kilometre to</li> </ul>



<p>volume/capacity (l/ml)</p> <ul style="list-style-type: none"> <li>○ measure the perimeter of simple 2-D shapes</li> <li>○ add and subtract amounts of money to give change, using both £ and p in practical contexts</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 and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and 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> </ul>	<p>metre; hour to minute.]</p> <ul style="list-style-type: none"> <li>○ measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</li> <li>○ find the area of rectilinear shapes by counting squares</li> <li>○ estimate, compare and calculate different measures, including money in pounds and pence</li> </ul>
<p><b>Geometry - properties of shapes</b></p>	<p><b>Geometry - properties of shapes</b></p>
<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>	<ul style="list-style-type: none"> <li>○ compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> <li>○ identify acute and obtuse angles and compare and order angles up to two right angles by size</li> <li>○ identify lines of symmetry in 2-D shapes presented in different orientations</li> <li>○ complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>
	<p><b>Geometry - position and direction</b></p>
	<ul style="list-style-type: none"> <li>○ describe positions on a 2-D grid as coordinates in the first quadrant</li> <li>○ describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>○ plot specified points and draw sides to complete a given polygon</li> </ul>
<p><b>Statistics</b></p>	<p><b>Statistics</b></p>
<ul style="list-style-type: none"> <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</li> </ul>	<ul style="list-style-type: none"> <li>○ interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</li> <li>○ solve comparison, sum and difference problems using information</li> </ul>



and pictograms and tables.

presented in bar charts, pictograms, tables and other graphs.

**Becoming a Mathematician at Rimrose Hope**

**"Pure Mathematics is, in its way, the poetry of logical ideas."**

**Albert Einstein, physicist.**

A Year 5 Rimrose Hope mathematician will:	A Year 6 Rimrose Hope mathematician will:
<p>Number - number and place value</p> <ul style="list-style-type: none"> <li>○ read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</li> <li>○ count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</li> <li>○ interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>○ round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</li> <li>○ solve number problems and practical problems that involve all of the above</li> <li>○ read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> </ul>	<p>Number - number and place value</p> <ul style="list-style-type: none"> <li>○ read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</li> <li>○ round any whole number to a required degree of accuracy</li> <li>○ use negative numbers in context, and calculate intervals across zero</li> <li>○ solve number and practical problems that involve all of the above</li> </ul>
<p>Number - addition and subtraction</p> <ul style="list-style-type: none"> <li>○ add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</li> <li>○ add and subtract numbers mentally with increasingly large numbers</li> <li>○ use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</li> <li>○ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> </ul>	<p>Number - addition, subtraction, multiplication and division</p> <ul style="list-style-type: none"> <li>○ multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>○ divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</li> <li>○ divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting</li> </ul>
<p>Number - multiplication and division</p>	



<ul style="list-style-type: none"><li>○ identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</li><li>○ know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers</li><li>○ establish whether a number up to 100 is prime and recall prime numbers up to 19</li><li>○ multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</li><li>○ multiply and divide numbers mentally drawing upon known facts</li><li>○ divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context</li><li>○ multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</li><li>○ recognise and use square numbers and cube numbers, and the notation for squared (<sup>2</sup>) and cubed (<sup>3</sup>)</li><li>○ solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</li><li>○ solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</li><li>○ solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</li></ul>	<p>remainders according to the context</p> <ul style="list-style-type: none"><li>○ perform mental calculations, including with mixed operations and large numbers</li><li>○ identify common factors, common multiples and prime numbers</li><li>○ use their knowledge of the order of operations to carry out calculations involving the four operations</li><li>○ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li><li>○ solve problems involving addition, subtraction, multiplication and division</li><li>○ use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li></ul>
Number - fractions (including decimals and percentages)	Number - fractions (including decimals and percentages)
<ul style="list-style-type: none"><li>○ compare and order fractions whose denominators are all multiples of the same number</li><li>○ identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</li><li>○ recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [for example, <math>2/5 + 4/5 = 6/5 = 1\ 1/5</math> ]</li></ul>	<ul style="list-style-type: none"><li>○ use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li><li>○ compare and order fractions, including fractions <math>&gt; 1</math></li><li>○ add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li><li>○ multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>1/4 \times 1/2 = 1/8</math> ]</li></ul>



<ul style="list-style-type: none"> <li>○ add and subtract fractions with the same denominator and denominators that are multiples of the same number</li> <li>○ multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>○ read and write decimal numbers as fractions [for example, <math>0.71 = \frac{71}{100}</math> ]</li> <li>○ recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> <li>○ round decimals with two decimal places to the nearest whole number and to one decimal place</li> <li>○ read, write, order and compare numbers with up to three decimal places</li> <li>○ solve problems involving number up to three decimal places</li> <li>○ recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</li> <li>○ solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math> , <math>\frac{1}{4}</math> , <math>\frac{1}{5}</math> , <math>\frac{2}{5}</math> , <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul>	<ul style="list-style-type: none"> <li>○ divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math> ]</li> <li>○ associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math> ]</li> <li>○ identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</li> <li>○ multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>○ use written division methods in cases where the answer has up to two decimal places</li> <li>○ solve problems which require answers to be rounded to specified degrees of accuracy</li> <li>○ recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> </ul>
<p><b>Measurement</b></p>	<p><b>Measurement</b></p>
<ul style="list-style-type: none"> <li>○ convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</li> <li>○ understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</li> <li>○ measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>○ calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (<math>\text{cm}^2</math> ) and square metres (<math>\text{m}^2</math> ) and estimate the area of irregular shapes</li> <li>○ estimate volume [for example, using <math>1 \text{ cm}^3</math> blocks to build cuboids (including cubes)] and capacity [for example, using water]</li> <li>○ solve problems involving converting between units of time</li> </ul>	<ul style="list-style-type: none"> <li>○ solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> <li>○ use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</li> <li>○ convert between miles and kilometres</li> <li>○ recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>○ recognise when it is possible to use formulae for area and volume of shapes</li> <li>○ calculate the area of parallelograms and triangles</li> </ul>



<ul style="list-style-type: none"> <li>○ use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</li> </ul>	<ul style="list-style-type: none"> <li>○ calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>].</li> </ul>
<b>Geometry - properties of shapes</b>	<b>Geometry - properties of shapes</b>
<ul style="list-style-type: none"> <li>○ identify 3-D shapes, including cubes and other cuboids, from 2-D representations</li> <li>○ know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</li> <li>○ draw given angles, and measure them in degrees (°)</li> <li>○ identify:               <ul style="list-style-type: none"> <li>*angles at a point and one whole turn (total 360°)</li> <li>*angles at a point on a straight line and <math>\frac{1}{2}</math> a turn (total 180°)</li> <li>*other multiples of 90°</li> </ul> </li> <li>○ use the properties of rectangles to deduce related facts and find missing lengths and angles</li> <li>○ distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>	<ul style="list-style-type: none"> <li>○ draw 2-D shapes using given dimensions and angles</li> <li>○ recognise, describe and build simple 3-D shapes, including making nets</li> <li>○ compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</li> <li>○ illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> <li>○ recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> </ul>
<b>Geometry - position and direction</b>	<b>Geometry - position and direction</b>
<ul style="list-style-type: none"> <li>○ identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</li> </ul>	<ul style="list-style-type: none"> <li>○ describe positions on the full coordinate grid (all four quadrants)</li> <li>○ draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>
<b>Statistics</b>	<b>Statistics</b>
<ul style="list-style-type: none"> <li>○ solve comparison, sum and difference problems using information presented in a line graph</li> <li>○ complete, read and interpret information in tables, including timetables.</li> </ul>	<ul style="list-style-type: none"> <li>○ interpret and construct pie charts and line graphs and use these to solve problems</li> <li>○ calculate and interpret the mean as an average</li> </ul>
	<b>Ratio and proportion</b>
	<ul style="list-style-type: none"> <li>○ solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li> <li>○ solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</li> </ul>



	<ul style="list-style-type: none"><li>○ solve problems involving similar shapes where the scale factor is known or can be found</li><li>○ solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li></ul>
	<b>Algebra</b>
	<ul style="list-style-type: none"><li>○ use simple formulae</li><li>○ generate and describe linear number sequences</li><li>○ express missing number problems algebraically</li><li>○ find pairs of numbers that satisfy an equation with two unknowns</li><li>○ enumerate possibilities of combinations of two variables.</li></ul>