

Year	Number and place value	Addition and subtraction	Multiplication and division	Fractions	Measurement	Geometry	
						Properties of shapes	Position and direction
<b>YEAR 1</b>	<p>Pupils should be taught to:</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>Pupils should be taught to:</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 = \square - 9</math>.</li> </ul>	<p>Pupils should be taught to:</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>Pupils should be taught to:</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>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ compare, describe and solve practical problems for:                             <ul style="list-style-type: none"> <li>▪ lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)</li> <li>▪ mass or weight (e.g. heavy/light, heavier than, lighter than)</li> <li>▪ capacity/volume (full/empty, more than, less than, quarter)</li> <li>▪ time (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 notes</li> <li>▪ sequence events in chronological order using language such as: 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>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ recognise and name common 2-D and 3-D shapes, including:                             <ul style="list-style-type: none"> <li>▪ 2-D shapes (e.g. rectangles (including squares), circles and triangles)</li> <li>▪ 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres).</li> </ul> </li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ describe position, directions and movements, including half, quarter and three-quarter turns.</li> </ul>

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YEAR 2	<p>Pupils should be taught to:</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 or 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 &lt;, &gt; 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>Pupils should be taught to:</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> <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 subtraction and use this to check calculations and missing number problems.</li> </ul> </li> </ul>	<p>Pupils should be taught to:</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 (×), division (÷) 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>	<p>Pupils should be taught to:</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 e.g. <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</li> </ul>	<p>Pupils should be taught to:</p> <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 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> <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>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ identify and describe the properties of 2-D shapes, including the number of sides and 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>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ order and arrange combinations of mathematical objects in patterns</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 anti-clockwise).</li> </ul>	<p>Pupils should be taught to:</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>

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<b>YEAR 3</b>	<p>Pupils should be taught to:</p> <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>	<p>Pupils should be taught to:</p> <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>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</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>▪ solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.</li> </ul>	<p>Pupils should be taught to:</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 non-unit 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 (e.g. <math>\frac{5}{7} + \frac{1}{7} = \frac{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>	<p>Pupils should be taught to:</p> <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>▪ 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, hours and o'clock; use vocabulary such as 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>Pupils should be taught to:</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>	<p>Pupils should be taught to:</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 such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.</li> </ul>

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<b>YEAR 4</b>	<p>Pupils should be taught to</p> <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>	<p>Pupils should be taught to:</p> <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>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li> <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>Pupils should be taught to:</p> <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 a 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>\frac{1}{4}</math>; <math>\frac{1}{2}</math>; <math>\frac{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>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ Convert between different units of measure (e.g. kilometre to metre; hour to minute)</li> <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> <li>▪ read, write and convert time between analogue and digital 12 and 24-hour clocks</li> <li>▪ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>	<p>Pupils should be taught to:</p> <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>Pupils should be taught to:</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>Pupils should be taught to:</p> <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 presented in bar charts, pictograms, tables and other graphs.</li> </ul>

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YEAR 5	<p>Pupils should be taught to:</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 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>Pupils should be taught to:</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>Pupils should be taught to:</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 (non-prime) 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 (<math>^2</math>) and cubed (<math>^3</math>)</li> <li>• Solve problems involving addition, subtraction, 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>Pupils should be taught to:</p> <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 (e.g. <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}</math>)</li> <li>▪ add and subtract fractions with the same denominator and 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 (e.g. <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 hundred, and as a decimal fraction</li> <li>▪ solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}</math> and those with a denominator of a multiple of 10 or 25.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</li> <li>▪ understand and use 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 (e.g. using <math>1\text{ cm}^3</math> blocks to build cubes and cuboids) and capacity (e.g. using water)</li> <li>▪ solve problems involving converting between units of time</li> <li>▪ use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.</li> </ul>	<p>Pupils should be taught to:</p> <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 (<math>^\circ</math>)</li> <li>▪ identify: <ul style="list-style-type: none"> <li>▪ angles at a point and one whole turn (total <math>360^\circ</math>)</li> <li>▪ angles at a point on a straight line and <math>\frac{1}{2}</math> a turn (total <math>180^\circ</math>)</li> <li>▪ other multiples of <math>90^\circ</math></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> </li> </ul>	<p>Pupils should be taught to:</p> <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>	<p>Pupils should be taught to:</p> <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>

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						Properties of shape	Position and direction	
YEAR 6	<p>Pupils should be taught to:</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>Pupils should be taught to:</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>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, levels of accuracy.</li> </ul> <p><b>Algebra</b> Pupils should be taught to:</p> <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 number sentences involving two unknowns</li> <li>enumerate all possibilities of combinations of two variables.</li> </ul>	<p>Pupils should be taught to:</p> <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 &gt;1</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 (e.g. <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>)</li> <li>divide proper fractions by whole numbers (e.g. <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>)</li> <li>associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. <math>\frac{3}{8}</math>)</li> <li>identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are 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>Pupils should be taught to:</p> <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 (e.g. of measures) such as 15% of 360 and the use of percentages for comparison</li> <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>	<p>Pupils should be taught to:</p> <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> <li>calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (<math>\text{cm}^3</math>) and cubic metres (<math>\text{m}^3</math>), and extending to other units such as <math>\text{mm}^3</math> and <math>\text{km}^3</math>.</li> </ul>	<p>Pupils should be taught to:</p> <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>	<p>Pupils should be taught to:</p> <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>	<p>Pupils should be taught to:</p> <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>