



# Programme of Study Skills Progression

## Maths: Non-number

Drivers for learning	Measurement	Geometry	Geometry: Position and direction	Statistics	Algebra
EYFS					
Year 1	<p>Compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> <li>* lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]</li> <li>* mass/weight [e.g. heavy/light, heavier than, lighter than]</li> <li>* capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]</li> <li>* time [e.g. quicker, slower, earlier, later]</li> </ul> <p>Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <p>Measure and begin to record the following:</p> <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> <p>Recognize and know the value of different denominations of coins and notes.</p> <p>Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p>	<p>Recognize and name common 2-D and 3-D shapes, including:</p> <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>	<p>Describe position, direction and movement, including half, quarter and three-quarter turns.</p>		<p>Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as</p> <ul style="list-style-type: none"> <li>• <math>7 = * - 9</math></li> </ul> <p>(copied from Addition and Subtraction)</p> <p>Represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)</p>

Year 2	<ul style="list-style-type: none"> <li>compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></li> <li>compare and sequence intervals of time</li> <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>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>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>	<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>	<ul style="list-style-type: none"> <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> <li>order and arrange combinations of mathematical objects in patterns and sequences</li> </ul>	<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>	<ul style="list-style-type: none"> <li>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.  (copied from Addition and Subtraction)</li> <li>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100  (copied from Addition and Subtraction)</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>compare durations of events, for example to calculate the time taken by particular events or tasks</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 (appears also in Telling the Time)</li> <li>measure, compare, add and subtract: lengths (m/cm/mm);</li> </ul>	<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> </ul>		<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 [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables</li> </ul>	<ul style="list-style-type: none"> <li>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.  (copied from Addition and Subtraction)</li> <li>solve problems, including missing number problems, involving multiplication and division, including integer scaling</li> </ul>

	<p>mass (kg/g); 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 <ul style="list-style-type: none"> <li>• estimate and read</li> <li>• 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 - partial</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• identify horizontal and vertical lines and pairs of perpendicular and parallel lines</li> </ul>			(copied from Multiplication and Division)
Year 4	<ul style="list-style-type: none"> <li>• estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)</li> <li>• estimate, compare and calculate different measures, including money in pounds and pence (appears also in Comparing)</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>• read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)</li> <li>• solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</li> <li>• convert between different units of measure (e.g. kilometre to metre; hour to minute)</li> </ul>	<ul style="list-style-type: none"> <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> <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> </ul>	<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>	<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>	

Year 5	<ul style="list-style-type: none"> <li>calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes (also included in measuring)</li> <li>estimate volume (e.g. using 1 cm<sup>3</sup> blocks to build cubes and cuboids) and capacity (e.g. using water)</li> <li>use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.</li> <li>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes</li> <li>recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) (copied from Multiplication and Division)</li> <li>solve problems involving converting between units of time</li> <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>solve problems involving converting between units of time</li> <li>understand and use equivalences between metric units and common imperial units such as inches, pounds and pints</li> </ul>	<ul style="list-style-type: none"> <li>identify 3-D shapes, including cubes and other cuboids, from 2-D representations draw given angles, and measure them in degrees (o) <ul style="list-style-type: none"> <li>use the properties of rectangles to deduce related facts and find missing lengths and angles</li> </ul> </li> <li>distinguish between regular and irregular polygons based on reasoning about equal sides and angles</li> <li>know angles are measured in degrees</li> <li>estimate and compare acute, obtuse and reflex angles</li> <li>identify: <ul style="list-style-type: none"> <li>angles at a point and one whole turn (total 360o)</li> <li>angles at a point on a straight line and ½ a turn (total 180o)</li> <li>other multiples of 90o</li> </ul> </li> </ul>	<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>complete, read and interpret information in tables, including timetables</li> <li>solve comparison, sum and difference problems using information presented in a line graph</li> </ul>	<ul style="list-style-type: none"> <li>use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes)</li> </ul>
Year 6	<ul style="list-style-type: none"> <li>calculate, estimate and compare volume of cubes and cuboids using standard units,</li> </ul>	<ul style="list-style-type: none"> <li>recognise, describe and build simple 3-D shapes, including making nets</li> </ul>	<ul style="list-style-type: none"> <li>describe positions on the full coordinate grid (all four quadrants)</li> </ul>	<ul style="list-style-type: none"> <li>interpret and construct pie charts and line graphs and use these to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>express missing number problems algebraically</li> </ul>

	<p>including centimetre cubed (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units such as mm<sup>3</sup> and km<sup>3</sup>.</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>• recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>• calculate the area of parallelograms and triangles</li> <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 [e.g. mm<sup>3</sup> and km<sup>3</sup>].</li> <li>• recognise when it is possible to use formulae for area and volume of shapes</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>• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating)</li> <li>• convert between miles and kilometres</li> </ul>	<p>(appears also in Drawing and Constructing)</p> <ul style="list-style-type: none"> <li>• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> <li>• draw 2-D shapes using given dimensions and angles</li> <li>• recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)</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>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</li> </ul>	<ul style="list-style-type: none"> <li>• draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>	<ul style="list-style-type: none"> <li>• calculate and interpret the mean as an average</li> </ul>	<ul style="list-style-type: none"> <li>• find pairs of numbers that satisfy number sentences involving two unknowns</li> <li>• enumerate all possibilities of combinations of two variables</li> </ul>
--	--	--	--	--	--