

Whole-School Maths Progression: Geometry

<u>Geometry</u>	EYFS	Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
<u>Recognise 2d and 3d shapes and their properties</u>	Three and Four-Year-Olds Reception Early Learning Goals	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>To recognise, handle and name common 2D and 3D shapes in different orientations/sizes and relate everyday objects fluently.</p> <p>To recognise that rectangles, triangles, cuboids and pyramids are not always similar to each other.</p>	<p>Pupils read and write names for shapes that are appropriate for their word reading and spelling.</p> <p>To handle, identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line.</p> <p>To handle, identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.</p>	<p>To describe the properties of 2D and 3D shapes using accurate language.</p> <p>To extend knowledge of the properties of shapes is extended at this stage to symmetrical and non-symmetrical polygon and polyhedron.</p> <p>To recognise 3D shapes in different orientations and describe them.</p>	<p>To identify lines of symmetry in 2D shapes presented in different orientations.</p> <p>To recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape.</p>	<p>To identify 3D shapes, including cubes and other cuboids, from 2D representations.</p>	<p>To illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p> <p>To express algebraically the relationship between angles and lengths.</p>

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			To identify 2D shapes on the surface of 3D shapes.				
<u>Comparing and Classifying Shapes</u>	<p>Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'.</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p>		To identify, compare and sort common 2D and 3D shapes and everyday objects on the basis of their properties and use vocabulary precisely.		<p>To compare lengths and angles to decide if a polygon is regular or irregular.</p> <p>To compare and classify geometric shapes, including different quadrilaterals and triangles, based on their properties and sizes.</p>	To distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	To compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons using known measurements.
<u>Drawing 2d shapes and constructing 3d shapes</u>	<p>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.</p>		<i>Pupils draw lines and shapes using a straight edge.</i>	To connect decimals and rounding to drawing and measuring straight lines in centimetres, in a	To draw with increasing accuracy and develop mathematical reasoning to analyse shapes	To become accurate in drawing lines with a ruler to the nearest millimetre, and	To draw 2D shapes and nets accurately using given dimensions and angles using measuring tools, conventional

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	<p>Combine shapes to make new ones - an arch, a bigger triangle etc.</p> <p>Select, rotate and manipulate shapes in order to develop spatial reasoning skills.</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p>			<p>variety of contexts.</p> <p>To identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p> <p>To draw 2D shapes and make 3D shapes using modelling materials.</p>	<p>and their properties and confidently describe the relationships between them.</p> <p>To complete a simple symmetric figure with respect to a specific line of symmetry.</p>	<p>measuring with a protractor.</p> <p>To use conventional markings for parallel lines and right angles</p>	<p>markings and labels for lines and angles.</p> <p>To recognise, describe and build simple 3D shapes, including making nets.</p>
<u>Angles</u>				<p>To recognise angles as a property of shape or a description of a turn.</p> <p>To identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn</p>	<p>To identify acute and obtuse angles and compare and order angles up to two right angles by size in preparation for using a protractor.</p>	<p>To know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles. To draw given angles, and measure them in degrees.</p> <p>To identify: angles at a point and one whole turn (total 360°), angles at a</p>	<p>To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p>

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				<p>and four a complete turn</p> <p>To identify whether angles are greater than or less than a right angle.</p>		<p>point on a straight line and $\frac{1}{2}$ a turn (total 180°) and other multiples of 90°.</p> <p><i>To use the term diagonal and make conjectures about the angles formed between sides, and between diagonals and parallel sides.</i></p> <p>To use the properties of rectangles to deduce related facts and find missing lengths and angles <i>by using angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems.</i></p>	
<u>Position and Direction</u>	Understand position through words alone – for example, “The bag	To describe position, direction and movement, including whole,	To use mathematical vocabulary to describe position,		To describe positions on a 2D grid as coordinates	To identify, describe and represent the position of a shape	<i>To draw and label a pair of axes in all four quadrants with equal scaling. To</i>

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	<p>is under the table,” – with no pointing.</p> <p>Describe a familiar route.</p> <p>Discuss routes and locations, using words like ‘in front of’ and ‘behind’.</p> <p>Draw information from a simple map.</p>	<p>half, quarter and three-quarter turns <i>in both directions and connect clockwise with the movement on a clock face.</i></p> <p><i>To use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.</i></p>	<p>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).</p>		<p>in the first quadrant.</p> <p><i>To draw a pair of axes in one quadrant, with equal scales and integer labels.</i></p> <p><i>To read, write and use pairs of coordinates, including using coordinate plotting ICT tools.</i></p> <p>To plot specified points and draw sides to complete a given polygon.</p> <p>To describe movements between positions as translations of a given unit to the left/right and up/down.</p>	<p>following a reflection (<i>in lines that are parallel to the axes</i>) or translation, using the appropriate language, and know that the shape has not changed.</p>	<p>describe positions on the full coordinate grid (all four quadrants).</p> <p>To draw and <i>label</i> simple shapes – <i>rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes.</i></p> <p>To translate simple shapes <i>where coordinates may be expressed algebraically</i> on the coordinate plane and reflect them in the axes.</p>
<u>Patterns</u>	<p>Talk about and identify the patterns around them. For example: stripes on clothes,</p>		<p>To order and arrange combinations of mathematical objects and <i>shapes, including</i></p>				

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	<p>designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.</p> <p>Extend and create ABAB patterns – stick, leaf, stick, leaf.</p> <p>Notice and correct an error in a repeating pattern.</p> <p>Continue, copy and create repeating patterns.</p>		<p><i>those in different orientations, in patterns and sequences.</i></p>				
<p><u>New Vocabulary Introduced</u></p>	<p>Position Distance Direction Move Movement Patterns Shape Square Rectangle Circle Triangle Sides Straight side Curved side</p>	<p>Half turn Quarter turn Three-quarter turn Left Right Up Down 2-D Shape 3-D Shapes Two-Dimensional Three-Dimensional Cuboid Cube Pyramid Cone Cylinder Sphere</p>	<p>Rotation Right angle Clockwise Anti-clockwise Order Arrange Sequence Properties Compare Common Line symmetry Vertical line Edges Faces</p>	<p>Angle Turn Right angles Quarter of a turn Half-turn Three quarters of a turn Complete turn Horizontal lines Vertical lines Perpendicular lines Parallel lines</p>	<p>Co-ordinates Quadrant Grid Translate Translation Axis X- axis Y-axis Spaces Unit Plot Point Polygon Lines of symmetry Symmetric figure Classify</p>	<p>Reflection Angles Measure Degrees Missing lengths Missing angles Regular polygons Irregular polygons Degrees Estimate Compare Reflex angle Point</p>	<p>Four quadrants Radius Diameter Circumference Nets</p>

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			Vertices Pentagon Hexagon Heptagon Octagon Nonagon Decagon Kite Rhombus Polygon Square-based pyramid Triangular pyramid Triangular prism Rectangular prism Pentagonal prism Hexagonal prism Octagonal prism Octahedron Dodecahedron Tetrahedron Rectangular pyramid Pentagonal pyramid Hexagonal pyramid Octagonal	Geometric shapes Quadrilaterals Acute angle Obtuse angle	Straight line Multiples	
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