**Sacred Heart Catholic Primary School**
**Progression: Geometry: properties of shapes**
**Programme of study (statutory requirements)**

| YN | YR | Early Learning Goals | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
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| **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• Talk about and explore 2d and 3d shapes… using informal and mathematical language “sides”, “corners”, ”straight”, “flat”, ”round”<br>• Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.<br>• Combine shapes to make new ones. | **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• Select, rotate and manipulate shapes in order to develop spatial reasoning skills<br>• Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.<br>• Recognise and name common 2d | | **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• recognise and name common 2-D and 3-D shapes, including:<br>- 2-D shapes [for example, rectangles (including squares), circles and triangles]<br>- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] | **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line<br>• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces<br>• identify 2-D shapes on the surface of 3-D shapes, [for example a circle on a | **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them<br>• recognise angles as a property of shape or a description of a turn<br>• identify right angles, recognise that two right angles make a half-turn, three make three | **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes<br>• identify acute and obtuse angles and compare and order angles up to two right angles by | **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• identify 3-D shapes, including cubes and other cuboids, from 2-D representations<br>• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles<br>• draw given angles, and measure them in degrees ($^{o}$)<br>• identify:<br>- angles at a point and one whole turn (total 360$^{o}$) | **Geometry: properties of shapes**<br><br>Pupils should be taught to:<br><br>• draw 2-D shapes using given dimensions and angles<br>• recognise, describe and build simple 3-D shapes, including making nets<br>• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, |

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| • Understand position through words alone eg “The bag is under the table” without pointing Select shapes appropriately: flat shapes for building eg a triangular prism for a roof Using construction sets to create various models. | and 3d shapes and talk about properties of sides, corners, edges, faces, curved and flat, • Compose and decompose shapes so that children recognise a shape can have others shapes within, just as numbers can. Using various construction sets in sustained construction projects eg The Shard, The 3 bears beds and chairs. | | | cylinder and a triangle on a pyramid] • compare and sort common 2-D and 3-D shapes and everyday objects | quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • identify horizontal and vertical lines and pairs of perpendicular and parallel lines | size • identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry | - angles at a point on a straight line and ½ a turn (total 180°) - other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles | quadrilaterals, and regular polygons • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |

**Notes and guidance (non-statutory)**

| Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
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| **Geometry: properties of shapes**<br><br>Pupils handle common 2-D and 3-D shapes, | **Geometry: properties of shapes**<br><br>Pupils handle and name a wider variety of | **Geometry: properties of shapes**<br><br>Pupils’ knowledge of the properties of | **Geometry: properties of shapes**<br><br>Pupils continue to classify shapes using | **Geometry: properties of shapes**<br><br>Pupils become accurate in drawing lines with a ruler to | **Geometry: properties of shapes**<br><br>Pupils draw shapes and nets accurately, using |

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| naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other. | common 2-D and 3-D shapes including: quadrilaterals and polygons, and cuboids, prisms and cones, and identify the properties of each shape (for example, number of sides, number of faces).<br><br>Pupils identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces.<br><br>Pupils read and write names for shapes that are appropriate for their word reading and spelling.<br>Pupils draw lines and shapes using a straight edge. | shapes is extended at this stage to symmetrical and non-symmetrical polygons and polyhedra.<br><br>Pupils extend their use of the properties of shapes.<br><br>They should be able to describe the properties of 2-D and 3-D shapes using accurate language, including lengths of lines and acute and obtuse for angles greater or lesser than a right angle.<br><br>Pupils connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of contexts. | geometrical properties, extending to classifying different triangles (for example, isosceles, equilateral, scalene) and quadrilaterals (for example, parallelogram, rhombus, trapezium).<br><br>Pupils compare and order angles in preparation for using a protractor and compare lengths and angles to decide if a polygon is regular or irregular.<br><br>Pupils draw symmetric patterns using a variety of media to become familiar with different orientations of lines of symmetry; and recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape. | the nearest millimetre, and measuring with a protractor. They use conventional markings for parallel lines and right angles.<br><br>Pupils use the term diagonal and make conjectures about the angles formed by diagonals and sides, and other properties of quadrilaterals, for example using dynamic geometry ICT tools.<br><br>Pupils use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems. | measuring tools and conventional markings and labels for lines and angles.<br><br>Pupils describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements.<br><br>These relationships might be expressed algebraically for example, $d = 2 \times r$; $a = 180 - (b + c)$. |

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