



# Mathematics Key Learning – Geometry: Properties of Shapes

'Working together to achieve success'

Statements taken from the National Curriculum 2014

Additional statements to support progression in learning



EYFS - SHAPE						
<i>Know that shapes can appear in different ways and be different sizes</i>	<i>Build and make models with 3-D shapes</i>	<i>Create and describe pictures using 2-D shapes</i>	<i>Name common 2-D shapes (circle, triangle, square rectangle, oblong rectangle)</i>	<i>Name common 3-D shapes (sphere, cube, cuboid)</i>	<i>Talk about shapes using mathematical language (straight, curved, sides, flat, solid)</i>	<i>Sort shapes according to their own criteria</i>
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
<b>IDENTIFYING SHAPES AND THEIR PROPERTIES</b>						
recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line		identify lines of symmetry in 2-D shapes presented in different orientations	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)	
	identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces				illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	
	identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]					
<b>DRAWING AND CONSTRUCTING</b>						
		draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	complete a simple symmetric figure with respect to a specific line of symmetry	draw given angles, and measure them in degrees ( $^{\circ}$ )	draw 2-D shapes using given dimensions and angles	
					recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)	
<b>COMPARING AND CLASSIFYING</b>						
	compare and sort common 2-D and 3-D shapes and everyday objects		compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	use the properties of rectangles to deduce related facts and find missing lengths and angles	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons	
				distinguish between regular and irregular polygons based on reasoning about equal sides and angles		
<b>ANGLES</b>						
		recognise angles as a property of shape or a description of a turn	identify acute and obtuse angles and compare and order angles up to two right angles by size	know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	
		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	<i>Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines</i>	identify: * angles at a point and one whole turn (total $360^{\circ}$ ) * angles at a point on a straight line and $\frac{1}{2}$ a turn (total $180^{\circ}$ ) * other multiples of $90^{\circ}$	Find unknown angles in any triangles, quadrilaterals and regular polygons.	
		identify horizontal and vertical lines and pairs of perpendicular and parallel lines				

VOCABULARY

shape, 2-D, flat, side, straight, curved, circle, triangle, square, rectangle, oblong, pentagon, hexagon, octagon, 3-D, solid, face (NB a face is flat – a curved part of a 3-D shape should be referred to as a curved surface), edge, vertex (vertices), point, flat, curved, end, cube, cuboid, pyramid, sphere, cone, cylinder, surface

shape, flat, curved, straight, solid, side, face, edge, vertex (vertices), end, surface, three dimensional (3-D), prism, cube, cuboid, pyramid, sphere, cone, cylinder, base, square-based, two dimensional (2-D), polygon, quadrilateral, circle, circular, triangle, triangular, square, oblong, rectangle, rectangular, pentagon, hexagon, octagon, symmetry, symmetrical, fold, mirror line, compare, sort

draw (accurately), describe, recognise, angle, property, 2-D, flat, curved, straight, corner, side, right angle, circle, semi-circle, triangle, square, rectangle, oblong, pentagon, hexagon, octagon, quadrilateral, horizontal, vertical, parallel, perpendicular, measure, compare, length, width, height, distance, perimeter, unit, centimetre (cm), metre (m), kilometre (km), ruler, metre stick, tape measure, 3-D, 3 dimensional, polyhedron, cube, cuboid, pyramid, sphere, hemi-sphere, cone, cylinder, prism, face, curved, flat, surface, edge, vertex, vertices, right angle, greater than, less than, horizontal, vertical, parallel, perpendicular, symmetrical, non-symmetrical

line, curved, straight, side, vertex, sort, regular, irregular, 2-D, two-dimensional, circle, circular, semi-circle, triangle, triangular, equilateral triangle, isosceles triangle, square, rectangle, rectangular, oblong, pentagon, pentagonal, hexagon, hexagonal, heptagon, octagon, octagonal, polygon, quadrilateral, lines of symmetry, fold, mirror line, reflection, reflect, horizontal, vertical, angle, acute angle, obtuse angle, degree, perpendicular, parallel, Venn diagram, Carroll diagram, classify, position, above, below, bottom, side, outside, inside, around, in front of, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, centre, direction, journey, route, map, plan, left, right, up, down, higher, lower, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from, ascend, descend, grid, row, column, origin, coordinates, clockwise, anticlockwise, horizontal, vertical, diagonal

full turn, half turn, quarter turn, rotate, rotation, angle, greater/smaller, angle than, right angle, acute, obtuse, reflex, degree, straight line, angle measurer, compasses, protractor, 2-D, two-dimensional, triangle, triangular, equilateral triangle, isosceles triangle, scalene triangle, square, rectangle, oblong, pentagon, hexagon, heptagon, octagon, polygon, quadrilateral, straight, side, angle, right-angled, congruent, regular, irregular, line of symmetry, symmetrical, diagonal, angle, internal angles, parallel, perpendicular, properties, 3-D, faces, edges, vertex, vertices, cube, cuboid, prism, pyramid

angle, turn, whole turn, acute, obtuse, reflex, degree, point, straight line, protractor, parallel, perpendicular, vertical, opposite, interpret, construct, graph, pie chart, radius, section, line graph, axis, axes, label, statistics, 3-D, three-dimensional, cube, cuboid, pyramid, sphere, hemi-sphere, spherical, cone, cylinder, cylindrical, prism, tetrahedron, polyhedron, octahedron, dodecahedron 2-D, two-dimensional, circle, circular, semi-circle, triangle, triangular, equilateral triangle, isosceles triangle, scalene triangle, square, rhombus, rectangle, rectangular, oblong, pentagon, pentagonal, hexagon, octagonal, heptagon, octagon, octagonal, polygon, quadrilateral, kite, parallelogram, trapezium, face, side, edge, vertex, vertices, end, net, angle, angled, congruent, intersecting, intersection, plane, base, square-based, regular, irregular, concave, convex, parallel, perpendicular, radius, diameter, circumference, angle, turn, point, straight line, vertically opposite