



Knowledge Progression in Shape

Properties of Shapes		
Recognise 2D and 3D Shapes and their Properties		
Three and Four-Year-Olds	Mathematics	<ul style="list-style-type: none"> • 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'. • Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc. • Combine shapes to make new ones – an arch, a bigger triangle, etc.
Reception	Mathematics	<ul style="list-style-type: none"> • Select, rotate and manipulate shapes in order to develop spatial reasoning skills.
Compare and Classify Shapes		
Reception	Mathematics	<ul style="list-style-type: none"> • Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.

Year Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Properties of 2D shape	<ul style="list-style-type: none"> •Recognise and name common 2-D shapes (e.g. Square, circle, triangle) •Recognise and name shapes regardless of orientation and size 	<ul style="list-style-type: none"> •Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. 	<ul style="list-style-type: none"> •Compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes •Identify lines of symmetry in 2-D shapes presented in 	<ul style="list-style-type: none"> •Become confident in identifying an increasing number of 2D shapes focusing on quadrilaterals and different types of triangles 	<ul style="list-style-type: none"> •Draw 2-D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes 	<ul style="list-style-type: none"> •Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

		<ul style="list-style-type: none"> •Compare and sort common 2-D and 3-D shapes and everyday objects. •Draw shapes with straight edges using a ruler 	<p>different orientations</p> <ul style="list-style-type: none"> •Complete a simple symmetric figure with respect to a specific line of symmetry. •Draw 2D shapes to measure a straight line using a ruler •Identify horizontal and vertical lines and pairs of perpendicular and parallel lines 	<ul style="list-style-type: none"> •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. •Identify horizontal and vertical lines and pairs of perpendicular and parallel lines •Complete patterns or shapes with one horizontal, vertical or diagonal line of symmetry where the figure may not touch the line. 	<ul style="list-style-type: none"> •Calculate missing angles in triangles and quadrilaterals 	
Properties of 3D shape	<ul style="list-style-type: none"> •Recognise and name common 3-D shapes (e.g. Cubes, cuboids, pyramids & spheres) 	<ul style="list-style-type: none"> •Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces •Identify 2-D shapes on the surface of 3-D shapes. • Compare 2D and 3D shapes, identifying similarities and differences 	<ul style="list-style-type: none"> •Make 3-D shapes using modelling materials recognise 3-D shapes in different orientations and describe them •Identify 3-D shapes, including cubes and other cuboids, from 2-D representations 		<ul style="list-style-type: none"> •Recognise, describe and build simple 3-D shapes, including making nets: cube, cuboid, tetrahedron, square based pyramid •Find unknown angles in any triangles, quadrilaterals, and regular polygons 	<ul style="list-style-type: none"> •Investigate, make and solve problems based on the nets of a range of 3D shapes including prisms

<p>Angles</p>			<ul style="list-style-type: none"> •Recognise angles as a property of shape or a description of a turn •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 or less than right angle 	<ul style="list-style-type: none"> •Identify acute and obtuse angles and compare and order angles up to two right angles by size 	<ul style="list-style-type: none"> •Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles •Draw given angles, and measure them in degrees (°) •Identify angles at a point and one whole turn (total 360°); at a point on a straight line and ½ a turn (total 180°) •Identify other multiples of 90° 	<ul style="list-style-type: none"> •Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
<p>Position and Direction</p>	<p>Mathematics</p>	<p>Three and Four-Year-Olds</p> <ul style="list-style-type: none"> • Understand position through words alone – for example, “The bag is under the table,” – with no pointing. • Describe a familiar route. • Discuss routes and locations, using words like ‘in front of’ and ‘behind’. 				
	<p>Understanding the World</p>	<p>Reception</p> <ul style="list-style-type: none"> • Draw information from a simple map. 				

<p>Patterns</p>	<p>Mathematics</p>	<p>Three and Four-Year-Olds</p> <ul style="list-style-type: none"> • Talk about and identify the patterns around them. For example, stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. 				
	<p>Mathematics</p>	<p>Reception</p> <ul style="list-style-type: none"> • Continue, copy and create repeating patterns. 				
<p>Position and direction</p>	<ul style="list-style-type: none"> • Describe position, direction and movement, including whole, half, quarter and three-quarter turns. 	<ul style="list-style-type: none"> • Order and arrange combinations of mathematical objects in patterns and sequences. • 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 		<ul style="list-style-type: none"> • Begin to read co-ordinates in all 4 quadrants • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon • Describe movements between positions as translations of a given unit to the left/right and up/down. 	<ul style="list-style-type: none"> • 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 • Reflect shapes in 4 quadrants and in a diagonal line • Find missing co-ordinates of shapes in all 4 quadrants 	<ul style="list-style-type: none"> • Draw and translate simple shapes on all four quadrants, reflect them in the axes and express this algebraically (e.g. translating vertex (a,b) to (a-2, b+3))

		<p>angles for quarter, half and $\frac{3}{4}$ turns</p> <ul style="list-style-type: none"> •Describe positions on a 2-D grid as coordinates in the first quadrant 				
Area and perimeter			<ul style="list-style-type: none"> •Measure the perimeter of simple 2-D shapes 	<ul style="list-style-type: none"> •Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres •Find the area of rectilinear shapes by counting squares 	<ul style="list-style-type: none"> •Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres •Calculate and compare the area of rectangles (including squares) and compound shapes including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes 	<ul style="list-style-type: none"> •Recognise that shapes with the same areas can have different perimeters and vice versa •Recognise when it is possible to use formulae for area and volume of shapes •Calculate the area of parallelograms and triangles •Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units.

New vocabulary for each year group is in bold	Progression in vocabulary - Shape			
	Properties of shape Area and perimeter	2D shape	3D shape	Position and direction Angles

EYFS	shape, pattern, flat, curved, straight, round, hollow, solid sort ,make, build, draw, size, bigger, larger, smaller symmetrical pattern, repeating pattern, match	corner, side ,rectangle (including square) circle, triangle	face, edge, vertex, vertices cube, pyramid, sphere, cone	Position, over, under, above, below, top, bottom, side, on, in outside, inside, around, in front, behind, front, back beside, next to opposite, apart between, middle, edge corner direction, left, right up, down forwards, backwards, sideways, across next to, close, near, far along through to, from, towards, away from, movement, slide, roll, turn stretch, bend whole turn, half turn
Year 1	shape, pattern, flat, curved, straight, round, hollow, solid sort, make, build, draw, size bigger, larger, smaller symmetry, symmetrical, symmetrical pattern, pattern, repeating pattern, match	corner, side point, pointed rectangle (including square) circle triangle	face, edge, vertex, vertices cube, cuboid, pyramid, sphere cone, cylinder	Position, over, under, underneath, above, below, top, bottom, side on, in outside, inside, around, in front, behind front, back beside, next to opposite, apart, between, middle, edge, centre, corner, direction, journey, left, right up, down, forwards, backwards, sideways, across
Year 2	shape, pattern, flat, curved, straight, round, hollow , solid sort, make, build, draw, surface, size, bigger, larger, smaller symmetry, symmetrical, symmetrical pattern, line symmetry , pattern, repeating pattern match	corner, side point, pointed rectangle (including square), rectangular , circle, , circular triangle, triangular , pentagon hexagon , octagon	face, edge, vertex, vertices cube, cuboid, pyramid, sphere cone, cylinder	Position, over, under, underneath, above, below top, bottom, side on, in outside, inside, around, in front, behind front, back beside, next to, opposite, apart, between middle, edge, centre, corner direction, journey, route left, right, up, down, higher , lower forwards, backwards, sideways across next to, close, near, far along through to, from, towards, away from,

				clockwise, anticlockwise movement, slide, roll, turn, stretch, bend, whole turn, half turn, quarter turn, three- quarter turn, right angle, straight line
Year 3	shape, pattern, flat, curved, straight, round, hollow, solid sort, make, build, draw perimeter , surface, size, bigger, larger, smaller, symmetry, symmetrical, symmetrical pattern, line symmetry, pattern, repeating pattern, match,	corner, side point, pointed rectangle (including square), rectangular circle, circular triangle, triangular pentagon, pentagonal , hexagon, hexagonal , octagon, octagonal quadrilateral ,right-angled parallel, perpendicular	face, edge, vertex, vertices cube, cuboid, pyramid, sphere, hemisphere , cone, cylinder prism, triangular prism	Position, over, under, underneath above, below top, bottom, side on, in outside, inside around in front, behind front, back beside, next to opposite apart between middle, edge centre corner direction journey, route left, right up, down higher, lower forwards, backwards, sideways across next to, close, near, far along through to, from, towards, away from clockwise, anticlockwise acute angle, obtuse angle ,straight line, compass point north, south, east, west, N, S, E, W horizontal, vertical, diagonal , movement slide roll turn stretch, bend, whole turn, half turn, quarter turn, three- quarter turn , angle ... is a greater/smaller angle than right angle, set square, angle measurer
Year 4	shape, pattern flat, line, curved, straight round hollow, solid sort make, build, construct , draw, sketch, , centre , surface, right- angled base, square-based , size, bigger, larger, smaller	2-D, two-dimensional ,corner, side, point, pointed rectangle (including square), rectangular Oblong, rectilinear , circle, circular, triangle, triangular equilateral triangle, isosceles	3-D, three-dimensional face, edge, vertex, vertices cube, cuboid pyramid sphere, hemisphere, spherical cone cylinder, cylindrical prism, triangular prism tetrahedron,	position over, under, underneath above, below top, bottom, side on, in outside, inside around in front, behind front, back beside, next to opposite apart between

	<p>symmetry, symmetrical, symmetrical pattern, line symmetry, reflect, reflection, pattern, repeating pattern, match, regular, irregular perimeter, area, covers, square centimetre (cm²)</p>	<p>triangle, scalene triangle, pentagon, pentagonal hexagon, hexagonal, heptagon, octagon, octagonal, quadrilateral parallelogram, rhombus, trapezium, kite polygon, right-angled parallel, perpendicular</p>	<p>polyhedron octahedron dodecahedron, net, open, closed</p>	<p>middle, edge centre corner direction journey, route left, right up, down higher, lower forwards, backwards, sideways across next to, close, near, far along, through to, from, towards, away from clockwise, anticlockwise compass point north, south, east, west, N, S, E, W, north-east, north-west, south-east, south-west, NE, NW, SE, SW, horizontal, vertical, diagonal translate, translation, movement slide roll turn stretch, bend whole turn, half turn, quarter turn, three-quarter turn rotate, rotation, angle, is a greater/smaller angle than, degree, right angle, acute angle, obtuse angle reflection straight line ruler, set square angle measurer, compass</p>
Year 5	<p>Shape, pattern, flat, line curved, straight, round, hollow, solid, sort, make, build, construct, draw, sketch, centre, surface angle, right-angled congruent base, square-based</p>	<p>2-D, two-dimensional, corner, side point, pointed, rectangle (including square), rectangular, oblong, rectilinear, circle, circular, triangle, triangular equilateral triangle, isosceles</p>	<p>3-D, three-dimensional face, edge, vertex, vertices cube, cuboid pyramid sphere, hemisphere, spherical cone cylinder, cylindrical prism,</p>	<p>position, over, under, underneath, above, below top, bottom, side on, in outside, inside around in front, behind front, back beside, next to opposite apart between</p>

	<p>size bigger, larger, smaller symmetry, symmetrical, symmetrical pattern, line symmetry, reflect, reflection, reflective symmetry, pattern, repeating pattern ,match, regular, irregular polygon, right -angled ,parallel, perpendicular, x-axis, y-axis, quadrant (all four) perimeter, area, covers, square centimetre (cm²) square metre (m²), square millimetre (mm²)</p>	<p>triangle, scalene triangle pentagon, pentagonal hexagon, hexagonal, heptagon, octagon, octagonal ,quadrilateral ,parallelogram, rhombus, trapezium</p>	<p>triangular prism, tetrahedron, polyhedron, octahedron, net</p>	<p>middle, edge centre corner direction journey, route left, right up, down, higher, lower forwards, backwards, sideways across next to, close, near, far along through to, from, towards, away from clockwise, anticlockwise, compass point north, south, east, west, N, S, E, W north-east, north-west, south-east, south-west, NE, NW, SE, SW horizontal, vertical, diagonal, translate, translation coordinate, movement, slide roll, turn ,stretch, bend ,whole turn, half turn, quarter turn, three-quarter turn, rotate, rotation angle, is a greater/smaller angle than, degree , angle, acute angle, obtuse angle, reflex reflection straight line, ruler, set square angle measurer, protractor,</p>
Year 6	<p>shape, pattern flat, line, perimeter, area, covers, square centimetre (cm²) curved, straight ,round, hollow, solid sort, make, build, construct, draw, sketch, perimeter,</p>	<p>2-D, two-dimensional corner, side point, pointed rectangle (including square), rectangular, oblong rectilinear circle, circular triangle, triangular equilateral triangle, isosceles</p>	<p>3-D, three-dimensional face, edge, vertex, vertices cube, cuboid pyramid sphere, hemisphere, spherical cone cylinder, cylindrical prism, triangular prism tetrahedron,</p>	<p>position ,over, under, underneath, above, below top, bottom, side on, in outside, inside around in front, behind front, back beside, next to opposite apart between</p>

	<p>centre, radius, diameter circumference, concentric, arc net, open, closed surface angle, right-angled, congruent intersecting, intersection plane base, square-based ,size ,bigger, larger, smaller symmetry, symmetrical, symmetrical pattern line symmetry reflect, reflection axis of symmetry, reflective symmetry pattern, repeating pattern, match regular, irregular</p>	<p>triangle, scalene triangle pentagon, pentagonal ,octagon, octagonal, quadrilateral, parallelogram, rhombus, trapezium, kite ,polygon right- angled, parallel, perpendicular x-axis, y-axis, quadrant ,radius, diameter circumference, concentric, arc</p>	<p>polyhedron octahedron dodecahedron, net, open, closed</p>	<p>middle, edge centre corner direction journey, route left, right up, down higher, lower forwards, backwards, sideways across next to, close, near, far along through to, from, towards, away from clockwise, anticlockwise compass point north, south, east, west, N, S, E, W north-east, north-west, south-east, south-west, NE, NW, SE, SW horizontal, vertical, diagonal translate, translation coordinate movement slide roll turn stretch, bend whole turn, half turn, quarter turn, three- quarter turn rotate, rotation angle, is a greater/smaller angle than degree right angle acute angle obtuse angle reflex angle reflection straight line ruler, set square angle measurer, compass, protractor</p>
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