Ashbury Meadow Primary School Mathematics Curriculum **Progression in Geometry**

Year Group	Knowledge and Skills Supporting Resource: Maths No Problem Essential & most valuable knowledge for the next key stage is highlighted in yellow	Vocabulary
Nursery	Learns and groups colours and notices colour patterns around the environment; themselves, their peers, displays and the rainbow challenge. Uses puzzles to begin to manipulate and turn shapes and begin to talk about their properties e.g. round, pointy, curved. Talks about patterns around them - think about shapes and use vocabulary such as: round, spotty, pointy, spiky.	
Reception	Children explore squares and rectangles and talk about the properties of these shapes. They learn the names of the 3d shapes; cylinder and triangular prism when printing circles and triangles with the faces. They learn the names of 3d shapes; cube, cuboid when printing squares and rectangles with their faces. Children explore 3d shapes around the environment and consolidating their knowledge of names and talking about their properties. Children use positional language to give instructions to peers Children consolidate their knowledge of repeating patterns by creating their own End Point – ELG Number ELG Children at the expected level of development will: • Have a deep understanding of number to 10, including the composition of each number; • Subitise (recognise quantities without counting) up to 5; • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Numerical Patterns ELG Children at the expected level of development will: • Verbally count beyond 20, recognising the pattern of the counting system; • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	shape pattern flat curved straight round hollow solid corner face side edge sort make, build, draw circle, triangle, square, rectangle, star cube, pyramid, sphere, cone size, bigger, larger, smaller repeating pattern match position, over, under above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, before, after, beside, next to, opposite, apart, between, middle direction, left, right up, down, forwards, backwards, sideways across, close, far, near along, through to, from, towards, away from,

		movement, slide, roll, turn stretch, bend
Year 1	**Position & Direction: Positions** ● To learn the appropriate positional language (ordinal numbers) for up to 10 positions. ● To be able to name the positions in a queue. ● To be able to name positions, including left and right. **Shape & Space: Shapes & Patterns** ● To recognise four basic 3D solid shapes: spheres, cubes, cuboids and pyramids. ● To recognise 2D shapes in the everyday environment. ● To be able to group shapes using different criteria. ● To make patterns using common 2D shapes. **Position & Direction: Space** ● To describe the position of objects in relation to one another using varied vocabulary. ● To describe movements of objects using varied language. ● To understand how to make turns using mathematical language and connect this knowledge to time. Y1 National Curriculum – End Point: Pupils will be taught to: - recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles] - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. - describe position, direction and movement, including whole, half, quarter and three-quarter turns.	*All of the above, plus:* first, second, third… last left, right point pointed cuboid cylinder underneath centre whole turn half turn
Year 2	**Properties of 2D Shapes** ● To identify the number of sides on basic 2D shapes. ● To identify and count the vertices in regular polygons. ● To identify lines of symmetry in basic 2D shapes. ● To construct shapes using pattern blocks that have lines of symmetry. ● To sort shapes based on number of sides, vertices and other factors. ● To draw shapes using square grid and dot grid paper; to copy shapes from sight using grid paper. ● To recognise patterns of familiar shapes and colours of up to three objects.	*All of the above, plus:* surface circular triangular rectangular pentagon hexagon octagon

	• To describe patterns using ordinal numbers and shape names. • To move shapes on a square grid from one position to another using common language. • To turn objects using quarter, half and three-quarter turns both clockwise and anticlockwise on a square grid **Properties of 3D Shapes** • To recognise 3D shapes by identifying their properties. • To describe 3D shapes and classify them using faces, vertices and edges. • To describe 3D shapes based on the number of faces and the 2D shapes of these faces; to construct nets of shapes into 3D shapes. • To group 3D shapes by similar properties. • To form 3D structures using multiple 3D objects. • To make and recognise patterns using 3D shape Y2 National Curriculum – End Point: Pupils will be taught to: - identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line - 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, [for example, a circle on a cylinder and a triangle on a pyramid] - compare and sort common 2-D and 3-D shapes and everyday objects - 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 angles for quarter, half and three-quarter turns (clockwise and anticlockwise).	line of symmetry fold mirror line reflection route clockwise anti-clockwise quarter turn right angle straight line
Year 3	**Properties of Angles** • To learn what makes an angle and identify angles in objects. • To see angles on the inside and outside of objects; to find angles in letters. • To find angles in shapes; to determine the relationship between the number of angles in a shape and the number of sides. • To find right angles in everyday objects; to understand what makes a right angle. • To compare angles using the terms 'right' angle and 'acute' angle; to identify acute angles as smaller angles than right angles. • To identify right angles and acute angles; to recognise and define an obtuse angle.	*All of the above, plus:* angle right-angle acute obtuse map plan ascend descend grid

	• To make turns using angles vocabulary; to align the language of angles and fractions to describe turns **Properties of Shapes: Lines and Shapes** • To identify, define and create perpendicular lines; to find perpendicular lines in everyday objects. • To identify, define and create parallel lines; to find parallel lines in everyday objects. • To define and identify vertical and horizontal lines; to find vertical and horizontal lines in everyday life. • To describe 2D shapes using familiar vocabulary about lines and angles. • To draw 2D shapes in proportion to their size; to identify how big a shape is. • To create 3D shapes out of nets; to use vocabulary related to 3D shapes and their properties. • To construct 3D shapes out of clay and discuss their properties. • To describe 3D shapes using familiar terms; to identify properties of 3D shapes Y3 National Curriculum – End Point: Pupils will be taught to: - draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them - 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 than or less than a right angle - identify horizontal and vertical lines and pairs of perpendicular and parallel lines	row, column compass point, north, south, east, west horizontal, vertical, diagonal vertex vertices diagram hemi-sphere, prism semi-circle pentagonal hexagonal octagonal quadrilateral parallel perpendicular
Year 4	**Properties of Shapes: Geometry – Comparing, Classifying, Symmetry, Sorting** • To identify types of angles. • To compare angles. • To classify triangles. • To classify quadrilaterals. • To identify symmetrical figures. • To draw lines of symmetry. • To draw symmetrical figures. • To make symmetrical figures. • To complete symmetrical figures. • To sort shapes **Position and Direction: Position and Movement** • To describe position. • To describe position.	*All of the above, plus:* line construct, sketch, plot net base, square-based regular irregular concave, convex open, closed classify 2D, two-dimensional equilateral triangle isosceles triangle oblong, heptagon, polygon line of symmetry, symmetrical reflect

	• To plot coordinates. • To describe movements. • To describe movements (coordinates) Y4 National Curriculum – End Point: Pupils will be taught to: - compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes - identify acute and obtuse angles and compare and order angles up to two right angles by 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. - describe positions on a 2-D grid as coordinates in the first quadrant - 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	translation origin coordinates north-east, north-west, south-east, south-west (NE, NW, SE, SW) rotate degree angle measurer, protractor
Year 5	**Properties of Shapes** • To know the names and qualities of acute, right, obtuse and reflex angles. • To measure angles using a protractor. • To draw, measure and add angles using a protractor. • To measure angles using a protractor; to identify two angles which add up to 180 degrees on a straight line. • To investigate angles that, when combined, make 360 degrees. • To draw angles using a protractor. • To draw lines and angles with a high level of accuracy. • To describe the sides and angles of both rectangles and squares. • To investigate the angles of various quadrilaterals, including squares and rectangles. • To solve problems involving angles in rectangles. • To solve problems involving angles. • To use our understanding of angles to solve problems. • To investigate regular polygons **Position and Direction: Position and Movement** • To name and plot points. • To describe the position of a shape following a translation. • To describe movements and reflecting shapes. • To describe the movement of a 2-D shape when reflected. • To reflect a shape more than once	*All of the above, plus:* congruent scalene triangle axis of symmetry reflective symmetry x-axis, y-axis, quadrant rotation bisect identify intersecting, intersection tangram rhombus, kite, parallelogram, trapezium translation reflex angle

	Y5 National Curriculum – End Point: Pupils will be taught to: - identify 3-D shapes, including cubes and other cuboids, from 2-D representations - know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles - draw given angles, and measure them in degrees (o) - identify: - angles at a point and one whole turn (total 360 degrees) - angles at a point on a straight line and half a turn (total 180 degrees) - other multiples of 90 degrees - 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, 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.	
Year 6	**Properties and Shapes** ● To investigate opposite angles; to use prior knowledge of angles to solve problems involving angles. ● To solve problems involving angles using the bar model heuristic; to solve problems involving angles without protractors. ● To determine and show the sum of the angles inside a triangle. ● To investigate and determine angles in quadrilaterals. ● To use the knowledge of angles inside a triangle and a quadrilateral to solve problems involving angles in other shapes. ● To name the parts of a circle; to calculate diameter and radius using parts of a circle. ● To solve problems involving angles in a circle. ● To draw quadrilaterals with specific side lengths and parallel lines; to find the perimeter of shapes and name trapeziums and parallelograms. ● To draw triangles using measurements and angles as the starting point; to use a protractor to draw triangles using angles. ● To construct triangles using a protractor and ruler; to use ratio to determine the dimensions of a triangle. ● To construct the nets of 3-D shapes by identifying the faces and the 2-D shapes that construct them. **Position and Direction** ● To represent negative numbers on both vertical and horizontal number lines. ● To describe the positions of objects on a coordinate grid; to use x and y axes to determine the position of objects on a grid. ● To describe the position of points using coordinates on a grid. ● To draw polygons on a coordinate grid; to recognise polygons on a coordinate grid.	*All of the above, plus:* diameter radius circumference

	● To describe the translation of shapes on a coordinate grid. ● To describe reflection using a mirror line and the terms 'object' and 'image'. ● To reposition objects so they can be reflected in the x and y axis as the mirror line. ● To describe the movement of objects using the terms 'translation' and 'reflection'. ● To use algebra to describe the positions of coordinates in relationship to one another. ● To represent translation and reflection using algebraic notation. Y6 National Curriculum – End Point: Pupils will be taught to: - draw 2-D shapes using given dimensions and angles - recognise, describe and build simple 3-D shapes, including making nets - compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, 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. - describe positions on the full coordinate grid (all four quadrants) - draw and translate simple shapes on the coordinate plane, and reflect them in the axes	