PARKFIELD SCHOOL
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Geometry

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RECOGNISE 2D AND 3D SHAPES AND THEIR PROPERTIES						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• (3-4) 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, rotate and manipulate shapes in order to develop spatial reasoning skills	• To recognise, handle and name common 2D and 3D shapes in different orientations/sizes and relate everyday objects fluently. • To recognise that rectangles, triangles, cuboids and pyramids are not always similar to each other.	• Pupils read and write names for shapes that are appropriate for their word reading and spelling. • To handle, identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. • To handle, identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. • To identify 2D shapes on the surface of 3D shapes.	• To describe the properties of 2D and 3D shapes using accurate language. • To extend knowledge of the properties of shapes is extended at this stage to symmetrical and non-symmetrical polygon and polyhedron. • To recognise 3D shapes in different orientations and describe them.	• To identify lines of symmetry in 2D shapes presented in different orientations. • To recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape.	• To identify 3D shapes, including cubes and other cuboids, from 2D representations.	• To illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • To express algebraically the relationship between angles and lengths.

COMPOSE AND CLASSIFY SHAPE						
• (3-4) 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'. • Compose and	•	• To identify, compare and sort common 2D and 3D shapes and everyday objects on the basis of their properties and use vocabulary precisely.	•	• To compare lengths & angles to decide if a polygon is regular or irregular. • To compare & classify geometric shapes, including different quadrilaterals and triangles, based on their properties & sizes.	• 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.

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decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.						
DRAWING 2D SHAPES AND CONSTRUCTING 3D SHAPES						
• (3-4) Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. • (3-4) Combine shapes to make new ones - an arch, a bigger triangle etc. • Select, rotate and manipulate shapes in order to develop spatial reasoning skills. • Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.	•	• *Pupils draw lines and shapes using a straight edge.*	• To connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of contexts. • To identify horizontal and vertical lines and pairs of perpendicular and parallel lines. • To draw 2D shapes and make 3D shapes using modelling materials.	• To draw with increasing accuracy and develop mathematical reasoning to analyse shapes and their properties and confidently describe the relationships between them. • To complete a simple symmetric figure with respect to a specific line of symmetry.	• To become accurate in drawing lines with a ruler to the nearest millimetre, and measuring with a protractor. • To use conventional markings for parallel lines and right angles	• To draw 2D shapes and nets accurately using given dimensions and angles using measuring tools, conventional markings and labels for lines and angles. • To recognise, describe and build simple 3D shapes, including making nets.

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PROPERTIES OF SHAPES						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
•	•		• To recognise angles as a property of shape or a description of a turn. • To identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn • To identify whether angles are greater than or less than a right angle.	• To identify acute and obtuse angles and compare and order angles up to two right angles by size in preparation for using a protractor.	• To know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles. To draw given angles, & measure them in degrees. • To identify: angles at a point & one whole turn (total 360˚), angles at a point on a straight line and $\frac{1}{2}\frac{1}{2}$ a turn (total 180˚) & other multiples of 90˚. • *To use the term diagonal & make conjectures about the angles formed between sides, & between diagonals & parallel sides.* • To use the properties of rectangles to deduce related facts & find missing lengths & angles *by using angle sum facts & other properties to make deductions about missing angles & relate to missing no probs.*	• To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

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POSITION, DIRECTION AND MOVEMENT						
• (3-4) Understand position through words alone – for example, "The bag is under the table," – with no pointing. • (3-4) Describe a familiar route. • (3-4) Discuss routes and locations, using words like 'in front of' and 'behind'. • Draw information from a simple map.	• To describe position, direction and movement, including whole, half, quarter and three-quarter turns *in both directions and connect clockwise with the movement on a clock face*. • *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.*	• To 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).	•	• To describe positions on a 2D grid as coordinates in the first quadrant. • *To draw a pair of axes in one quadrant, with equal scales and integer labels.* • *To read, write and use pairs of coordinates, including using coordinate plotting ICT tools.* • To plot specified points and draw sides to complete a given polygon. • To describe movements between positions as translations of a given unit to the left/right and up/down.	• To identify, describe and represent the position of a shape following a reflection (*in lines that are parallel to the axes)* or translation, using the appropriate language, and know that the shape has not changed.	• *To draw and label a pair of axes in all four quadrants with equal scaling.* To describe positions on the full coordinate grid (all four quadrants). • To draw and *label* simple shapes – *rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes.* • To translate simple shapes *where coordinates may be expressed algebraically* on the coordinate plane and reflect them in the axes.

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PATTERNS						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• (3-4) 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. • (3-4) Extend and create ABAB patterns – stick, leaf, stick, leaf. • (3-4) Notice and correct an error in a repeating pattern. • Continue, copy and create repeating patterns.		• To order and arrange combinations of mathematical objects and *shapes, including those in different orientations,* in patterns and sequences.			•	•