Mount Charles School

Geometry properties of shape

**Objective** K-Knowledge. S-Skills

| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| **New Vocabulary** | Sort<br>Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square<br>Shape<br>Flat, curved, straight, round, solid, corner face, side<br>Make, draw, build | 3D<br>cube cuboid sphere pyramid cylinder cone<br>2D<br>circle triangle square rectangle face<br>repeated<br>Group<br>Hollow<br>Point, pointed edge | quadrilateral<br>polygon pentagon hexagon vertex vertices<br>line of symmetry<br>symmetrical<br>octagon<br>hemisphere curved surface edge<br>prism<br>size<br>bigger, larger, smaller<br>fold<br>match<br>mirror line, reflection<br>pattern, repeating pattern | right angle<br>perpendicular<br>acute<br>obtuse<br>horizontal<br>vertical<br>parallel | interior angle regular irregular<br>isosceles<br>scalene<br>equilateral reflective symmetry<br>quadrilateral<br>triangles<br>right angle, acute and obtuse angles | degree (°)<br>interior angle<br>top view<br>plan view side view<br>regular and irregular polygons | Compound shape<br>Cubic centimetre (cm3)<br>vertically opposite angles<br>radius<br>diameter<br>concentric<br>diameter<br>circumference net<br>tetrahedron |
| **Identifying shapes and their properties** | **Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes** | **recognise and name common 2-D and 3-D shapes, including:**<br>* **2-D shapes [e.g. rectangles (including squares), circles and triangles]**<br>* **3-D shapes [e.g. cuboids (including cubes),** | **identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line**<br>K – meaning of symmetry | | **identify lines of symmetry in 2-D shapes presented in different orientations**<br><br>K – identify shapes in different orientations<br>K – to identify lines of symmetry<br>S – identify lines of symmetry in 2D | **identify 3-D shapes, including cubes and other cuboids, from 2-D representations**<br><br>K – properties of 3D shapes<br>K – how 3D shapes are represented 2D | **recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)**<br><br>K – a net can be folded up to make a 3D shape<br>K – a 3D shape can have different nets<br>K – how to build 3D shapes from different materials |

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| | | **pyramids and spheres].**<br><br>K – names for common 2-D and 3-D shapes<br>K – properties of common 2-D and 3-D shapes<br>S – recognise and name common 2-D and 3-D shapes | K – vertical means top to bottom<br>K – properties of 2-D shapes<br>S – identify properties of 2D shapes<br>S – describe properties of 2D shapes<br>S – identify and describe line symmetry in a vertical line<br><br>**identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces**<br>K – vocabulary of edges, vertices and faces<br>K – properties of 3D shapes<br>S – identify properties of 3D shapes<br>S – describe properties of 3D shapes<br><br>**identify 2-D shapes on the surface of** | | shapes presented in different orientations | S – identify 3D shapes from 2D representations | S – recognise, describe and build simple 3D shapes<br>S -make nets of simple 3D shapes.<br><br>**Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius**<br><br>K – meaning of radius, diameter and circumference<br>K – diameter is twice the radius<br>S- illustrate and name parts of a circle |

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| | | | **3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]**<br><br>K – properties of 2D shapes<br>S – identify 2D shapes of the surface of 3D shapes | | | | |
| **Drawing and constructing** | **Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes**<br><br>**Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build** | | | **draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them**<br><br>K- use a ruler and compass<br>K – properties of 3D shapes<br>S – draw 2D shapes<br>S – make 3D shapes using modelling materials<br>S- recognise 2D shapes in different orientations and describe them | **complete a simple symmetric figure with respect to a specific line of symmetry**<br><br>K – how to make a shape symmetrical across a specific line of symmetry<br>K – accurately drawing<br>S – complete a simple symmetric figure with respect to a specific line of symmetry | **draw given angles, and measure them in degrees ($^{o}$)**<br><br>K -how to use a protractor to measure angles on both scales (inside and out)<br>K – the steps needed to draw a given angle<br>S – measure an angle accurately<br>S – draw given angles accurately. | **draw 2-D shapes using given dimensions and angles**<br><br>K – how to draw a line to a given length<br>S – draw 2D shapes using given dimensions and angles<br><br>**recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)**<br><br>K – a net can be folded up to make a 3D shape<br>K – a 3D shape can have different nets<br>K – how to build 3D shapes from different materials<br>S – recognise, describe and build simple 3D shapes |

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| | | | | | | | S -make nets of simple 3D shapes. |
| **Comparing and Classifying** | | | **compare and sort common 2-D and 3-D shapes and everyday objects**<br><br>K – properties of common 2D and 3D shapes<br>K – vocabulary to compare shapes<br>S – compare common 2D and 3D shapes and everyday objects<br>S – sort common 2D and 3D shapes and everyday objects | | **compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes**<br><br>K – properties of geometric shapes including quadrilaterals and triangles<br>K – appropriate vocabulary to compare and classify these shapes<br>S – compare geometric shapes including | **use the properties of rectangles to deduce related facts and find missing lengths and angles**<br>K – properties of rectangles<br>K – angles in a quadrilateral add up to $360^{o}$<br>S – use the properties of rectangles to deduce related facts<br>S -find missing lengths and angles<br><br>**distinguish between regular and irregular polygons based on** | **compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons**<br><br>K – angles in a triangle = $180^{0}$<br>K – angles in regular polygons = $180^{0}$ multiplied by number of triangles the polygon can be split into<br>K – properties of geometric shapes<br>S – compare geometric shapes based on their properties |

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| | | | | | quadrilaterals and triangles, based on their properties and sizes<br>S - classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes | **reasoning about equal sides and angles**<br><br>K – regular shapes = all sides and angles are the same length<br>K – irregular shapes = sides and angles are different lengths<br>K – polygons = many sided shape<br>S -distinguish between regular and irregular polygons based on reasoning about equal sides and angles | S – classify geometric shapes based on their properties<br>S-find unknown angles in any triangles, quadrilaterals and regular polygons |
| **Angles** | | | | **recognise angles as a property of shape or a description of a turn**<br><br>K – angles = description of a turn<br>S – recognise angles as a property of a shape or a description of a turn<br><br>**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**<br><br>K – identify right angles | **identify acute and obtuse angles and compare and order angles up to two right angles by size**<br><br>K -acute < $90^0$<br>K- obtuse >$90^0$ , $180^0$<br>S – identify acute and obtuse angles<br>S-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**<br><br>K – angles are measure in degrees ($^0$)<br>S- estimate and compare acute, obtuse and reflex angles<br><br>**identify:**<br>* **angles at a point and one whole turn (total 360$^\circ$)**<br>* **angles at a point on a straight line and ½ a turn (total 180$^\circ$)**<br>* **other multiples of 90$^\circ$** | **recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles**<br><br>K – vertically opposite angles are equal<br>S – recognise angles where they meet at a point, are on a straight line, or are vertically opposite<br>S – find missing angles |

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| | | | | K – identify whether angles are greater than or less than a right angle<br>S – recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn<br><br>**identify horizontal and vertical lines and pairs of perpendicular and parallel lines**<br>K - meaning of vocabulary: horizontal, vertical, perpendicular and parallel<br>S - identify horizontal and vertical lines and pairs of perpendicular and parallel lines | | K- angles at a point and one whole turn (total $360^{o}$)<br>K - angles at a point on a straight line and ½ a turn (total $180^{o}$)<br>K - other multiples of $90^{o}$<br>S – identify:<br>* angles at a point and one whole turn (total $360^{o}$)<br>* angles at a point on a straight line and ½ a turn (total $180^{o}$)<br>* other multiples of $90^{o}$ | |