



The Sutton Academy

Knowledge Rich Curriculum Plan

Year 7 Support – Measures, 2D Shapes and Angles

Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Tiered Vocabulary	Prior Knowledge: <i>In order to know this, students need to already know that...</i>	Assessment
To learn how to convert metric units for length.	<ul style="list-style-type: none"> Students will know that to convert from mm to cm they divide by 10 and to convert from cm to mm they multiply by 10. Students will know that to convert from cm to m they divide by 100 and to convert from m to cm they multiply by 100. Students will know that to convert from m to km they divide by 1000 and to convert from km to m they multiply by 1000. 	<p>Convert – change/ swap to</p> <p>Metric – The metric system is a system of measurement that uses the meter, litre, and gram as base units of length (distance), capacity (volume), and weight (mass)</p>	<ul style="list-style-type: none"> Students need to know how to multiply and divide by 10, 100 and 1,000. 	Mini-Assessment 8
To learn how to convert metric units for mass and volume.	<ul style="list-style-type: none"> Students will know that to convert from mg to g they divide by 1000 and to convert from g to mg they multiply by 1000. Students will know that to convert from g to kg they divide by 1000 and to convert from kg to g they multiply by 1000. Students will know that to convert from ml to cl they divide by 100 and to convert from cl to ml they multiply by 100. Students will know that to convert from cl to l they divide by 10 and to convert from l to cl they multiply by 10. Students will know that to convert from ml to l they divide by 1000 and to convert from l to ml they multiply by 1000. 	<p>Capacity – the maximum amount that something can contain.</p> <p>Volume – the amount of space inside a 3D object</p> <p>Mass – the weight of an object</p>	<ul style="list-style-type: none"> Students need to know how to multiply and divide by 10, 100 and 1,000. 	Mini-Assessment 8
To learn how to recognise and identify 2D shapes.	<ul style="list-style-type: none"> Students will know the properties of different 2D shapes and will be able to identify them Students will be able to identify regular and irregular shapes Students will know how to recognise and draw the different types of triangle: isosceles, scalene, right-angled, equilateral Students will know how to name and sketch all types of quadrilaterals and their properties including; square, rectangle, parallelogram, rhombus, kite, trapezium. 	<p>Polygon – a closed shape with straight sides</p> <p>Regular Polygon – A polygon where all sides are the same length and all angles are equal</p> <p>Irregular Polygon – A polygon where all sides are the same length and all angles are not equal</p> <p>Isosceles Triangle – a triangle with two equal sides and two equal angles</p> <p>Equilateral Triangle – a triangle with three equal sides and three equal, 60° angles</p> <p>Scalene Triangle – a triangle with no equal sides or angles</p> <p>Quadrilateral – a four-sided polygon, having four edges and four corners</p> <p>Perpendicular – at a right angle to</p> <p>Parallel – parallel lines are two lines that are side by side and have the same distance continuously between them</p>	<ul style="list-style-type: none"> Students should already be able to name simple 2D shapes 	Mini-Assessment 8
To learn how to identify lines of symmetry and rotational symmetry.	<ul style="list-style-type: none"> Students will know how to identify and label lines of symmetry in 2D shapes. Students will know that a shape is symmetric if it can be divided into two or more identical pieces that are arranged in an organized fashion. Students will know how to identify the order of rotational symmetry of any 2D shape by rotating the shape 360° (this can be done with the use of tracing paper). 	<p>Symmetry – the quality of being made up of exactly similar parts facing each other or around an axis.</p> <p>Rotational symmetry – A shape has rotational symmetry when it can be rotated and it still looks the same</p> <p>Order of Rotational Symmetry – order of rotational symmetry of a shape is the number of times it can be rotated around a full circle and still look the same</p>	<ul style="list-style-type: none"> Students need to know how to identify regular polygons and irregular polygons. 	Mini-Assessment 8

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To learn how to recognise different types of angles and estimate angles.	<ul style="list-style-type: none"> Students will know that acute angles are angles that measure between 0 and 90°. Students will know that obtuse angles are angles that measure between 90° and 180°. Students will know that reflex angles are angles that measure between 180° and 360°. Students will know that a right-angle is 90° and is represented by a square within the angle. Students will know that angles on a straight line add upto 180°. Students will know that angles in a full turn add upto 360°. Students will know how to identify each type of angle by sight. Students will know how to accurately estimate angles based on their knowledge of the types of angles. Students will know why angles are measured in degrees up to 360° - they will know that ancient Babylonian and Persian calendars were both based upon 360-day years and that that this observation is the reason a circle contains 360 degrees. (Cultural Capital) 	<p>Estimate – roughly calculate or judge the value, number, quantity, or extent of.</p> <p>Acute angle – An angle that is less than 90°</p> <p>Obtuse angle – An angle that is more than 90° but less than 180°</p> <p>Reflex angle – An angle that is more than 180° but less than 360°</p> <p>Right angle – An angle that is exactly 90°</p>	<ul style="list-style-type: none"> 	Mini-Assessment 8
To learn how to measure and draw angles.	<ul style="list-style-type: none"> Students will know how to use a protractor to measure an angle. Students will know how to draw an angle. Students will know how to measure reflex angles. Either by measuring the other angle(s) on the point and subtracting from 360° or by splitting the reflex angle into two angles and adding both measured angles together. Students will know how to draw reflex angles. Either by subtracting the angle from 360°, drawing that angle then mark the reflex angle or by subtracting the reflex angle from 180°, drawing that angle on a straight line and then mark the reflex angle. 	<p>Protractor – an instrument used for measuring angles</p>	<ul style="list-style-type: none"> Students should already know how to use a ruler to measure and draw accurately 	Mini-Assessment 8
To learn how to find missing angles on straight lines and around a point.	<ul style="list-style-type: none"> Students will know that angles in a right-angle add upto 90°. Students will know that angles on a straight line add upto 180°. Students will know that vertically opposite angles are equal. Students will know that angles at a point add upto 360°. Students will know how to use angle facts to find missing angles on straight lines. Students will know how to use angle facts to find missing angles at a point. 		<ul style="list-style-type: none"> Students need to know how to add and subtract using the column method. 	Mini-Assessment 8
To learn how to find missing angles in triangles.	<ul style="list-style-type: none"> Students will know that angles in a triangle add up to 180°. Students will know why the angles in a triangle add to 180°. Students will know that angles in an equilateral triangle are equal - 60°. Students will know that two angles in an isosceles triangle are equal. Students will know how to use angle facts to find the missing angles in triangles. Students will know how to use angle facts to find missing angles in special triangles. <p>Opportunity for Challenge:</p> <ul style="list-style-type: none"> Students will know how to solve multi-step problems involving angles in triangles and other basic angle rules (straight lines, around a point etc.) 	<p>Isosceles Triangle – a triangle with two equal sides and two equal angles</p> <p>Equilateral Triangle – a triangle with three equal sides and three equal, 60° angles</p> <p>Scalene Triangle – a triangle with no equal sides or angles</p>	<ul style="list-style-type: none"> Students need to know how to add and subtract using the column method. 	Mini-Assessment 8

Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Tiered Vocabulary	Prior Knowledge: <i>In order to know this, students need to already know that...</i>	Assessment
To learn how to find missing angles in quadrilaterals.	<ul style="list-style-type: none"> Students will know that angles in a quadrilateral add up to 360°. Students will know why the angles in a quadrilateral add to 360°. Students will know how to use angle facts to find the missing angles in quadrilaterals Opportunity for Challenge: <ul style="list-style-type: none"> Students will know how to solve multi-step problems involving angles in quadrilaterals and other basic angle rules (straight lines, around a point etc.) 	Quadrilateral – a four-sided polygon, having four edges and four corners	<ul style="list-style-type: none"> Students need to know how to find missing angles in a triangle 	Mini-Assessment 8
To learn how to identify parts of a circle and draw circles accurately.	<ul style="list-style-type: none"> Students will know how to label the radius, diameter, circumference, tangent, chord, segment, sector and centre of a circle. Students will know how to draw the radius, diameter, circumference, tangent, chord, segment, sector and centre of a circle Students will know that the diameter is double the size of the radius or the radius is half the size of the diameter. Students will know that the circumference is the distance around the circle and is a measure of length. Students will know how to use a pair of compasses to accurately draw a circle when given the radius or diameter. 	Circumference – the perimeter of a circle Perimeter – the distance around the outside of a shape Arc – a part of a curve, a part of the circumference of a circle Radius – a straight line from the centre to the circumference of a circle or sphere Diameter – a straight line passing from side to side through the centre of a body or figure, especially a circle or sphere Tangent – a line touching a circle or curve at only one point Segment – a region bounded by a chord and a corresponding arc lying between the chord's endpoints Chord – the line segment joining two points on a curve	<ul style="list-style-type: none"> Students need to recognise a circle. 	Mini-Assessment 8
To learn how to accurately construct 2D shapes.	<ul style="list-style-type: none"> Students will know how to draw rectangles accurately using a ruler and protractor. Students will know how to draw squares accurately using a ruler and protractor. Students will know how to draw parallelograms accurately using a ruler and protractor. Students will know how to draw trapezia accurately using a ruler and protractor. 	Trapezium – a quadrilateral with one pair of sides parallel. Parallelogram – a four-sided shape with two pairs of parallel opposite sides. Construct – Build or make. In maths, construct means to draw a shape, line or angle accurately using a compass and rule	<ul style="list-style-type: none"> Students need to know how to draw straight lines of a certain length using a ruler. Students need to know how to draw angles using a protractor. 	Mini-Assessment 8
To learn how to construct triangles.	<ul style="list-style-type: none"> Students will know how to construct SAS triangles using a ruler and protractor. Students will know how to construct ASA triangles using a ruler and protractor. 	Construct – Build or make. In maths, construct means to draw a shape, line or angle accurately using a compass and rule	<ul style="list-style-type: none"> Students need to know how to draw straight lines of a certain length using a ruler. Students need to know how to measure and draw angles using a protractor. 	Mini-Assessment 8