



The Sutton Academy

Knowledge Rich Curriculum Plan

Year 10 Foundation – Geometry 2

Lesson Objective	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 calculate perimeter	<ul style="list-style-type: none"> • Students will know how to calculate the perimeter of compound shapes. • Students will know how to use inverse operations to find the missing lengths of shapes when given the perimeter. • Students will know how to solve real life problems involving perimeter. • Students will know how to solve more complex problems involving perimeter <p>BASIC SHAPES?</p>	<p>Perimeter – the distance around the outside of a shape</p>	<ul style="list-style-type: none"> • Students should already know how to name different 2D shapes • Students should know how to find the perimeter of basic shapes 	
To learn how to calculate area	<ul style="list-style-type: none"> • Students will know how to calculate the area of rectangles, squares, parallelograms and triangles • Students will know how to calculate the area of compound shapes involving rectangles, squares, parallelograms and triangles 	<p>Area – the amount of space inside a 2D shape</p> <p>Quadrilateral – a four-sided shape</p>	<ul style="list-style-type: none"> • Students need to know how to recognise different quadrilaterals 	
To learn how to calculate the area of a trapezium	<ul style="list-style-type: none"> • Students will know that the formula for the area of a trapezium is $\frac{1}{2}(a + b)h$ where a and b are the parallel sides and h is the height of the trapezium • Students will know how to calculate the area of a trapezium • Students will know how to calculate the area of compound shapes involving trapezia • Students will know how to solve worded problems involving the area of a trapezium • Students will know how to work backwards to find missing lengths given the area of a trapezium 	<p>Trapezium – a quadrilateral with one pair of sides parallel.</p>	<ul style="list-style-type: none"> • Students need to know how to calculate the area of squares, rectangles, triangles and parallelograms 	
To learn how to calculate the area of compound shapes	<ul style="list-style-type: none"> • Students will know how to calculate the area of a compound shapes, by separating and calculating the areas of the more basic shapes. 	<p>Compound - a thing that is composed of two or more separate elements.</p>	<ul style="list-style-type: none"> • Students need to be able to use basic mathematical operations such as addition, subtracting, multiplication and division. • Students need to be able to solve basic equations. • Students need to be able to find the area of rectangles, parallelograms and triangles. 	
To learn how to calculate circumference	<ul style="list-style-type: none"> • Students will know how to calculate the circumference of a circle using the formula - πd, giving their answer to a suitable degree of accuracy • Students will know how to calculate the arc length and perimeter of a semi-circle • Students will know how to calculate the arc length and perimeter of quarter circles or three quarters of a circle • Students will know how to use inverse operations to find the missing radius or diameter when given the circumference. • Students will know how to solve problems involving area and circumference of circles. 	<p>Circumference – the perimeter of a circle</p> <p>Arc – a part of a curve, a part of the circumference of a circle</p> <p>Radius – a straight line from the centre to the circumference of a circle or sphere</p> <p>Diameter – a straight line passing from side to side through the centre of a body or figure, especially a circle or sphere</p>	<ul style="list-style-type: none"> • Students need to know how to identify the different parts of a circle 	

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To learn how to calculate the area of a circle	<ul style="list-style-type: none"> • Students will know how to calculate the area of a circle using the formula πr^2 • Students will know how to calculate the area of a circle using the formula πr^2, without a calculator leaving answers in terms of π. • Students will know how to calculate the area of semi circles, quarter circles or three-quarters of a circle • Students will know how to use inverse operations to find the missing radius or diameter when given the area. • Students will know how to solve problems involving the area of circles. • Students will know how to calculate the area of compound shapes involving circles or parts of circles 		<ul style="list-style-type: none"> • Students need to know how to identify the different parts of a circle 	
To learn how to calculate missing sides using Pythagoras' Theorem	<ul style="list-style-type: none"> • Students will know how to find missing lengths in a right-angled triangle using Pythagoras' theorem • Students will know that to prove a triangle is right angled using Pythagoras' theorem they will substitute the values into the formula. • Students will know how to solve worded problems using Pythagoras' theorem • Students will know how to solve worded problems using Pythagoras' theorem • Students will know how to solve problems involving multiple right-angled triangles using Pythagoras' theorem 	<p>Hypotenuse – the longest side in a right-angled triangle. It can always be found opposite the right angle</p> <p>Theorem – a statement that has been proved, or can be proved</p>	<ul style="list-style-type: none"> • Students will need to know how to square numbers 	
To learn how to calculate missing sides and angles in right angled triangles using trigonometry	<ul style="list-style-type: none"> • Students will know that $\text{Sin} = \frac{\text{Opposite}}{\text{Hypotenuse}}$ • Students will know that $\text{Cos} = \frac{\text{Adjacent}}{\text{Hypotenuse}}$ • Students will know that $\text{Tan} = \frac{\text{Opposite}}{\text{Adjacent}}$ • Students will know how to use the formula triangles for SOHCAHTOA to find missing sides. • Students will know how to calculate missing sides in right angled triangles using SOHCAHTOA 	<p>Trigonometry – a branch of mathematics that studies relationships between side lengths and angles of triangles</p> <p>Hypotenuse – the longest side in a right-angled triangle. It can always be found opposite the right angle</p> <p>Adjacent – next to, in maths the adjacent side in a right-angled triangle is the side that is adjacent to the angle, forming the angle with the hypotenuse</p> <p>Opposite – for right angled triangles the opposite is the side opposite the angle that we know or are trying to find.</p>	<ul style="list-style-type: none"> • Students need to know how to rearrange formulae • Students need to know how to substitute numbers into formulae • Students need to know how to use a calculator 	
To learn how to calculate missing sides and angles in right angled triangles using trigonometry	<ul style="list-style-type: none"> • Students will know how to calculate missing angles in right angled triangles using SOHCAHTOA • Students will know how to solve worded problems involving SOHCAHTOA • Students will know how to solve multi-step problems involving more than one right-angled triangle using SOHCAHTOA. 	<p>Inverse - Opposite</p>	<ul style="list-style-type: none"> • Students need to know how to calculate missing sides and angles using SOHCAHTOA 	