



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	- 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	Perimeter – the distance around the outside of a shape	Students should already know how to name different 2D shapes	
To learn how to calculate area	- 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	Area – the amount of space inside a 2D shape Quadrilateral – a four-sided shape Compound - a thing that is composed of two or more separate elements.	Students need to know how to recognise different quadrilaterals	
To learn how to calculate the area of a trapezium	- 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	Trapezium – a quadrilateral with one pair of sides parallel.	Students need to know how to calculate the area of squares, rectangles, triangles and parallelograms	
To learn how to calculate circumference	- 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.	Circumference – the perimeter of a circle 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	Students need to know how to identify the different parts of a circle	
To learn how to calculate the area of a circle	- 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		Students need to know how to identify the different parts of a circle	

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To learn how to find the area and the perimeter of a sector	- Students will know how to find the length of an arc. - Students will know how to find the area of a sector.		- Students will need to know how to find the circumference of a circle - Students will know how to find the area of a circle.	
To learn how to calculate missing sides using Pythagoras' Theorem	- 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	Hypotenuse – the longest side in a right-angled triangle. It can always be found opposite the right angle Theorem – a statement that has been proved, or can be proved	Students will need to know how to square numbers	
To learn how to solve 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		Students will need to know how to find missing sides using Pythagoras' theorem	
To learn how to calculate missing sides and angles in right angled triangles using trigonometry	- Students will know that $\sin = \frac{\text{Opposite}}{\text{Hypotenuse}}$ - Students will know that $\cos = \frac{\text{Adjacent}}{\text{Hypotenuse}}$ - Students will know that $\tan = \frac{\text{Opposite}}{\text{Adjacent}}$ - 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 - Students will know how to calculate missing angles in right angled triangles using SOHCAHTOA	Trigonometry – a branch of mathematics that studies relationships between side lengths and angles of triangles Hypotenuse – the longest side in a right-angled triangle. It can always be found opposite the right angle 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 Opposite – for right angled triangles the opposite is the side opposite the angle that we know or are trying to find.	- 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	- 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.	Inverse - Opposite	Students need to know how to calculate missing sides and angles using SOHCAHTOA	