The Sutton Academy

Knowledge Rich Curriculum Plan

Year 11 Higher – Geometry 2

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this, students need to already know that…*	Assessment
To learn how to solve problems involving 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 **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	• Students should already know how to calculate circumference	
To learn how to solve problems involving the area of a circle	• Students will know how to calculate the area of a circle using the formula πr^2 leaving answers rounded to a given degree of accuracy • 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 • Students will know how to calculate the area 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 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	**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 should already know how to calculate the area of a circle given the radius or diameter • Students should know how to identify the different parts of a circle	
To learn how to calculate the area, arc length and perimeter for a sector	• Students will know how to calculate the area of a sector using the formula, $Area\ of\ a\ Sector = \frac{\theta}{360}\pi r^2$ • Students will know how to calculate the angle of a sector given its area • Students will know how to calculate the radius of a sector given its area • Students will know how to calculate the arc length of the sector using the formula $Arc\ Length = \frac{\theta}{360}\pi d$ • Students will know how to calculate the perimeter of a sector • Students will know how to calculate the angle of a sector given its arc length using inverse operations • Students will know how to calculate the radius of a sector given its arc length	**Sector –** a part of a circle made of the arc of the circle along with its two radii.	• Students need to know how to calculate area and circumference of a circle • Students need to know that angles around a point add to 360	

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this, students need to already know that…*	Assessment
To learn how to apply the circle theorems	• Students will know that the radius of a circle meets a tangent at 90° • Students will know how to use this circle theorem to calculate missing angles • Students will know that the angle at the centre of a circle is double the angle at the circumference • Students will know how to use this circle theorem to calculate missing angles •	**Theorem** – a statement that has been proved, or can be proved **Tangent –** a line touching a circle or curve at only one point	• Students need to know how to find missing angles in isosceles triangles • Students need to know the basic angle facts	
To learn how to apply the circle theorems	• Students will know that angles in the same segment are equal • Students will know how to use this circle theorem to calculate missing angles • Students will know that opposite angles in a cyclic quadrilateral add to 180° • Students will know how to use this circle theorem to calculate missing angles •	**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 **Quadrilateral –** a four-sided shape **Cyclic Quadrilateral –** a quadrilateral whose vertices all lie on a single circle	• Students need to know that the angle at the centre of a circle is double the angle at the circumference	
To learn how to apply the circle theorems	• Students will know that angles in alternate segments are equal • Students will know how to use this circle theorem to calculate missing angles • Students will know how to solve multi-step problems using the circle theorems	**Segment –** a region bounded by a chord and a corresponding arc lying between the chord's endpoints	• Students will need to know that the tangent meets a radius at 90°	
To learn how to apply the circle theorems	• Students will know how to solve multi-step problems using the circle theorems		• Students will need to know the circle theorems	