



The Sutton Academy

Knowledge Rich Curriculum Plan

Year 11 Higher – Geometry 2

Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Tiered Vocabulary	Steps to Success	Prior Knowledge: <i>In order to know this, students need to already know that...</i>	Feedback
To learn how to apply the circle theorems	<ul style="list-style-type: none"> 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 	<p>Theorem – a statement that has been proved, or can be proved</p> <p>Tangent – a line touching a circle or curve at only one point</p>	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 	<p>Segment – a region bounded by a chord and a corresponding arc lying between the chord's endpoints</p> <p>Chord – the line segment joining two points on a curve</p> <p>Quadrilateral – a four-sided shape</p> <p>Cyclic Quadrilateral – a quadrilateral whose vertices all lie on a single circle</p>	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 	<p>Segment – a region bounded by a chord and a corresponding arc lying between the chord's endpoints</p>	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Students will need to know that the tangent meets a radius at 90° 	
<p>To learn how to apply the circle theorems</p> <p>Boost topic.</p>	<ul style="list-style-type: none"> Students will know how to solve multi-step problems using the circle theorems 		<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Students will need to know the circle theorems 	

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To learn how to use the Sine rule	<ul style="list-style-type: none"> Students will know that the sine rule for missing sides is $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ Students will know that the sine rule for missing angles is $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$ Students will know that we use the Sine rule with non-right-angled triangles where we know or can find a complete pair of opposites where we know both a side and the opposite angle Students will know how to find missing lengths using the Sine rule Students will know how to find missing angles using the Sine rule Students will know how to solve more complex problems using the Sine rule 		•	<ul style="list-style-type: none"> Students need to know how to solve equations involving fractions Students need to know how to find missing lengths and angles using SOHCAHTOA 	
To learn how to use the Cosine rule	<ul style="list-style-type: none"> Students will know that the cosine rule for missing sides is $a^2 = b^2 + c^2 - 2bc \cos A$ Students will know that the cosine rule for missing angles is $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ Students will know that we use the Cosine rule with non-right-angled triangles when we do not have or cannot find a complete pair of opposites and instead we know two sides and the included angle (and are asked to find the third side) or we know all three sides (and are asked to find an angle) Students will know how to use the cosine rule to find missing sides and angles Students will know how to solve multi-step problems using the cosine rule and also the sine rule where necessary 		•	<ul style="list-style-type: none"> Students need to know how to use the sine rule to find missing sides and angles Students need to know how to substitute numbers into formulae 	
To learn how to calculate the area of a triangle using sine	<ul style="list-style-type: none"> Students will know that we use the formula below to calculate the area of a triangle when we do not know the base and perpendicular height but instead know or can find two sides and the included angle in a non-right-angled triangle $\text{Area of a triangle} = \frac{1}{2}ab \sin C$ Students will know how to calculate the area of a triangle using the formula Students will know how to work backwards to find missing lengths given the area of a triangle, a length and an angle 		•	<ul style="list-style-type: none"> Students need to know how to calculate the area of a triangle without sine 	

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	<ul style="list-style-type: none"> Students will know how to work backwards to find a missing angle given the area of a triangle and two lengths Students will know how to solve multi-step problems involving the sine and cosine rules and area of a triangle formulae 				
<p>To learn how to solve problems using the different trig formulae</p> <p>Boost topic.</p>	<ul style="list-style-type: none"> Students will know when it is appropriate to use each trig formula Students will know how to solve multi-step problems using the different trig formulae 		<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Students need to be able to use the sine rule, the cosine rule, the formula for the area of a triangle, Pythagoras' theorem and SOHCAHTOA 	