



The Sutton Academy

# Knowledge Rich Curriculum Plan

Year 7 Support – Perimeter and Area



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 calculate the perimeter of 2D shapes.	<ul style="list-style-type: none"> <li>Students will know how to calculate the perimeter of a shape drawn on a centimetre grid</li> <li>Students will know how to calculate the perimeter of rectangles, triangles, trapezia and parallelograms.</li> <li>Students will know that the units used to represent perimeter are mm, cm and m etc.</li> <li>Students will know that to find the perimeter of a shape that is represent on a cm grid they must count the number of squares around the outside of shape.</li> </ul>	Perimeter – the distance around the outside of a shape	<ul style="list-style-type: none"> <li>Students need to know the properties of different shapes and recognise regular and irregular polygons</li> </ul>	Mini-Assessment 9
To learn how to calculate the perimeter of 2D shapes.	<ul style="list-style-type: none"> <li>Students will know how to calculate the perimeter of a compound shape drawn on a centimetre grid</li> <li>Students will know how to calculate the perimeter of compound shapes.</li> </ul>	Perimeter – the distance around the outside of a shape Compound shape – a shape made up of two or more geometric shapes	<ul style="list-style-type: none"> <li>Students need to know how to calculate the perimeter of a simple shape</li> </ul>	Mini-Assessment 9
To learn how to calculate the area of rectangles and parallelograms.	<ul style="list-style-type: none"> <li>Students will know that the units used to represent area are <math>mm^2</math>, <math>cm^2</math> and <math>m^2</math> etc.</li> <li>Students will know that to find the area of a shape that is represent on a cm grid they must count the number of squares inside the shape.</li> <li>Students will know how to calculate the area rectangles using the formula <math>A = length \times width</math>.</li> <li>Students will know how to calculate area of a parallelogram using the formula <math>A = base \times height</math>.</li> <li>Students will know to ignore any additional lengths in the parallelogram.</li> <li>Students will know that the base and height are perpendicular to each other in every parallelogram.</li> </ul> <p><b>Opportunity for challenge:</b></p> <ul style="list-style-type: none"> <li>Students will know how to use inverse operations to find the missing lengths of shapes when given the area.</li> <li>Students will know how to use area to solve real life problems.</li> </ul>	Area – the amount of space inside a 2D shape Parallelogram – a four-sided shape with two pairs of parallel opposite sides.	<ul style="list-style-type: none"> <li>Students need to be confident with their multiplication tables</li> </ul>	Mini-Assessment 9
To learn how to calculate the area of triangles.	<ul style="list-style-type: none"> <li>Students will know how to calculate the area of a triangle using the formula <math>A = \frac{1}{2} base \times height</math>.</li> <li>Students will know that the base and height are perpendicular to each other in every triangle.</li> <li>Students will know that the reason we divide by 2 when finding the area of a triangle is because the <math>base \times height</math> would give the area of a rectangle which is double the triangle.</li> <li>Students will know to ignore any additional lengths in the triangle.</li> </ul> <p><b>Opportunity for challenge:</b></p> <ul style="list-style-type: none"> <li>Students will know how to use area to solve real life problems.</li> </ul>	Area – the amount of space inside a 2D shape	<ul style="list-style-type: none"> <li>Students need to know how to calculate the area of a rectangle</li> </ul>	Mini-Assessment 9

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
<p><b>To learn how find the area of compound shapes.</b></p>	<ul style="list-style-type: none"> <li>• Students will know how to calculate the area of compound shapes, by separating them in to rectangles and finding the sum of the areas of each individual shape. ('L' shape only)</li> <li><b>Opportunity for challenge:</b></li> <li>• Students will know how to calculate the area of compound shapes involving rectangles and triangles.</li> </ul>	<p><b>Compound</b> – a thing that is composed of two or more separate elements; a mixture.</p> <p><b>Compound shape</b> – a shape made up of two or more geometric shapes</p>	<ul style="list-style-type: none"> <li>• Students need to know how to find the area of rectangles.</li> </ul>	<p>Mini-Assessment 9</p>
<p><b>To investigate the properties of a circle.</b></p>	<ul style="list-style-type: none"> <li>• Students will know that multiplying the radius by 2 will give the length of the diameter.</li> <li>• Students will know that dividing the diameter by 2 will give the length of the radius.</li> <li>• Students will know that the circumference is the distance around the circle.</li> <li>• Students will know that the number <math>\pi</math> is an irrational mathematical constant.</li> <li>• Students will know that <math>\pi = 3.14 \dots</math></li> <li>• Students will know that <math>\pi</math> is defined as the ratio of a circle's circumference to its diameter.</li> <li>• Students will know that if you divide the circumference of any circle by its diameter you will always get <math>\pi</math>. (This should be discovered through investigation)</li> <li>• Students will know how to type the <math>\pi</math> symbol on to a calculator.</li> </ul>	<p><b>Radius</b> – a straight line from the centre to the circumference of a circle or sphere</p> <p><b>Diameter</b> – a straight line passing from side to side through the centre of a body or figure, especially a circle or sphere</p> <p><b><math>\pi</math></b> – the ratio of a circle's circumference to its diameter.</p>	<ul style="list-style-type: none"> <li>• Students should already know how to label parts of a circle, particularly the radius, diameter and circumference</li> </ul>	<p>Mini-Assessment 9</p>
<p><b>To learn how to find the circumference of a circle.</b></p>	<ul style="list-style-type: none"> <li>• Students will know how to calculate the circumference of a circle using the formula <math>C = \pi d</math>, where d is the diameter.</li> <li>• Students will know how to find the circumference of a circle where only the radius is given by using the formula <math>C = 2\pi r</math>, where r is the radius or by finding the diameter by multiplying the radius by 2 and then using the formula <math>C = \pi d</math>.</li> <li>• Students will know how to find the circumference of a circle when the diameter or radius is known (mixture)</li> </ul>	<p><b>Circumference</b> – the perimeter of a circle</p> <p><b>Radius</b> – a straight line from the centre to the circumference of a circle or sphere</p> <p><b>Diameter</b> – a straight line passing from side to side through the centre of a body or figure, especially a circle or sphere</p> <p><b><math>\pi</math></b> – the ratio of a circle's circumference to its diameter.</p>	<ul style="list-style-type: none"> <li>• Students need to know how to identify the length of the radius or diameter</li> </ul>	<p>Mini-Assessment 9</p>
<p><b>To learn how to find the area of a circle.</b></p>	<ul style="list-style-type: none"> <li>• Students will know how to calculate the area of a circle using the formula <math>A = \pi r^2</math>, where r is the radius.</li> <li>• Students will know how to calculate the area of a circle when a diameter is given by using the formula <math>A = \pi(\frac{d}{2})^2</math>, where d is the diameter or by dividing the diameter by 2 and using the formula <math>A = \pi r^2</math>.</li> <li>• Students will know how to find the area of a circle when the diameter or radius is known. (mixture)</li> </ul>	<p><b>Area</b> – the amount of space inside a 2D shape</p> <p><b>Radius</b> – a straight line from the centre to the circumference of a circle or sphere</p> <p><b>Diameter</b> – 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"> <li>• Students need to know how to round to a given number of decimal places</li> </ul>	<p>Mini-Assessment 9</p>