The Sutton Academy

Knowledge Rich Curriculum Plan

Year 7 Support – Perimeter and Area

Lesson objective	Intended Knowledge:	Tiered Vocabulary	Prior Knowledge:	Steps to Success	Feedback
To learn how to calculate the perimeter of 2D shapes.	• Students will know how to calculate the perimeter of a shape drawn **on a centimetre grid.** • Students will know how to calculate the perimeter of rectangles, triangles, trapezia and parallelograms. • Students will know that the units used to represent perimeter are mm, cm and m etc. **Opportunity for challenge:** • Students will know how to use inverse operations to find the missing lengths of shapes when given the perimeter.	Perimeter – the distance around the outside of a shape	• Students need to identify and recall properties of regular and irregular 2D shapes.	<u>Steps to Success – Perimeter</u> To calculate the perimeter, add the length of all of the sides together. Remember even if there are only two measurements on the shape if it has 4 sides you will need to add 4 numbers.	
To learn how to calculate the perimeter of compound shapes.	• Students will know how to calculate the perimeter of a compound shape drawn **on a centimetre grid**. • Students will know how to calculate the perimeter of compound shapes made up of rectangles. **Opportunity for challenge:** • Students will know how to calculate the perimeter of compound shapes made up of rectangles and triangles.	Compound shape – a shape made up of two or more geometric shapes	• Students need to know how to calculate the perimeter of a rectangle.	<u>Steps to Success – Perimeter of compound shapes</u> **Step 1:** Firstly, identify whether or not you need to find any missing lengths, if it is necessary subtract the smaller length from the larger length. **Step 2:** Add up the lengths of all the sides. **Step 3:** Don't forget to write your units – cm or mm or m.	
To learn how to calculate the area of rectangles and parallelograms.	• Students will know how to find the area of a shape that is represent on a cm grid. • Students will know how to calculate the area rectangles. • Students will know how to calculate area of a parallelogram. **Opportunity for challenge:** • Students will know how to use inverse operations to find the missing lengths of shapes when given the area.	Area – the amount of space inside a 2D shape Parallelogram – a four-sided shape with two pairs of parallel opposite sides.	• Students need to know how to multiply integers. • Students need to know how to identify rectangles and parallelograms.	<u>Steps to Success – Area of shapes</u> **Step 1** – Identify the formula from the list needed: • Area of a **Square/Rectangle** = Base x Height • Area of a **Parallelogram** = Base x Height **Step 2** – Substitute the measurements into the required formula. **Step 3** – Don't forget to write your units cm^2 or mm^2or m^2.	
To learn how to calculate the area of triangles.	• Students will know how to calculate the area of a triangle. **Opportunity for challenge:** • Students will know how to use inverse operations to find the missing lengths of shapes when given the area.	Area – the amount of space inside a 2D shape	• Students need to know how to calculate the area of a rectangle.	<u>Steps to Success – Area of shapes</u> **Step 1** – Identify the formula from the list needed: • Area of a **Triangle** = ½ x Base x Height **Step 2** – Substitute the measurements into the required formula. **Step 3** – Don't forget to write your units cm^2 or mm^2or m^2.	
To learn how find the area of compound shapes.	• Students will know how to calculate the area of compound shapes, **Opportunity for challenge:** • Students will know how to calculate the area of compound shapes involving rectangles and triangles.	Compound – a thing that is composed of two or more separate shapes. Compound shape – a shape made up of two or more shapes	• Students need to know how to find the area of a rectangle.	<u>Steps to Success – Area of compound shapes</u> **Step 1:** Firstly, identify whether or not you need to find any missing lengths, if it is necessary subtract the smaller length from the larger length. **Step 2:** Divide the compound shape into smaller shapes, and calculate the area of each individual shape. **Step 3:** To find the total area of the compound shape, add the area of the individual shapes together.	

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				Step 4: Don't forget to write your units - cm^2 or mm^2or m^2.	
To learn how to find the circumference of a circle.	• Students will know how to calculate the circumference of a circle when given the diameter. • Students will know how to find the circumference of a circle. • Students will be able to leave answers in terms of π and rounded to an appropriate degree of accuracy. **Opportunity for challenge:** • Students will know how to calculate the circumference of a - semi 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 π – the ratio of a circle's circumference to its diameter. Circumference – the perimeter of a circle	• Students need to know how to round to a given number of decimal places.	<u>Steps to Success: Circumference of a circle</u> **Step 1:** Find the diameter of your circle, if you are given the radius, double it to find the diameter. **Step 2:** Substitute your diameter into the formula – C = π x d **Step 3:** Type your calculation in the calculator. **Step 4:** Write your answer from the calculator and round to an appropriate degree of accuracy – it will normally say in the question. <u>Steps to Success: Circumference of a semi-circle/quarter circle</u> **Step 1:** Find the diameter of your circle, if you are given the radius, double it to find the diameter. **Step 2:** Substitute your diameter into the formula – π x d **Step 3:** Divide the circumference of the circles by 2 for semi circle, 4 for quarter of a circle. **Step 4:** Add the diameter onto the circumference of the semi circle	
To learn how to find the area of a circle.	• Students will know how to calculate the area of a circle when the radius is given. • Students will know how to calculate the area of a circle when a diameter is given. • Students will be able to leave answers in terms of π and rounded to an appropriate degree of accuracy. **Opportunity for challenge:** • Students will know how to find the area of semi circles.	Area – the amount of space inside a 2D shape	• Students need to know how to round to a given number of decimal places.	<u>Steps to Success: Area of a circle</u> **Step 1:** Find the radius of your circle, if you are given the diameter, half it to find the radius. **Step 2:** Substitute your radius into the formula – πr^2 **Step 3:** Type your calculation in the calculator. **Step 4:** Write your answer from the calculator, check to see if the question wants you to round or answer in terms of π <u>Steps to Success: Area of a semi-circle</u> **Step 1:** Find the radius of your circle, if you are given the diameter, half it to find the radius. **Step 2:** Substitute your radius into the formula – A = πr^2 and then dividing you answer by 2 to get the area of the semi-circle. **Step 3:** Type your calculation in the calculator. **Step 4:** Write your answer from the calculator and round to an appropriate degree of accuracy – it will normally say in the question.	
To consolidate understanding of perimeter and area	• Students will know how to find the perimeter of shapes, including compound shapes. • Students will know how to find the circumference of circles and semi circles.		•		

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	• Students will know how to find the area of rectangles, triangles, parallelograms, compound shapes, trapezia and circles				
Mini-Assessment 9					