Home-School Learning Collaboration – Mathematics



Topics in this cycle: Summer 1	Taught:	Year Group: 8
Key knowledge/concepts to be learnt ('Tell me about')		Websites/blogs/YouTube links and further reading to deepen and consolidate learning
 Angles in parallel lines and polygons Basic angle rules and notation Angles in parallel lines Constructing triangles Interior angles of polygons Prove simple geometric facts Construction of bisects and perpendicular lines Area of trapezia and circles Area of trapezium Area and perimeter of compound shapes Perimeter of circles Area of circles and part of circles Area of compound shapes involving circles Perimeter of compound shapes involving circles 		https://vimeo.com/530748724 https://vimeo.com/508894521 https://vimeo.com/481595610 https://vimeo.com/533537045 https://vimeo.com/508494691 https://vimeo.com/540095476 https://vimeo.com/436729057 https://vimeo.com/543624911

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Key Vocabulary and Definitions To Be Learnt		What Will The Assessment Look Like?
Degree	Units of angle measurement	Label the angle that is alternate to the angle
Acute angle	Angle smaller than 90 degrees	shown.
Obtuse angle	Angle greater than 90 degrees	55°
Reflex angle	Angle greater than 180 degrees	
Right angle	90 degree angle	Work out the size of the angle marked t . t = Write the mathematical names of the quadrilaterals.

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		The circle has a diameter of 18 cm. The height of the square is a third of the diameter of the circle. Calculate the shaded area. Give your answer to 1 decimal place.
Supplementary angles	Adds up to 180 degrees	Family Learning Opportunities
Alternate angles	Are on different sides of transversal line, forming a 'z shape'	Support your child at completing their homework and to boost SparxMaths XP level.
Corresponding angles	Are on the same side of transversal line forming an 'f shape'	Tost understanding by asking quastions
Co-interior angles	Are between parallel lines, forming a 'c shape'	Angles in parallel lines and polygons:
Transversal line	A line that crosses a set of parallel lines	Basic angle rules and notation What do angles on around a point add up to? What do angles on a straight line add up to? When are vertically opposite angles formed?
Parallel lines	Never meet	
Perpendicular lines	Meet under 90 degree angle	Given an angle formed at the intersection of two lines is it always possible to find all angles around that point?
		Angles in parallel lines How do you denote that two or more lines are parallel?
		 <u>Constructing triangles</u> Is it possible to construct a triangle accurately given the side lengths using only a pencil and ruler? Is it possibly to construct a unique triangle given only three sides?

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Interior angles of polygons
Explain why the sum of interior angles of any polygon is a multiple
of 180 degrees.
Prove simple geometric facts
what's the difference between a proof and a
demonstration?
How do we know the result will always be true?
<u>Construction of bisects and perpendicular lines</u>
What does bisect mean? What does 'bi' tell us?
What does perpendicular mean?
Area of trapezia and circles
<u>Area of triangles/rectangles/parallelograms</u>
Compare a rectangle, parallelogram and trapezium. What's the
same and what's different?
<u>Area of trapezium</u>
Why does the formula for the area of a trapezium also work if it is
applied to parallelograms, rectangles and squares?
Are the parallel sides of a trapezium always horizontal?
<u>Area and perimeter of compound shapes</u>
How can you divide this compound shape up into shapes we know
how to find the area of?
Name each of these shapes.
What length(s) do you need to substitute into your formula? Is
this length given, or do you need to calculate it first?
What is your strategy for find the missing length(s)?
<u>Perimeter of circles</u>
How do you calculate the perimeter of a circle?
<u>Area of circles</u>
Where is the radius of the circle?
How do we find the circumference of a circle?

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	 How do we find the area of a parallelogram? As the number of sectors increases, is our estimate for the area more or less accurate? Explain why. What does this tell you about the area of a circle? How do you round a number to 1 significant figure? Use a calculator to change 22 7 into a decimal. What do you notice when you compare this to π? Why is it useful to firstly calculate an estimate of the area? How many decimal places or significant figures should you round your answer to? Why? <u>Area of compound shapes involving circles</u>
	bo we need to work out the area/arc length of each semicircle separately? Why or why not? Which standard shapes can you identify in the compound shape? Identify the dimensions you need to be able to calculate the area. How can you work out the missing ones?
	https://youtu.be/RuE2Rqd0wu4?si=5_f9qOwhWPB1YspV