Edward Peake Church of England Middle School		
Topic: Developing Geometric Reasoning	**Year: 7**	**NC Strand: Geometry**

What should I already know?
• How to compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • How to recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

What will I know by the end of the unit?	
• How to use the sum of angles at a point to solve problems • How to solve the sum of angles on a straight line to solve problems • How to use the equality of vertically opposite angles to solve problems • Know and apply the sum of angles in a triangle • Know and apply the sum of angles in a quadrilateral	• How to solve angle problems using properties of triangles and quadrilaterals • How to solve complex angle problems • How to find and solve the angle sum of any polygon • How to investigate angles in parallel lines • How to use parallel lines angle rules • How to use known facts to obtain simple proofs

Vocabulary			
Sum	Isosceles	Rhombus	Equal
Angle	Equilateral	Point	Opposite
Degree	Scalene	Straight Line	Transversal
Line Segment	Right- angled	Polygon	
Notation	Sum	Interior	
Adjacent	Quadrilateral	Regular	
Vertically opposite	Convex	Parallel	
Line	Concave	Perpendicular	
Intersect	Parallelogram	Conjecture	

Investigate/Homework tasks

- Homework will be set by your teacher using google classroom
- You should complete at least 30 minutes of maths tasks using the website and log in provided by your teacher. Please attend help sessions if you do not have access to the internet at home
- Additional work you could complete:
  - Find out more about the meaning of the vocabulary list using http://www.amathsdictionaryforkids.com/
- To challenge yourself: Answer the key questions to deepen your knowledge

Key Information/Diagrams

Key Representations

The blue diagram shows a reverse motion linkage that students should be familiar with from primary school.

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Key Questions		
What is the sum of angles at a point? How many right-angles fit around a point? How does 180° compare to the sum of angles at a point	What is the sum of angles at a point on a straight line? How many right-angles would fit on a straight line? John measures three angles on a straight line. They are 81°, 47° and 51°. Has John measured the angles correctly? Explain your answer	When are vertically opposite angles formed? Given an angle formed at the intersection of two straight lines, is it always possible to find all angles at that point?
What is the sum of the interior angles of a triangle? How many angles do you need to know to be able to find all of the interior angles of a triangle? If one angle in an isosceles triangle is 60°, is it an equilateral triangle? Can a triangle have two right-angles?	What is the sum of interior angles in a quadrilateral? How can you demonstrate that the sum of the interior angles of a quadrilateral is 360°? If a quadrilateral has four right-angles, is it a square?	How did you decide which angle fact to use and apply? Could you have applied a different angle fact? Which angle facts do you know? Which angle facts do you think you will need to apply to this question?
How did you decide which angle facts to apply? Could you have considered the same angle facts in a different order? Could you have applied a different angle fact?	Explain why the interior angle of any polygon is a multiple of 180°. How can you calculate the angle sum of any polygon? Does your method work for concave polygons?	How do you denote that two or more lines are parallel? What do you notice about the sum of angles ___ and ___ ? What do you notice about angles ___ and ___ ?
How do you identify corresponding/alternate/co-interior angles? Why are co-interior angles different to corresponding and alternate angles?	What is the difference between a proof and a demonstration? Is it possible to prove something in more than one way? Can you prove that there are 360° in a full turn?	