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**Knowledge Rich Curriculum Plan**

Year 11 Higher – Geometry 1

| **Lesson/Learning Sequence**  | **Intended Knowledge:***Students will know that…* | **Tiered Vocabulary**  | **Prior Knowledge:***In order to know this, students need to already know that…* | **Assessment**  |
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| **To learn how to calculate interior and exterior angles** | * Students will know how to calculate the size of an interior angle for a regular or irregular polygon using the formula for the sum of the interior angles: $$(n-2)×180$$
* Students will know how to calculate the size of an exterior angle of a polygon using the calculation 360/number of sides.
* Students will know that the interior and exterior angle add to 180
* Students will know how to apply the rules for finding interior and exterior angles to solve multi-step problems involving both regular and irregular polygons
* Students will know how to determine the number of sides for a polygon using the exterior angle
 | **Interior** – Inside**Exterior** – Outside**Exterior angle** – is the angle between a side of a polygon and an extended adjacent side.**Polygon** – a closed shape with straight sides**Regular Polygon** – A polygon where all sides are the same length and all angles are equal**Irregular Polygon** – A polygon where all sides are the same length and all angles are not equal**Tesselate –** fit together without gaps or overlapping. | * Students need to know the basic angle facts
* Students need to know how to calculate missing angles in triangles and quadrilaterals
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| **To learn how to find missing angles in parallel lines** | * Students will know how to identify alternate, corresponding and co-interior angles
* Students will know that corresponding angles are equal
* Students will know that alternate angles are equal
* Students will know that co-interior angles add to 180
* Students will know how to find missing angles in parallel lines and give clear reasons for their answers
 | **Parallel –** parallel lines are two lines that are side by side and have the same distance continuously between them**Isosceles Triangle –** a triangle with two equal sides and two equal angles**Corresponding –** matching**Co-interior Angles –** angles thatlie between two lines and on the same side of a transversal**Transversal –** a line that crosses at least two other lines | * Students should already know that vertically opposite angles are equal
* Students should already know how to calculate missing angles in triangles, including equilateral and isosceles triangles
* Students should already know that angles on a straight line add to 180
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| **To learn how to measure and draw bearings** | * Students will know the rules for bearings; 1) Always measure from North 2) Bearings must be written as 3 digits. 3) Always measure in a clockwise direction.
* Students will know how to use a protractor to accurately draw bearings from A to B and B to A.
* Students will know how to use a protractor and ruler to accurately measure bearings on a map, including measuring from A to B and B to A.
* Students will know how to accurately draw and measuring bearings using a protractor to solve problems
* Students will know how to use the angle properties of parallel lines to determine bearings
 | **Bearing –** angles, measured clockwise from north | * Students should already know how to measure and draw angles
* Students should know how to calculate angles in parallel lines using the fact that co-interior angles add to 180
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| **To learn how to construct angles and bisectors** | * Students will know how to construct a perpendicular bisector of any given line
* Students will know how to construct a perpendicular from a point to a line.
* Students will know how to construct a bisector of any given angle.
* Students will know how to accurately construct angles including 45° and 90°.
* Students will know that the perpendicular distance from a point to a line, is the shortest distance to the line.
 | **Perpendicular –** at a right angle to**Bisect –** cut into two equal parts**Bisector –** A line that splits an angle or line into two equal parts | * Students should already know how to measure the length of a line using a ruler
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| **To learn how to construct loci** | * Students will know how to construct a region bounded by a circle and an intersecting line.
* Students will know how to construct a given distance from a point and given distance from a line.
* Students will know how to construct equal distances from two points or two line segments.
* Students will know how to construct regions which may define by 'nearer to' or 'greater than'
* Students will know how to use the rules of loci to solve 2D loci problems.
* Students will know how to solve loci problems involving the use of constructions; angle bisectors, perpendicular bisectors etc.
 | **Locus (Loci is the plural) –** the set of all points (usually forming a curve or surface) satisfying some condition **Equidistant –** an equal distance | * Students need to know how to construct a perpendicular bisector of any given line
* Students need to know how to construct a bisector of any given angle.
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