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**Knowledge Rich Curriculum Plan**

Year 10 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** |
| --- | --- | --- | --- | --- |
| **To learn how to calculate interior 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: * Students will know how to calculate the size of an exterior angle of a polygon using the calculation 360/number of sides. | **Interior** – Inside  **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 |  |
| **To learn how to calculate exterior angles** | * 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 | **Exterior** – Outside  **Exterior angle** – is the angle between a side of a polygon and an extended adjacent side. |  |  |
| **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 | **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 |  |
| **To learn how to solve problems involving angles in parallel lines** | * Students will know how to find missing angles in parallel lines and give clear reasons for their answers |  | * 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 |  |
| **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 |  |
| **To learn how to accurately construct triangles** | * Students will know how to accurately construct a triangle using a protractor and ruler given SAS or ASA for the triangle * Students will know how to accurately construct a triangle from three sides using a pair of compasses and a ruler. | **Construct –** In maths, construct means to draw a shape, line or angle accurately using a compass and rule | * Students should already know how to accurately draw angles using a protractor |  |
| **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 |  |
| **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. |  |