Armfield Academy – Mathematics Department

Year 9 Curriculum Overview

****Note: Objectives in blue are additional higher content for extension****

Half Term 1	
Week	Curriculum Overview
1	**Number Sense**
2	- Round numbers to powers of 10 and 1 sig fig (starters) - Round numbers to a given number of decimal places - Estimate answers to questions - Understand and use error interval notation (H) - Calculate with Money - Convert metric units of length - Convert metric units of mass and capacity
3	**Angles in parallel lines and polygons**
4	- Investigate angles between parallel lines and the transversal
5	- Identify and calculate with alternate and corresponding angles - Identify and calculate with co-interior, alternate and corresponding angles - Solve complex problems with parallel line angles - Investigate the properties of special quadrilaterals - Understand and use the sum of interior and exterior angles of any polygon - Calculate missing interior angles in regular polygons - Prove simple geometric facts (H) - Construct an Angle Bisector (H) - Construct a Perpendicular Bisector of a line segment (H)
6	**Angles of trapezia and circles**
7	- Calculate the area of a trapezium - Investigate the area of a circle - Calculate the area of a circle and parts of a circle without a calculator - Calculate the area of a circle and parts of a circle with a calculator
Half Term 2	
Week	Curriculum Overview
8	**Line symmetry and reflection** - Recognise line symmetry - Reflect a shape in a horizontal or vertical line (shapes touching and not touching the line) - Reflect a shape in a horizontal or diagonal line (shapes touching and not touching the line)
9	**The data handling cycle** - Collecting Data - Interpreting statistical diagrams - Dual bar charts - Constructing and interpreting pie charts
10	
11	
12	**Measures of location** - Median and mean revisited, including finding the total - Mean for grouped data - The mode - Choosing the appropriate average - Revisit finding the range - Comparing distributions - Finding unknown data values given the mean or changes in the mean (H)
13	
14	**Straight line graphs** - Interpreting straight line graphs - Finding the equation of a straight line - Produce equations in the form y=mx+c - Compare to linear sequences and find the rule for nth term - Solving simultaneous equations graphically (H) - Explore gradients of perpendicular lines (H)
15	
Half Term 3	
Week	Curriculum Overview
16	**Forming and solving equations** - Revisit and extend to equations and inequalities with unknowns on both sides - Using different contexts e.g. angles, probability, area - Changing the subject of the formula

	- Changing the subject of the complex formula (H)
17	
18	**Testing Conjectures** - Test conjectures in a wide range of contexts e.g. - Sums and Products of odd and even numbers - Is a given number in a sequence? - Is this shape…? - Are these lines parallel? - What would happen if…?
19	
20	**Three dimensional shapes** - Faces, Edges and Vertices
21	- Names of prisms and non-prisms - Identifying 2D shapes within 3D shapes - Volume and surface area of cuboids and cylinders - Volume of any prisms - Missing lengths given area and/or volume - Explore volumes of cones, spheres, and complex shapes (H) - Surface area of any prism (H)
Half Term 4	
Week	Curriculum Overview
22	**Constructions and Congruency** - Nets - Scale drawings - Constructing perpendiculars and bisectors - Exploring congruency via construction - Loci (H)
23	
24	**Numbers** - Types of number – include rational and real numbers
25	- HCF and LCM - Revisit fraction arithmetic - Revisit Standard Form
26	**Using Percentages** - Percentage increase and decrease - Percentages over 100% - Finding percentage change - Using multipliers - Reverse percentages (H) - Repeated percentage change (H)
27	
Half Term 5	
Week	Curriculum Overview
28	**Mathematics and Money** - Explore financial mathematics including; - Bills and bank statements - Interest - Unit pricing (best buys)
29	**Deduction** - Angles in parallel lines - Solving angle problems using chains of reasoning - Angle problems with algebra - Conjectures with angles and shapes - Linking constructions and geometrical reasoning (H)
30	**Rotation and Translation** - Identifying the order of rotational symmetry - Rotating shapes - Translating points and shapes by a given vector - Combined transformations (H)
31	**Pythagoras' Theorem** - Identifying the hypotenuse of a right-angled triangle - Determining whether a triangle is right angled - Calculating missing sides in a right-angled triangle - Exploring proofs of Pythagoras' theorem (H) - Using Pythagoras' theorem in 3D shapes (H)
32	**Enlargement and Similarity**

	- Enlarge shapes by a positive scale factor, including from a given point - Calculate the lengths of missing sides in similar shapes - Enlarge shapes by negative scale factor (H) Similar triangles
33	
Half Term 6	
Week	Curriculum Overview
34	**Solving Ratio and Proportion** - Direct proportion problems and graphs - Conversion graphs - Solving ratio problems given the whole or the part - Simple inverse proportion - Inverse proportion graphs (H)
35	
36	**Rates** - Speed, Distance, Time - Density - Working with compound units - Converting compound measures (H)
37	
38	**Probability**
39	- Relative Frequency - Expected number of outcomes - Independent Events - Tree diagrams (H)
40	**Algebraic Representation** - Drawing and reading from quadratics - Interpreting other graphs e.g. reciprocal - Representing inequalities - Graphical solution of simultaneous equations (H)