Armfield Academy – Mathematics Department

Year 11 Higher Curriculum Overview

This maths scheme of work is structured to build securely on prior learning, with concepts sequenced for progression and depth. Retrieval practice is embedded to strengthen fluency and long-term retention. Teaching is responsive, with assessment informing adaptation to meet learners' needs. All pupils are challenged through high expectations, with scaffolds to ensure inclusivity and access for all. The scheme aims to develop problem-solving, reasoning, and resilience alongside core mathematical skills. In year 11 we have the 'Higher' curriculum for pupils aiming to sit the Higher GCSE and the 'Foundation' for pupils aiming to sit the Foundation GCSE. This goes beyond what most students will encounter in their exam papers. It's still on the higher-tier specification, but it tends to be at the very top end of difficulty (often grade 8/9 material). All schemes provide key knowledge needed for their GCSE examinations. In year 11, teachers may use GCSE past papers more often to highlight gaps in knowledge at different points of the year.

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

Term 1	
Week	Curriculum Overview
1	**Ratio and Proportion**
2	- Solve problems with ratio - Best buy problems - Conversion graphs - Exchange rates - Direct proportion equations - Complex direct proportion equations (E) - Inverse proportion - Inverse proportion equations (E) - Direct and inverse proportion graphs
3	**Area and Volume** - Plans and elevations - Volume of a sphere - Volume of cones and pyramids - Surface area of spheres, cones and pyramids - Volume and surface area of a frustum (E) - Convert metric units of area and volume
4	**Similarity and Congruence**
5	- Find unknown sides and angles in similar shapes - Identify similar triangles - Solve problems with similar shapes - Areas of similar shapes - Volumes of similar shapes - Solve problems with area and volume in similar shapes - Similarity and congruence - Congruent triangles - Prove a pair of triangles are congruent (E)
6	**Sequences and Proof**
7	- Describe and continue sequences - Explore sequences with algebraic terms - Describe and continue sequences involving surds (E) - Generate a sequence given an algebraic rule - nth term of a linear sequence - nth term of a quadratic sequence (E) - Represent numbers algebraically - Algebraic arguments and proof

8	**Standard Form** - Numbers in standard form - Four operations with numbers in standard form - Solve problems with standard form
9	**Working with Circles**
10	- Angles in circles - Circle theorem (angles at the centre and circumference) - Circle theorem (angles in a semicircle) - Circle theorem (angles in the same segment) - Circle theorem (angles in a cyclic quadrilateral) - Circle theorem (angle between radius and chord) - Circle theorem (angle between radius and tangent) - Circle theorem (two tangents from a point) - Circle theorem (alternate segment theorem) - Solve problems with circle theorems
11	**Set Notation and Venn Diagrams** - Set notation - Venn diagrams - Solve problems with Venn diagrams - Conditional probability (Venn diagrams and two-way tables) (E)
	Term 2
Week	Curriculum Overview
1	**Vectors** - Solve problems with vectors - Ratios with vectors (E) - Collinear points using vectors (E) - Geometric arguments and proofs with vectors (E)
2	**Functions and Graphs**
3	- Function notation - Composite functions - Inverse functions - Quadratic and cubic graphs - Reciprocal graphs - Exponential graphs - Trigonometric graphs (E) - Recognise and sketch graphs - Translation of a graph (E) - Reflection of a graph (E)
4	**Equations and Formulae**
5	
6	- Form and solve equations - Form and solve inequalities - Form and solve equations and inequalities with unknowns on both sides - Form and solve more complex equations and inequalities (E) - Quadratic equations - Quadratic inequalities (E) - Understand iterative processes - Solve equations by iteration - Solve simultaneous equations - Solve simultaneous equations (one linear, one non-linear) (E) - Solve a pair of simultaneous equations involving algebraic constants for a third unknown (E)
7	**Rates** - Speed, distance and time - Distance-time graphs - Velocity-time graphs - Density and pressure

	- Convert compound units
8	**Angles, Bearings and Trigonometry**
9	- Understand and represent bearings - Measure and read bearings - Scale drawings using bearings - Calculate bearings using angles rules - Choose appropriate methods to solve problems with right-angled triangles - Solve bearings problems using Pythagoras and trigonometry - Sine and cosine rules - Solve bearings problems using the sine and cosine rules (E)
10	**Constructions and Loci** - Construct triangles - Construct polygons - Construct an angle bisector and a perpendicular bisector - Construct a perpendicular from or to a point - Locus of distance from a point and a straight line - Locus equidistant from two points and perpendicular bisectors - Locus equidistant from two lines and angle bisectors - Solve problems with loci
11	**Transformations** - Enlargement (positive integer scale factor) - Enlargement (fractional scale factor) - Enlargement (negative scale factor) - Reflection - Rotation - Translation - Describe a transformation - Find the result of a series of transformations - Invariant points and lines (E)
Term 3	
Week	Curriculum Overview
all	**GCSE Exams and Revision Preparation**