Armfield Academy – Mathematics Department

Year 8 Curriculum Overview

Note: Objectives in blue are additional higher content for extension

Home Learning is completed using <u>Hegarty Maths</u>. A Home Support guide can be found here. Hegarty Home Support Guide.pdf

Half Term 1		
Date	Curriculum Overview	Home Learning Hegarty Maths Video and Quiz Numbers
WC 02/09	**Four Operations with Directed Number** - Addition and subtraction involving negative numbers - Addition and subtraction of directed numbers (+- and --) - Multiplication and Division of directed numbers	37 - Comparing negative numbers 39 - Adding negative numbers 40 – Subtracting negative numbers 41 – Adding and subtracting positive and negative numbers
WC 07/09	- Using a calculator for directed number calculations - Understand and evaluate squared and cubed numbers - Understand that positive numbers have more than one square root - Use the order of operations including directed number, squared, cubed and roots	42 – Multiplying positive and negative numbers 43 – Dividing positive and negative numbers 100 – Cube numbers 101 – Square and cube roots
WC 14/09	**Addition and Subtraction of Fractions** - Represent mixed numbers and improper fractions in different ways - Convert a mixed number to an improper fraction - Convert an improper fraction to a mixed number - Add and subtract fractions where denominators share a simple common multiple - Add and subtract fractions with any denominator - **Add and subtract improper fractions and mixed numbers (H)** - **Add and subtract fractions and decimals (H)**	63 – Improper fractions to mixed numbers 64 – Mixed numbers to improper fractions 65 - Add and subtract fractions (same denominator) 66 – Add and subtract fractions (different denominators)
WC 21/09	**Geometry** - Solve problems using the area of rectangles and parallelograms - Solve problems using the area of triangles - **Solve problems using the area of trapezia (H)** - Understand and use letter and labelling conventions including those for geometric figures - Draw and measure line segments including geometric figures - Understand angles as a measure of turn - Measure angles up to 180° - Draw angles up to 180° - Draw and measure angles between 180°and 360°	554 - Rectangles 556 - Parallelograms 557 - Triangles **559 – Trapezia (H)** 456 – Naming sides and angles
WC 28/09	- Understand and use the sum of angles at a point - Understand and use the sum of angles on a straight line - Understand and use the equality of vertically opposite angles - Know and apply the sum of angles in a triangle - Know and apply the sum of angles in a quadrilateral - Solve angle problems using properties of triangles and quadrilaterals - Solve complex angle problems	812 – Angles around a point (1) 813 - Angles around a point (2) 477 – Angles on a straight line (1) 478 - Angles on a straight line (2) 480 – Vertically opposite angles
WC 05/10	**Probability and Sets** - Know and use the vocabulary of probability - Understand the probability scale	349 – Express probability in words 350 – Express probability in numbers 351 – Probability of single events

	- Generating sample spaces for single events - Calculate the probability of a single event - Know the sum of probabilities of all possible outcomes is 1 - Identify and represent sets - Interpret and create Venn Diagrams - Understand and use the union of sets - Begin to find the probability using Venn diagrams	370 – Listing elements in a set 372 – Displaying sets in a Venn diagram
WC 12/10	**Prime Number and Proof** - Identify factors of a number - Identify multiples of a number - Find the HCF, LCM of two numbers - Write a number as a product of its prime factors	27 – Factors of a number 33 – Multiple of a number 31 - HCF 34 - LCM 28 – Prime numbers 29 – Prime factorisation

Half Term 2		
Date	**Curriculum Overview**	**Home Learning** Hegarty Maths Video and Quiz Numbers
WC 02/11 WC 09/11 WC 14/09	**Ratio and Scale** - Understand ratio and its link to multiplication - Circumference of a circle - Use ratio notation - Reduce ratios to simplest form - Solve ratio problems - **Ratio in the form 1:n** - **Comparing ratios**	329 – Simplify Ratios 331 – Write ratios in the form 1:n or n:1 332 – Share in a given ratio 333 – Share in a given ratio 334 – Share in a given ratio 335 – Harder problems involving ratios 330 – Write ratios as fractions/proportions
WC 21/09 WC 28/09	**Multiplicative Change** - Use scale factors, linking to ratio, to solve simple directional proportion problems Scale diagrams and maps	339 to 341 – Direct proportion 739 to 740 – Recipe problems 864 to 868 Scale diagrams 608 to 610 Similar polygons 611 to 613 Similar triangles 712 to 713 Conversion graphs 707 to 708 Converting currency
WC 05/10	**Multiplying and dividing fractions** - Multiplying and dividing a fraction by an integer ● Multiplying and dividing a fraction by a fraction **Multiplying and dividing mixed numbers**	67 – Multiply whole number by fractions 68, 69 - Multiplying fractions 70 – Dividing fractions 71 – Reciprocal of fractions 172 – Expressions with algebraic fractions

Half Term 3		
Date	**Curriculum Overview**	**Home Learning** Hegarty Maths Video and Quiz Numbers
WC 04/01 WC 11/01 WC 18/01	● Multiplying and dividing a fraction by a fraction **Multiplying and dividing mixed numbers (H)** **Working in a Cartesian plane** - Plotting and interpreting straight line graphs - Equations of lines parallel to the axes - Model situations by translating them into expressions, formulae and graphs - **Find the equation of a straight line (H)** - **Find the mid-point of a line segment (H)** - **Find the gradient of a line segment (H)** - **Drawing quadratic graphs (H)**	70 – Dividing fractions 71 – Reciprocal of fractions 172 – Expressions with algebraic fractions 199 – Cartesian axes and coordinates 205 – Drawing line graphs from coordinates 206 - 210 – Straight line graphs 200 – midpoint of a line segment 201 – Gradient of a line segment 251 – Drawing quadratic graphs from a table
WC 25/01 WC 01/02	**Collecting and Representing data** - Scatter graphs and correlation (and line of best fit) - Listing outcomes - Read, interpret and collect data in frequency tables - Represent and interpret data in two way tables	453 – Scatter Diagrams (1) 454 – Scatter Diagrams (2) 401 - Data collection sheets (tally charts) 402 - Grouped frequency tables (discrete) 403 - Grouped frequency tables (continuous) 422 - Two way tables

WC 08/02	**Probability (Further)** - Sample space diagrams - Probabilities from two way tables - Probabilities from venn diagrams - **Product rule for number of outcomes (H)**	358 - 359 - Probability of more than one event 423 - 424 - Two way tables 383 - 384 - Venn diagrams for probability (1) and (2) extension: 385 - Venn diagrams for probability (3) 671 - 672 - Product rule for counting

Half Term 4		
Date	**Curriculum Overview**	**Home Learning** Hegarty Maths Video and Quiz Numbers
WC 22/02	**Probability (Further)** - Sample space diagrams - Probabilities from two way tables - Probabilities from venn diagrams - **Product rule for number of outcomes (H)**	358 - 359 - Probability of more than one event 423 - 424 - Two way tables 383 - 384 - Venn diagrams for probability (1) and (2) extension: 385 - Venn diagrams for probability (3) 671 - 672 - Product rule for counting
WC 01/03 WC 08/03 WC 15/03	**Brackets, equations and inequalities** - Multiplying out singles brackets - Forming and using expressions, formulae and identities - Forming and solving equations and inequalities, with and without brackets - **Factorising into a single bracket** - **Solving equations with unknowns on both sides** - **Expanding binomials** **Finding the ruler for nth term of a linear sequence**	
WC 22/03	**Sequences** - Using more complex rules e.g. with brackets and squared terms	

Half Term 5		
Date	**Curriculum Overview**	**Home Learning** Hegarty Maths Video and Quiz Numbers
WC 12/04	**Indices** - Writing expressions with powers	
WC 19/04 WC 26/04	**Fractions and Percentages** - Revisit Fraction, Decimal and Percentage equivalence - One number as a percentage of another - **Finding the original given any percentage**	
WC 03/05 WC 10/05	**Standard Index Form** - Conversion between numbers in ordinary and standard form - Comparing numbers in standard form - **Calculating with standard form** - **Negative and simple fractional indices**	
WC 17/05 WC 24/05	**Number Sense** - Developing mental strategies - Measure and units - Estimation, including rounding to a given number of decimal places - Revisit order of operations - **Simple surds** - **Converting area units** - **Error interval notation** - Developing mental strategies - Measure and units - Estimation, including rounding to a given number of decimal places - Revisit order of operations - **Simple surds** - **Converting area units** **Error interval notation**	

Half Term 6		

Date	Curriculum Overview	Home Learning Hegarty Maths Video and Quiz Numbers
WC 07/06	**Angles in parallel lines and polygons**	
WC 14/06	- Angles in parallel lines	
WC 21/06	- Angles in special quadrilaterals - Angles in polygons - **Standard constructions including perpendicular** **Diagonal properties of quadrilaterals**	
WC 28/06	**Area of trapezia and circles**	
WC 05/07	- Area of a trapezium - Area of a circle and parts of a circle - Using significant figures Area of compound shapes	
WC 12/07	**Line symmetry and reflection** - Line symmetry in polygons and other shapes Reflection of shapes in horizontal, vertical and diagonal lines	