



**Armfield Academy – Mathematics Department**



**Year 10 Higher Curriculum Overview**



Hegarty Home Support Guide.pdf

Home Learning is completed using [Hegarty Maths](#). A Home Support guide can be found [here](#).

**Half Term 1**

Date	Curriculum Overview	Home Learning <a href="#">Hegarty Maths Video and Quiz Numbers</a>
WC 02/09	<b>3D Shapes</b> <ul style="list-style-type: none"> <li>- Know names of 2D and 3D shapes</li> <li>- Recognise prisms</li> </ul>	822 2D Shapes 829 3D Shapes 833 Nets 837 Plans and Elevations
WC 06/09		584 Surface area of cuboids 585 Surface area of prisms
WC 13/09	<b>Congruency and Similar Shapes</b> <ul style="list-style-type: none"> <li>- Enlarge a shape by a positive integer scale factor</li> <li>- Enlarge a shape by a fractional scale factor</li> <li>- Identify similar shapes</li> <li>- Enlarge a shape by a negative scale factor</li> <li>- Work out missing sides and angles in a pair given similar shapes</li> </ul>	642 Enlargements (1) 644 Enlargements (3) 646 Enlargements (5) 608 Similar Polygons
WC 20/09		615 Area of Similar Shapes 618 Volume of Similar Shapes 680 Congruence (1) 682 Congruent triangles
WC 27/09	<b>Trigonometry</b> <ul style="list-style-type: none"> <li>- Explore ratio in similar right angled triangles</li> <li>- Work fluently with the hypotenuse, opposite and adjacent sides</li> <li>- Use the tangent ratio to find missing side lengths</li> <li>- Use the sine and cosine ratios to find missing side lengths</li> </ul>	508 Trigonometry introduction 509 Trigonometry (find side) 511 Trigonometry (find angle) 501 Pythagoras (applied)
WC 04/10		854 3D Trigonometry (1) 856 3D Trigonometry (3) 517 Area of a triangle ( $\frac{1}{2}ab\sin C$ )
WC 11/10		521 Sine Rule (find length) 523 Sine Rule (find angle) 527 Cosine rule (find length) 529 Cosine rule (find angle) 532 Sine and Cosine rules multi-step
WC 12/10		

Date	Curriculum Overview	Home Learning <a href="#">Hegarty Maths Video and Quiz Numbers</a>
WC 01/11	<b>Equations and Inequalities</b> <ul style="list-style-type: none"> <li>- Understand the meaning of a solution</li> <li>- Form and solve one-step and two-step equations</li> <li>- Form and solve one-step and two-step inequalities</li> <li>- Show solutions to inequalities on a number line</li> <li>- Interpret representations on number line as inequalities</li> <li>- Represent solutions to inequalities using set notation</li> <li>- Draw straight line graphs</li> <li>- Find solutions to equations using straight line graphs</li> <li>- Represent solutions to single inequalities on a graph</li> <li>- Represent solutions to multiple inequalities on a graph</li> <li>- Form and solve equations with unknowns on both sides</li> <li>- Form and solve inequalities with unknown on both sides</li> <li>- Form and solve more complex equations and inequalities</li> <li>- Solve quadratic equations by factorisation</li> <li>- Solve quadratic inequalities in one variable</li> </ul>	176 Forming equations 179-182 Solve 2-step equations 184 Solve equations with x on both sides
WC 08/11		
WC 15/11		267 Integer solutions to inequalities 269-271 Solve linear inequalities 265 Representing inequalities on a number line 273 Linear inequalities as graph regions 230 Solve quadratic equations by factorising 277 Solve quadratic inequalities
WC 22/11	<b>Simultaneous Equations</b> <ul style="list-style-type: none"> <li>- Understand that equations can have more than one solution</li> <li>- Determine whether a given coordinate is a solution to a pair of linear equations</li> <li>- Solve a pair of simultaneous linear equations by substituting a known variable</li> <li>- Solve a pair of simultaneous linear equations by substituting an expression</li> <li>- Solve a pair of linear simultaneous equations using graphs</li> <li>- Solve a pair of linear simultaneous equations by subtracting equations</li> <li>- Solve a pair of linear simultaneous equations by adding equations</li> <li>- Use a given equation to derive related facts (R)</li> <li>- Solve a pair of linear simultaneous equations by adjusting one equation</li> <li>- Solve a pair of linear simultaneous equations by adjusting both equations</li> <li>- Form a pair of linear simultaneous equations from given information</li> <li>- Form and solve a pair of linear simultaneous equations from given information</li> <li>- Determine whether a given (x,y) is a solution to both a linear and quadratic equation</li> <li>- Solve a pair of simultaneous equations (one linear, one quadratic) using graphs</li> <li>- Solve a pair of simultaneous equations (one linear, one quadratic) algebraically</li> <li>- Solve a pair of simultaneous equations involving a third unknown</li> </ul>	
WC 29/11		
WC 06/12		
WC 13/12	<b>Revision</b>	
<b>Half Term 3</b>		
Date	Curriculum Overview	Home Learning <a href="#">Hegarty Maths Video and Quiz Numbers</a>
WC 03/01	<b>Angles and Bearings</b> <ul style="list-style-type: none"> <li>- Draw and interpret scale diagrams</li> <li>- Understand and represent bearings</li> <li>- Measure and read bearings</li> <li>- Make scale drawings using bearings</li> <li>- Calculate bearings using angle rules</li> <li>- Solve bearings problems using Pythagoras and trigonometry</li> </ul>	
WC 10/01		

	<ul style="list-style-type: none"> <li>- Solve bearings problems using the sine and cosine rules</li> </ul>	
WC 17/01	<b>Working with circles</b>	
WC 24/01	<ul style="list-style-type: none"> <li>- Recognise and label parts of a circle (R)</li> <li>- Calculate the fractional parts of a circle</li> <li>- Calculate the length of an arc</li> <li>- Calculate the area of a sector</li> <li>- Circle theorem: Angles at centre and circumference</li> <li>- Circle theorem: Angles in a semi-circle</li> <li>- Circle theorem: Angles in the same segment</li> <li>- Circle theorem: Angles in a cyclic quadrilateral</li> <li>- Understand and use the volume of a cylinder and cone</li> <li>- Understand and use the volume of a sphere</li> <li>- Understand and use the surface area of a sphere</li> <li>- Understand and use the surface area of a cylinder and cone</li> </ul>	
WC 31/01	<b>Vectors</b>	
WC 07/02	<ul style="list-style-type: none"> <li>- Understand and represent vectors</li> <li>- Use and read vector notation</li> <li>- Draw and understand vectors multiplied by a scalar</li> <li>- Draw and understand addition and subtraction of vectors</li> <li>- Explore vector journeys in shapes</li> <li>- Explore quadrilaterals using vectors</li> <li>- Understand parallel vectors</li> <li>- Explore co-linear points using vectors</li> <li>- Use vectors to construct geometric arguments and proofs</li> </ul>	
<b>Half Term 4</b>		
Date	Curriculum Overview	Home Learning <a href="#">Hegarty Maths Video and Quiz Numbers</a>
WC 21/02	<b>Ratios and Fractions</b>	
WC 28/02	<ul style="list-style-type: none"> <li>- Compare quantities using a ratio</li> <li>- Link ratios and fractions</li> <li>- Share in a ratio (given total or one part)</li> <li>- Use ratios and fractions to make comparisons</li> <li>- Link ratios and graphs</li> <li>- Solve problems with currency conversion</li> <li>- Link ratios and scales</li> <li>- Use and interpret ratios of the form 1:n and n:1</li> <li>- Solve best buy problems</li> <li>- Combine a set of ratios</li> <li>- Link ratio and algebra</li> <li>- Ratio in area problems</li> <li>- Ratio in volume problems</li> <li>- Mixed ratio problems</li> </ul>	
WC 07/03	<b>Percentages and Interest</b>	
WC 14/03	<ul style="list-style-type: none"> <li>- Convert and compare fractions, decimals and percentages</li> <li>- Work out percentages of amounts (with and without a calculator)</li> <li>- Increase and decrease by a given percentage</li> <li>- Express one number as a percentage of another</li> <li>- Calculate simple and compound interest</li> <li>- Repeated percentage change</li> <li>- Find the original value after a percentage change</li> <li>- Solve problems involving growth and decay</li> <li>- Understand iterative processes</li> <li>- Solve problems involving percentages, ratios and fractions</li> </ul>	
WC 21/03	<b>Probability</b>	
	<ul style="list-style-type: none"> <li>- Know how to add, subtract and multiply fractions</li> <li>- Find probabilities using equally likely outcomes</li> <li>- Use the property that probabilities sum to 1</li> </ul>	

WC 28/03	<ul style="list-style-type: none"> <li>- Using experimental data to estimate probabilities</li> <li>- Find probabilities from tables, Venn diagrams and frequency trees</li> <li>- Construct and interpret sample spaces for more than one event</li> <li>- Calculate probabilities with independent events</li> <li>- Use tree diagrams for independent events</li> <li>- Use free diagrams for dependent events</li> <li>- Construct and interpret conditional probabilities (tree diagrams)</li> <li>- Construct and interpret conditional probabilities (venn digrams &amp; two way tables)</li> </ul>	
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**Half Term 5**

Date	Curriculum Overview	Home Learning <a href="#">Hegarty Maths Video and Quiz Numbers</a>	
WC 19/04	<b>Collecting, Representing and Interpreting Data</b> <ul style="list-style-type: none"> <li>- Understand populations and samples</li> <li>- Construct a stratified sample</li> <li>- Primary and secondary data</li> <li>- Construct and interpret frequency tables and frequency polygons</li> <li>- Construct and interpret two-way tables</li> <li>- Construct and interpret line and bar charts (including composite bar charts)</li> <li>- Construct and interpret pie charts</li> <li>- Criticise charts and graphs</li> <li>- Construct &amp; interpret histograms</li> <li>- Find and interpret averages from a list</li> <li>- Find and interpret averages from a table</li> <li>- Construct and interpret time series graphs</li> <li>- Construct and interpret stem and leaf diagrams</li> <li>- Construct and interpret cumulative frequency diagrams</li> <li>- Use cumulative frequency diagrams to find measures</li> <li>- Construct and interpret box plots</li> <li>- Compare distributions using charts and measures</li> <li>- Compare distributions using complex charts and measures</li> <li>- Construct and interpret scatter graphs</li> <li>- Draw and use a line of best fit</li> <li>- Understand extrapolation</li> </ul>		
WC 26/04			
WC 02/05			
WC 09/05			828 – Rotational Symmetry 648 – Rotations (1) 649 – Rotations (2) 637 – Translations (1) 638 – Translations (2) <b>656 – Combined transformations (1)</b>
WC 16/05			642 – Enlargements (1) 643 – Enlargements (2) 614 – Similar Shapes (problem solving) <b>646 – Enlargements (5) negative scale factor</b> <b>611 – Similar triangles</b>
WC 23/05			

**Half Term 6**

Date	Curriculum Overview	Home Learning <a href="#">Hegarty Maths Video and Quiz Numbers</a>
WC 06/06	<b>Non Calculator Methods</b> <ul style="list-style-type: none"> <li>- Mental/written methods of integer/decimal addition and subtraction</li> <li>- Mental/written methods of integer/decimal multiplication and division</li> <li>- The four rules of fraction arithmetic</li> <li>- Exact answers</li> <li>- Rational and irrational numbers</li> <li>- Understand and use surds</li> <li>- Calculate with surds</li> <li>- Rounding to decimal places and significant figures</li> <li>- Estimating answers to calculations</li> <li>- Understand and use limits of accuracy</li> <li>- Upper and lower bounds</li> <li>- Use number sense</li> <li>- Solve financial maths problems</li> <li>- Break down and solve multi-step problems</li> </ul>	
WC 13/06		

WC 20/06	<b>Types of Number and Sequences</b>	
WC 27/06	<ul style="list-style-type: none"> <li>- Understand the difference between factors and multiples</li> <li>- Understand primes and express a number as a product of its prime factors</li> <li>- Find the HCF and LCM of a set of numbers</li> <li>- Describe and continue arithmetic and geometric sequences</li> <li>- Explore other sequences</li> <li>- Describe and continue sequences involving surds</li> <li>- Find the rule for the nth term of a linear sequence</li> <li>- Find the rule for the nth term of a quadratic sequence</li> </ul>	
WC 04/07	<b>Indices and Roots</b>	
WC 11/07	<ul style="list-style-type: none"> <li>- Square and cube numbers</li> <li>- Calculate higher powers and roots</li> <li>- Powers of ten and standard form</li> <li>- The addition and subtraction rules for indices</li> <li>- Understand and use the power zero and negative indices</li> <li>- Work with powers of powers</li> <li>- Understand and use fractional indices</li> <li>- Calculate with numbers in standard form</li> </ul>	
WC 18/07		