WRM – Year 10 Scheme of Learning

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Similarity						Developing Algebra					
	Congruence, similarity and enlargement			Trigonometry			Representing solutions of equations and inequalities			Simultaneous equations		
Spring	Geometry						Proportions and Proportional Change					
	Angles & bearings		Working with circles		Vectors		Ratios & fractions		Percentages and Interest		Probability	
Summer	Delving into data				Using number						Expressions	
	Collecting, representing and interpreting data				Non-calculator methods		Types of number and sequences		Indices and Roots		Manipulating expressions	

WRM – Year 10 Autumn Term

Autumn Half Term 1 – Similarity	
Block 1 – Weeks 1 to 3	**Block 2 – Weeks 4 to 6**
Congruence, similarity and enlargement. • Understand the difference between congruence and similarity • Enlarge a shape about a given point; understand and use similarity • Find missing sides in similar shapes including pairs of similar triangles • Understand and use the conditions for a pair of congruent triangles	**Trigonometry** • Understand trigonometric ratios • Work out missing lengths and angles in right-angled triangles • Know and use the exact values of key angles
Notes/Links/Interleaving • Revisit angle rules, including angles in parallel lines • Revisit equations, especially variants of $ax = b$ • Revisit Pythagoras' theorem	**Additional Higher Content** • Area and volume of similar shapes • Formal proof of congruency of triangles • Enlarge a shape by a negative scale factor • Use trigonometry in 3-D shapes • Derive and use the sine and cosine rules • Use the formula $\frac{1}{2}absinC$ to find the area of non-right angled triangles.

Autumn Half Term 2 – Developing Algebra	
Block 3 – Weeks 7 to 9	**Block 4– Weeks 10 to 12**
Representing solutions of equations and inequalities • Form and solve equations and inequalities in a variety of contexts, including with unknowns on both sides • Represent solutions to inequalities on a number line • Represent solutions to equations graphically	**Simultaneous equations** • Understand the meaning of solution, appreciating that some equations have multiple solutions • Form and solve a pair of linear simultaneous equations graphically • Form and solve a pair of linear simultaneous equations algebraically
Notes/Links/Interleaving • Context for equations to include probability, area, angles, ratio problems etc.	**Additional Higher Content** • Use set notation for solutions • Solve inequalities in two variable, identifying regions • Solve quadratic equations and inequalities (by factorisation only) • Solve simultaneous equations with one linear and one quadratic

WRM – Year 10 Spring Term

Spring Half Term 1 – Geometry		
Block 1 – Weeks 1 and 2	**Block 2 – Weeks 3 and 4**	**Block 3 – Weeks 5 and 6**
Angles and bearings • Review KS3 angles rules • Understand and use bearings	**Working with circles** • Review area and circumference • Name parts of a circle and perform related calculations • Find areas and volumes related to circles – cylinder, cone, sphere etc.	**Vectors** • Understand vector notation • Vector arithmetic – addition, subtraction and multiplication by a scalar • Vectors and translations
Notes/Links/Interleaving • Revisit trigonometry • Revisit area and volumes of other shapes, and compound shapes • Estimation, rounding and significant figures		**Additional Higher Content** • Derive, use and prove first four circle theorems (Note: The rest are covered in Y11) • Understand and use the equation of a circle • Construct geometric proofs with vectors

Spring Half Term 2 – Proportions and proportional change		
Block 4 – Weeks 7 and 8	**Block 5 – Weeks 9 and 10**	**Block 6 – Weeks 11 and 12**
Ratio and fractions • Use ratios, including with mixed units • Fractions in ratios • Fractions from ratios • Combining ratios • Unit pricing ('best buys') • Currency conversions	**Percentages and interest** • Convert fractions, decimals and percentages • Find percentages and percentage changes • Find one number as a percentage of another • Calculate simple and compound interest • Evaluate exponential change e.g. depreciation • Find original values	**Probability** • Review of single event probability – comparing theoretical and experimental • Understand and work with mutually exclusive and independent events • Construct and interpret tree diagrams • Find probabilities from frequency trees, tables and Venn diagrams
Notes/Links/Interleaving • Revisit formal methods of calculation (also Summer 2) • Revisit fraction arithmetic		**Additional Higher Content** • Revise area and volume ratios • Use iterative methods • Calculate and interpret conditional probabilities

WRM – Year 10 Autumn Term

Summer Half Term 1 – Delving into data/Using Number	
Block 1 – Weeks 1 to 4	**Block 2 – Weeks 5 and 6**
Collecting, representing and interpreting data • Understand sampling, including the possible limitations • Construct and interpret tables and line graphs for time series data • Understand and represent with grouped data • Understand and identify correlation • Use lines of best fit, understanding the dangers of extrapolation • Construct and interpret frequency polygons • Evaluate measures of location and dispersion • Use statistical diagrams and measures to compare distributions	**Non-calculator methods** • Use four operations with integers (positive and negative), decimals and fractions with and without context (include all areas of previous study) • Work with exact answers e.g. area and volume • Evaluate calculations involving percentages
Notes/Links/Interleaving • Use equations e.g. solving problems about the mean • Convert FDP, revisit exact trigonometrical values, area and volume formulae • Find exact answers in terms of π • Solve problems involving financial mathematics	**Additional Higher Content** • Construct and interpret cumulative frequency diagrams, box-plots and histograms • Understand quartiles; use and interpret the inter-quartile range • Use surds

Summer Half Term 2 – Using Number/Expressions		
Block 3 – Weeks 7 and 8	**Block 4 – Weeks 9 and 10**	**Block 5 – Weeks 11 and 12**
Types of number and sequences • Use factors, multiples, primes and prime factorisation • Recognise arithmetic and geometric sequences • Recognise and use other sequences	**Indices and roots** • Work out powers and roots • Use the rules of indices • Calculate with numbers in standard index form	**Manipulating expressions** • Work with expressions and identities • Use algebraic arguments • Use fractions in algebra
Notes/Links/Interleaving • Convert FDP • Revisit exact trigonometrical values, area and volume formulae • Find exact answers in terms of π • Solve problems involving financial mathematics		**Additional Higher Content** • Understand and use fractional indices, surds, rational and irrational numbers, including recurring decimals • Find the rule for the n^{th} term of a quadratic sequence • Complex algebraic fractions • Work with limits of accuracy, including upper and lower bounds

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Graphs						Algebra					
	Gradients & lines		Non-linear graphs		Using graphs		Expanding & factorising		Changing the subject		Functions	
Spring	Reasoning						Revision and Communication					
	Multiplicative		Geometric		Algebraic		Transforming & constructing			Listing & describing	Show that...	
Summer	Revision						Examinations					

WRM – Year 11 Autumn Term

Autumn Half Term 1 – Graphs		
Block 1 – Weeks 1 and 2	**Block 2 – Weeks 3 and 4**	**Block 3 – Weeks 5 and 6**
Gradients and lines • Find and use equations of straight lines	**Non-linear graphs** • Plot and read from quadratic curves • Understand and find roots • Plot cubic and reciprocal graphs	**Using graphs** • Reflect shapes in a given line • Construct and interpret speed, distance and time graphs • Construct and interpret real-life graphs
Notes/Links/Interleaving • Revisit solving equations • Incorporate proportional reasoning e.g. conversions		**Additional Higher Content** • Understand and use exponential graphs • Understand and use equations of perpendicular lines • Find the equation of tangent to a curve • Estimate the area under a curve

Autumn Half Term 2 – Algebra		
Block 4 – Weeks 7 and 8	**Block 5 – Weeks 9 and 10**	**Block 6 – Weeks 11 and 12**
Expanding and factorising • Expand a single bracket and binomials • Factorise into a single bracket • Factorise quadratics of the form $x^2 + bx + c$ • Solve quadratic equations • Simplify complex algebraic expressions including algebraic fractions	**Changing the subject** • Review solving linear equations • Change the subject of a formula, including perimeter, area and volume formulae • Volume of a pyramid	**Functions** • Find inputs and outputs • Show algebraic expressions are equivalent • Solve problems using the kinematics formulae
Notes/Links/Interleaving • Revisit directed number arithmetic • Link to graphs		**Additional Higher Content** • Solve quadratic equations by completing the square and using the quadratic formula • Changing the subject of a formula where the subject appears more than once • Solving equations by iteration • Work with composite and inverse functions

WRM – Year 11 Spring Term

Spring Half Term 1 – Reasoning		
Block 1 – Weeks 1 and 2	**Block 2 – Weeks 3 and 4**	**Block 3– Weeks 5 and 6**
Multiplicative reasoning • Review scale and enlargement • Work with direct and inverse proportion • Calculate with pressure and density • Determine whether a problem requires additive or multiplicative reasoning	**Geometric reasoning** • Review angle facts, focusing on the language of reasons and chains of reasoning • Review Pythagoras' theorem and using trigonometrical ratios	**Algebraic reasoning** • Work with complex indices • Review simplification of complex expressions and finding the n^{th} term rule • Justify e.g. why a number is/isn't in a given sequence
Notes/Links/Interleaving • Revise non-calculator methods • Revisit other topics as detailed above		**Additional Higher Content** • Solve problems involving variation with powers • Construct formal geometric proofs, including the remaining circle theorems • Construct formal algebraic proofs

Spring Half Term 2 – Revision and Communication		
Block 4 – Weeks 7 and 8	**Block 5 – Weeks 9 and 10**	**Block 6 – Weeks 11 and 12**
Transforming and constructing • Revisit transformations of shapes, linking to types of symmetry • Perform standard constructions using ruler and protractor or ruler and compasses • Solve loci problems	**Listing and describing** • Work with organised lists • Sample spaces and probability • Complete and use Venn diagrams • Work with plans and elevations • Use data to compare distributions	**Show that...** • Illustrate equivalence, numerically and algebraically • Justify answers • Use the language of angles rules • Use the conditions for congruent triangles
Notes/Links/Interleaving • Throughout		**Additional Higher Content** • Product rule for counting • Understand and use trigonometrical graphs • Sketch translations and reflections of the graph of a given function • Formal proof with congruent triangles