



Intent: To consolidate and further develop core concepts of algebra, geometry, ratio and proportion, statistics and probability developed in KS3. Through interleaving and spaced practice students will increase their fluency and confidence in key mathematical processes. Students will begin to make connections between more advanced mathematical concepts in order to solve a variety of problems.

Mathematics				
Year 10	Algebra	Geometry	Ratio & Proportion	Statistics & Probability
Knowledge (facts, information, concepts and key terminology)	Solving equations and simultaneous equations, plotting graphs, calculating gradients, describing the equation of a line, factorising and solving quadratics.	Congruence and similarity, transformations, features of graphs, definition of vectors, pictorial representations, adding and subtracting vectors, multiples of vectors, properties of cones, spheres and pyramids and surface area and volume.	Speed/distance/time, density/mass/volume, pressure/force/area, proportionality, graphical representations of proportion.	Scatter graphs, correlation, lines of best fit, predictions.
Understanding (ability to connect and synthesise knowledge within a context)	That numerical methods can be generalised into abstract concepts. Algebra follows the same principles as numerical calculations.	Transformations affect different aspects of shapes. A vector is a different form of representing information. The similarities and differences between vector and coordinate geometry.	Proportionality can be defined graphically and can be more useful when solving challenging problems.	Learners will understand that bivariate data can be plotted in order to seek trends and make predictions.
Skills (successful application of knowledge and understanding to a specific task)	Translate concrete problems into abstract questions and follow procedures to solve generalised problems.	Convert between algebraic and geometrical representations of vectors and choose the most efficient method based upon student preferences.	Translate given information into equations and use models to solve problems. Transition seamlessly between two types of proportion.	Apply the appropriate method to answer different types of questions. Evaluate representations depending on context and data type. Use mathematics to make sensible predictions.
Formal Assessments (those done by all/vast majority of the cohort)	Termly cumulative assessments covering content from start of GCSE course. Topic Assessments after each topic has been delivered.			
By the end of the year students on course for at least a grade 5 will... have consolidated core concepts in number, algebra, geometry, ratio and proportion, and statistics and geometry and foundational knowledge or more challenging topics.				

The timings and order of delivery shown are approximate, these may change on a class-by-class basis

Term 1

<u>Topic</u>	<u>Breakdown</u>
Simultaneous Equations	Recap of solving equations
	Solving simultaneous equations (no changes)
	Solving simultaneous equations (one change)
	Solving simultaneous equations (two changes)
Similarity & Congruence	Congruent shapes
	Constructing triangles
	Congruent triangles
	Similar shapes
	Similar triangles
Straight Line Graphs	Coordinates
	Plotting and understanding straight lines
	Gradients
	$y = mx + c$
	Finding the equation of a line
Compound Measures	Mass, Density and Volume
	Force, Area and Pressure
	Speed, Distance and Time
	Distance-time and speed-time graphs
Transformations	Translations
	Reflections
	Rotations
	Enlargements
	Describing transformations

Term 2

<u>Topic</u>	<u>Breakdown</u>
Graphical Solutions	Factorising and solving x^2 and ax^2 quadratics
	Solving a difference of two squares
	Plotting curves
	Finding graphical solutions (incl. sim. eq'ns.)
	Features of graphs
Vectors	Defining and drawing vectors
	Adding, subtracting and multiples of vectors
Spheres, Cones and Pyramids	Volume and surface area of pyramids
	Volume and surface area of cones
	Volume and surface area of spheres
	Volume and surface area of composite solids
Further Graphs	Graphs and equations of direct proportion
	Graphs and equations of inverse proportion
Scatter Graphs	Sampling methods
	Plotting scatter graphs and lines of best fit
	Correlation and describing relationships
Arcs & Sectors	Recap of arc lengths and areas of sectors
	Arc lengths and sectors using the formula

Term 3

Decision to be made about tier of entry. Following this decision, learners will commence the relevant Year 11 Curriculum Plan.
