



Maths Curriculum Overview - Year 10 Higher

	Unit	Details
Autumn One	Transformations and Constructions Equations and Inequalities	<p>We start this year with a geometry topic which develops both coordinate geometry and angle relationships from last year. Pupils will transform shapes using reflection, rotation, translation and enlargement, then identify and describe transformations from a diagram. They will then relate enlargement to scale drawings and solve problems involving bearings. This geometrical reasoning will then be used in constructing triangles using a ruler and compasses, constructing the perpendicular bisector of a line and constructing the shortest distance from a point to a line. We then move on to developing the algebra learned in Year 9 to find the roots of quadratic functions and solving complex quadratic equations by factorising, formula and completing the square. They will then solve simultaneous equations, applying the method to solve problems such as real-life situations involving two unknowns. This will be extended to solving simultaneous equations with one quadratic equation.</p>
Autumn Two	Probability	<p>This topic will build on the concepts encountered in Year 8 to methodically list outcomes, and complete sample space diagrams. Pupils will find the probabilities of mutually exclusive outcomes and events and compare real results with theoretical expected values. They will then draw and use frequency and probability tree diagrams, using them to calculate conditional probability.</p>
Spring One	Multiplicative reasoning Similarity and congruence	<p>Concepts encountered in Year 9 will be built upon, with pupils finding an amount after repeated percentage changes and solving growth and decay problems. This will lead to calculating rates and using compound measures before pupils learn how to use direct and indirect proportion. These skills are then used when solving problems involving congruence and similarity, before using the link between linear, area and volume scale factors to solve problems.</p>
Spring Two	More trigonometry Further Statistics	<p>Trigonometry was last encountered in Year 9, and we will develop those skills when studying graphs of sine, cosine and tangent and using them to solve equations. This will then be applied when applying the sine and cosine rules, finding the area of a scalene triangle, solving problems in 3D and transforming trig graphs. Pupils will then develop their prior learning of data by finding medians and quartiles from cumulative frequency diagrams, allowing them to draw and interpret box plots. They will then learn how to calculate frequency density and draw histograms.</p>
Summer One	Equations and Graphs	<p>Having previously learned how to solve linear equations pupils will now move on to solving simultaneous equations graphically. This will be developed into graphing inequalities, graphing quadratic and cubic functions and using them to solve equations.</p>
Summer Two	Circle Theorems	<p>Prior learning on angles will now be extended to knowing and using circle theorems. Pupils will learn how to find missing angles using known angle facts. They will be encouraged to explain their reasoning, and this will develop into formally proving theorems involving angles at the centre and angles in a semicircle.</p>