

## Maths Curriculum Overview - Year 10 Foundation Plus

	Unit	Details
Autumn One	<b>Graphs Transformations</b>	Pupils will start this year developing their understanding of graphs from Year 9. They will first plot straight-line graphs from tables of values or a rule, then find the gradient and intercept. This will lead to identifying parallel lines and using the form $y = mx + c$ . Sketching graphs will then extend to interpreting real life graphs in a variety of contexts. We will then study transformations, which relies on the concepts encountered in the previous topic, and also knowledge of geometrical shapes and relationships. Pupils will learn how to translate, reflect, rotate and enlarge shapes on coordinate axes and how to identify and describe a transformation. These skills will then allow pupils to describe combined transformations of shapes on a grid.
Autumn Two	<b>Ratio and Proportion Right angled triangles</b>	In Year 8 pupils studied ratio and scale, and this understanding is now developed more formally to employ ratio notation to divide a quantity into several parts in a given ratio. They will use the unitary method to solve proportion problems, work out which product is better value for money and recognise and use direct proportion on a graph. The topic of right-angled triangles combines many geometrical ideas covered last year. Pupils will know and use the formula for Pythagoras' theorem and use it to solve problems. This will develop into using trigonometry to find the lengths of sides and angles in a right-angled triangle and knowing the exact values of the sine, cosine and tangent of some angles.
Spring One	<b>Probability</b>	Probability is a topic last encountered in Year 8, now we develop those concepts to predict and interpret probabilities based on experimental data. Pupils will learn to understand the language of sets and Venn diagrams and work out probabilities using tree diagrams. This culminates in solving probability problems involving events that are not independent.
Spring Two	<b>Multiplicative Reasoning Constructions</b>	Using previous understanding of multiplicative change in Year 8, pupils will calculate a percentage profit or loss, express a given number as a percentage of another in more complex situations and find the original amount given the final amount after a percentage increase or decrease. They will then solve problems involving compound measures and use ratio and proportion in measures and conversions. We then develop 2D geometry skills by drawing plans and elevations of 3D shapes. This leads to making accurate drawings of triangles using a ruler, protractor and compasses and drawing diagrams to scale. Pupils will then use compasses to construct perpendicular bisectors, angle bisectors and other loci before solving problems using bearings.
Summer One	<b>Quadratic equations and graphs</b>	This half term we will bring together equations from Year 9 and graphs in Year 10 by developing pupils' understanding of quadratic equations. Pupils will multiply and square single brackets, plot graphs of quadratic functions and use quadratic graphs to solve problems. They will then solve quadratic functions algebraically.
Summer Two	<b>Perimeter, area and volume 2</b>	Pupils will develop their knowledge of 2D shapes by calculating the circumference and area of a circle. This will enable them to solve problems involving sectors of circles, and then find the volume and surface area of cylinders, pyramids, cones, spheres and composite solids.