



Maths Curriculum Overview - Year 10 Higher with Further Maths

	Unit	Details
Autumn One	More trigonometry Further Statistics Equations and Graphs	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. 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.
Autumn Two	Circle Theorems More Algebra Vectors and Geometric Proof Proportion and Graphs	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. Pupils 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. We will then extend prior knowledge of expressions by changing the subject of a formula where the subject appears twice and solving equations involving algebraic fractions. Pupils will then learn how to manipulate expressions involving surds and rationalise the denominator of a fraction. Finally, they will use function notation to find inverses and composite functions. The vectors unit will develop angle and gradient concepts to look at resultants, before moving into formal proof of parallel lines and collinear points. In the final unit of GCSE maths pupils will extend their concept of proportion by writing and using equations to solve problems involving direct and inverse proportion. They will sketch graphs of exponential functions, calculate the gradient of a tangent at a point and estimate the area under a non-linear graph. They will then use function notation to describe how transformations change graphs.
Spring One	Collection of data Processing, representing and analysing data	Pupils will start their study of GCSE Statistics by exploring how to gather data and mitigate issues with surveys and questionnaires. They will learn the different types of data, and ways to take a sample, and how to control extraneous variables. They will then compare data sets described pictorially and by using graphs and charts, and determine skewness from a graph.
Spring Two	Summarising Data	We will then build on prior understanding of averages to calculate weighted mean, geometric mean and mean seasonal variation. Pupils will compare data sets by making reference to measures of location and measures of spread.
Summer One	Scatter Diagrams and Correlation Time Series Probability	Pupils will spend time extending their understanding of correlation, plotting lines of best fit through the double mean and learning that correlation does not necessarily imply causation. They will then calculate Spearman's Rank Correlation coefficient and interpret the PMCC. We will then study data related to rates of change over time when given in graphical form and calculate and interpret rates of change over time from tables using context specific formulae. The half term ends with pupils consolidating conditional probability and then using this is assessing absolute and relative risk.
Summer Two	Index Numbers Probability distributions	Pupils will start this half term learning to use different types of index and weighted index numbers in context, including but not limited to retail price index (RPI), consumer price index (CPI) and gross domestic product (GDP). They will then learn and interpret the characteristics of binomial and normal distributions.