Mathematics & Further Maths

The A level is a two year linear course with three exams taken at the end of Year 13. The course consists of three areas: pure mathematics, mechanics and statistics. Paper 1 will consist of pure mathematics. Paper 2 will consist of half pure mathematics and half statistics. Paper 3 will consist of half pure mathematics and half mechanics. All papers have equal weighting.

In Pure Mathematics you will learn new methods and techniques which will build on your knowledge of graphs, trigonometry, algebra and vectors learnt in the new GCSE. We will also study a new topic called calculus, which is a powerful tool for working out, for example, gradients of curves and areas under graphs. You will learn to understand the need both for mathematical rigour and for being able to use the various techniques within models of real life situations.

In Statistics you will learn to appreciate that it is a practical subject in constant everyday use, whilst at the same time, it has a strong theoretical background. You will build on to your knowledge of probability and data analysis as you investigate the idea of statistical modelling.

In Mechanics you will learn how you can model real life situations involving velocity, distance and time using mathematics and how to solve physical problems. Topics include studying the motion of a projectile and Newton's laws of motion.

Calculators (both scientific and graphical) are allowed in all three exams. There is no coursework.

Course: OCR H240
OCR H245

Contact:
Mr A Heighway

Course:
100% Examination

Entry: Maths - Grade6
Frthr Maths - Grade 8

Further Maths is only open to students taking A-level mathematics. It is taken in order to both extend and deepen your knowledge beyond the standard mathematics A level. It provides the opportunity to explore more challenging new and more sophisticated mathematical concepts. Studying further mathematics also helps consolidate and reinforce your standard A-level mathematics work. Many students find it beneficial to study further mathematics if going on to read mathematics at university as it smooths the transition to degree level. You will also find it advantageous if you are wishing to go on study a STEM subject, computing, economics or other mathematical related subjects.

This two-year linear A-level course encompasses Pure Core modules and the two applied areas of mechanics and discrete mathematics. Four ninety-minute examinations are to be taken at the end of Year 13, with two covering the Pure Core content and the applied topics being examined individually. All papers have equal weighting. There is no coursework requirement.

In Pure Core you will extend and deepen your knowledge of proof, algebra, functions, calculus, vectors and differential equations studied in A Level Mathematics. You will also broaden your knowledge into other areas of pure mathematics that underpin the further study of mathematics and other numerate subjects with complex numbers, matrices, polar coordinates and hyperbolic functions.

In Mechanics you will extend your knowledge of particles, kinematics and forces from A Level Mathematics, using your extended pure mathematical knowledge to explore more complex physical systems. The area covers dimensional analysis, work, energy, power, impulse, momentum, centres of mass, circular motion and variable force.

Discrete Mathematics is the part of mathematics dedicated to the study of discrete objects. You will study both pure mathematical structures and techniques and their application to solving real-world problems of existence, construction, enumeration and optimisation. Areas studied include counting, graphs, networks, algorithms, critical path analysis, linear programming, and game theory.

There is no coursework.