

A Level Mathematics at The Warriner School



Mathematics A Level

Exam board: OCR – MEI specification.

Entry requirements: GCSE Mathematics at Grade 6 or above.

Assessment structure: Formal exams taken at the end of Year 13.

This consists of 3 x 2 hour papers covering the following topics:

- Paper 1: Pure Mathematics & Mechanics
- Paper 2: Pure Mathematics & Statistics
- Paper 3: Pure Mathematics & Mathematical Comprehension

Pure Maths begins with a review of GCSE content which serves as a foundational skill set in everything new the students will go on to learn. New content includes advanced trigonometry, as well as new trigonometric functions, calculus (the study of rates of change), a more detailed look at exponential functions and the introduction of logarithmic functions.

Mechanics takes students from the familiar use of distance-time and speed-time graphs onto the modelling of real-life situations as particle motion in one dimension. They will go on to derive equations for such motion under constant acceleration, and develop the use of these equations for increasingly complex situations, before learning how to apply calculus techniques taught in Pure maths to study the motion of particles under variable acceleration.

Statistics will review techniques familiar from GCSE for analysing and presenting data, before introducing new terms such as variance and standard deviation. Students will learn how the outcomes of certain events can be modelled using probability functions, as well as how hypothesis testing can be used to determine the likelihood of increasingly extreme outcomes, or the validity of claims made about large scale outcomes, such as in manufacturing, public opinion, etc.

Skills required:

Students who succeed with A-Level Mathematics love to persevere with a challenge; they accept that they will make mistakes and are happy to use these to improve their understanding. They develop both a logical and a creative approach to problem solving and are driven not only to find solutions, but to understanding why. A Level Maths has a significant algebraic element to it and fluency in techniques covered on the GCSE course is expected. These include expanding brackets, factorising expressions, solving equations (linear, quadratic and simultaneous) and rearranging equations.

Future study avenues or careers:

Mathematics is one of the most marketable A levels and it is difficult to think of any career where it would not be welcomed. Below are some for which the content studied at A level would be particularly relevant:

Engineering Software analyst / programmer Financial analyst Meteorologist Statistician Sports scientist Teacher Forensic scientist	Actuary Accountant Stockbroker Computer game designer Architect Economist Investment banker Medical statistician
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