



# Maths, Further Maths and Mathematical Studies

## Mathematics A Level

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### Why study Mathematics

Mathematics is interesting, challenging and enjoyable. There is joy to be gained in solving difficult problems and seeing underlying patterns and connections. A level Mathematics is also a very desirable and highly respected qualification. It compliments any other subject and prepares you for further study and employment in a wide range of disciplines. As one of the STEM subjects, A level Mathematics is also very important for most engineering and science-based courses.

When studying Mathematics, you continue to build upon skills and apply new knowledge to problem solving and analytical thinking. If you enjoyed GCSE Mathematics, then you should consider A level.

Most of our successful students score a grade 7 or better at GCSE mathematics, although a 6 is the minimum requirement. We give all students a baseline test at the start of Year 12 to check that they have completed the required skills practice over the summer, and students who come with a grade 6 should be aware that this period is an important one.

### What teaching and learning methods will be used?

A variety of teaching and learning approaches will be used, from whole class teaching to the Integral online learning resource which assists with self-study. Each unit is individually assessed in class for understanding and progress. Topic based review papers and regular assignments also form part of the compulsory independent study and home learning.

### Course content and assessment

All students will be assessed on a knowledge of Pure Mathematics, Statistics, and Mechanics. The three examination papers each last 2 hours, provide one third of the total marks and consist of a range of problems from single step to contextual multi staged problems.

**Pure Mathematics** – Algebra & Functions, Coordinate Geometry, Series & Sequences, Differentiation, Integration, Trigonometry, Proof, Vectors, Exponentials & Logarithms, Numerical Methods

**Statistics** – Data Presentation & Interpretation, Probability, Statistical Distributions, Statistical Hypothesis Testing

**Mechanics** – Quantities & Units, Kinematics, Forces & Newton's Laws, Moments

**Papers 1 & 2** cover any content from Pure Mathematics.

**Paper 3** covers any content from Statistics and Mechanics.

**A Level Mathematics and Further Mathematics Examination Board: Pearson Edexcel**

**Mathematical Studies Examination Board: AQA**

## Further Maths A Level

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Do you enjoy Mathematics, both for its practical applications and in general? Do you relish the challenge of problem solving? Then Further Mathematics may be a subject for you to consider. The study of Further Mathematics is demanding and requires a high mathematical ability and capacity for work. With this comes great reward!

Further Mathematics is always taken alongside A level Mathematics. Between these two courses you will gain a deeper, broader knowledge and understanding of pure and applied Mathematics. Further Mathematics is particularly relevant for students preparing for university courses in Mathematics, Computer Science, Engineering and Physics, and is highly regarded by top universities. For some University Mathematics courses Further Mathematics is essential.

The course consists of Core Pure Mathematics (50%) and two further applied units, the content of which can be flexible depending on students' future direction of study. Students have the flexibility to study additional units, which some do for self-interest, although this is largely completed and supported outside of school hours.

To study Further Maths, you need to have achieved a 7 or above at GCSE.

## Mathematical Studies – Level 3 Certificate

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Mathematical Studies is a Level 3 qualification which is aimed to equip those studying other subjects where Mathematics is useful, such as Business studies, Geography, Biology, Computer Science and Psychology.

The core content of the course covers Analysis of Data, Maths for Personal Finance, Estimation and Critical Analysis of Data and Models.

Assessment is in the form of 2 linear exams and there is no coursework for this course. To be accepted for this course, a grade 5 or above at GCSE is advised.

Mathematical studies lessons take place in the enrichment option block so that it can be taken alongside other courses for which continuing maths would be helpful.

**For further information or advice, please contact Mr Buttress and Miss Harpham in the Mathematics Department or speak to any student current following the course.**