

Mathematics and Further Mathematics

What will I study and learn?

A level Mathematics and Further Mathematics are both linear qualifications and you will sit all your examinations at the end of the Upper Sixth. If you opt for both courses, you will cover the entire content of the Mathematics course during the Lower Sixth, and the Further Mathematics course in the Upper Sixth. Alternatively you could choose to take an AS in Further Mathematics at the end of the Upper Sixth.

The Mathematics course will cover:

Pure Mathematics

Mathematical argument, problem-solving, proof, algebra, graphs, sequences, logarithms, trigonometry, calculus, functions, numerical methods, vectors and differential equations.

Statistics

Working with a large data set to make inferences about the underlying population, probability calculations using the binomial distribution, normal distribution and statistical hypothesis testing. It is expected that statistical study will be enhanced by an appropriate use of technology.

Mechanics

Kinematics, working with forces and Newton's Laws, motion under gravity, friction and moments.

Many of the above topics will be introduced in the Lower Sixth, and then studied in greater depth in the Upper Sixth alongside the higher-level ideas.

Assessment will be in the form of three written papers covering Pure Mathematics with Mechanics, Pure Mathematics with Statistics and Pure Mathematics with Comprehension.

The Further Mathematics course will cover:

Core Pure

A level Mathematics Pure topics are taught in greater depth while also introducing new topics such as matrices, complex numbers, polar coordinates and hyperbolic functions.

Statistics

The A level statistics ideas are further developed and expanded to include discrete and continuous random variables, bivariate data, regression and correlation.

Mechanics

The A level knowledge of kinematics and forces is extended to explore physical systems and dimensional analysis including work, energy, power, impulse, momentum and centres of mass.

Extra Pure

This minor unit explores four different areas of Pure Mathematics: Groups, Recurrence relations, Matrices and Multivariable calculus.

Assessment will be in the form of three or four written papers depending on the exact major and minor units studied.

A level students have the option of taking Mathematics course at different levels. This key decision needs to be based on research and discussion with your teachers.

A level Further Maths is a requirement for pursuing maths and engineering at top universities. We also offer a course in AS Further Mathematics (in the Upper Sixth) that extends beyond the A level course covering roughly half of the additional content of A level Further Mathematics. This is highly valued by university admission tutors for courses that include lots of mathematics.



Want to know more?

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Exam Board:
ocr.org.uk
(OCR MEI Syllabus B)

Future opportunities

Studying Mathematics in the Sixth Form is essential for further studies in the subject, and for many other courses such as engineering, science, economics and computing. A surprisingly large number of careers expect you to have studied Mathematics in the Sixth Form, eg accountancy, actuarial work, banking, financial services, architecture, sciences and medicine. It is also becoming increasingly important in areas like business management, economics, psychology and marketing. Mathematics shows an employer that you possess a significant level of logical thinking and problem-solving ability, which is highly valued in careers such as law.

How will I be assessed?

Mathematics

Paper 1

Pure Mathematics with Mechanics.

Paper 2

Pure Mathematics with Statistics.

Paper 3

Pure Mathematics with Comprehension.

Further Mathematics

Will be in the form of three or four written papers depending on the exact major and minor units studied.

ENTRY REQUIREMENTS

For A level Mathematics: You should achieve at least a grade 7 in IGCSE/GCSE Mathematics although, ideally, you should be aiming for a grade 8 or 9. To study A level Further Mathematics, a minimum grade of 8 or 9 in IGCSE/GCSE Mathematics is required, and you should be particularly confident with algebra. Ideally, you should be aiming for a grade 9.

“BGS has an excellent Maths department who offer one-to-one support as well as multiple help sessions throughout the week to help you to improve your ability. I love the challenge of this course: it keeps me on my toes and the content is very stimulating.

Max, OB

Courses: Chemistry, Biology, Mathematics and Further Mathematics

