

MATHEMATICS A-LEVEL

The new A-level qualifications in Mathematics and Further Mathematics are rigorous, linear courses examined at the end of the two years for A level, and at the end of one year for AS level. The courses build on the foundations laid down in GCSE Maths, and are particularly designed to extend and stretch students' problem-solving abilities and to gain an appreciation of both the accuracy and relevance of their answers.

Mathematics at A-level builds on and develops the ideas studied for GCSE but also introduces many new concepts. The course develops problem solving skills and analytical capabilities. At the end of the course, one of the exams contains a "comprehension" element involving using mathematics to solve problems in an unfamiliar context. A good standard of literacy is therefore also critical.

Good knowledge of algebra and geometry are absolutely crucial for students beginning A Level Mathematics.

Students need a high level of independence and perseverance in order to get the most from the course, as Mathematics can be a very frustrating and lonely activity at times. A high level of support is available online from the awarding body and its partners. This includes examples, notes, video clips, presentations and assessments, as well as digital copies of the course textbooks.

Students also need to have a more specialized calculator for the final exams, in order to deal with the statistical element of the course. These can be purchased from the college or from elsewhere.

The style of teaching and the way in which students learn will be familiar from the GCSE course. We expect students to take more responsibility for their own understanding and learning. After every lesson students will spend time organizing notes, trying questions and making sure that they do understand the topics fully. It is up to them to seek help from their teachers between lessons if they do not. There will be regular assessments and students are required to pass them all.

As well as being a subject in its own right, Mathematics is used in many other areas. The Mathematics course will support studies in other advanced courses. Some University courses require an advanced Mathematics qualification.

Course Content

Topics

Year 1

Mathematical Modelling, Algebra & Functions, Coordinate Geometry, Sequences & Series, Trigonometry, Differentiation, Integration, Vectors, Statistical Sampling & Distributions, Probability & Hypothesis Testing, Forces, Moments &

A Level Mathematics

The topics above but studied in more depth, and also Numerical Methods and Mechanical Moments

ENTRY REQUIREMENTS

At least a grade 6 on the Higher Tier Mathematics GCSE.

A good work ethic - A-level Mathematics is not something that students can naturally just "do"

FURTHER MATHEMATICS AS and A LEVEL

Students that are contemplating studying Mathematics or a related subject at University should seriously consider also taking the Further Mathematics AS or A level.

This is an optional addition available to those studying the Mathematics A Level. It is recommended only to the most able students and those wishing to study a Mathematics related degree course in the future. The course can be studied as an AS level (one year only, examined at the end of year 12), or as a full A level.

We can also support those students who need to sit STEP and AEA/MAT/TMUA papers for entry into some universities.

Course Content

Topics

AS Further Mathematics

The topics studied in the first year A-level Mathematics course, and also Proof, Complex Numbers, Matrices, and Further Algebra

A Level Further Mathematics

The topics in the A Level Mathematics course, and in the AS Further Mathematics course, and also Further Calculus, Further Vectors, Polar Coordinates, and Hyperbolic Functions.

There is also the requirement to study some of the additional content, which is based either on Mechanics, Statistics, Pure Mathematics or Decision Mathematics

ENTRY REQUIREMENTS

At least a grade 7 on the Higher tier Mathematics GCSE **and** also be studying Mathematics A level. A real passion for maths - studying maths and further maths will mean 8 hours of maths lessons every week, plus independent study!

If you would like more information on the Maths or Further Maths courses, please contact Ian Maynard Smith at the college either by phone on 0116 287 9921, or by email on imaynardsmith@brookvalegroby.com