

A Level Further Maths

Course introduction

The AQA AS and A Level Further Mathematics build on the skills and knowledge developed at GCSE and within the Maths A level. A Level Further Mathematics allows students to explore how mathematics can be used to model situations using algebra in a much greater depth than A Level Mathematics and provides opportunity to meet new concepts such as imaginary numbers. Most of the course is Pure Maths which is the study of mathematical ideas and methods for their own sake and to give a 'toolkit' for solving mathematical problems. All Pure Maths is expressed in terms of algebra.

Course Content

AS Level Mathematics

In Year 12, you will cover topics in Pure Maths and along with the Applied topics Mechanics and Statistics.

A Level Mathematics

In the second year of this course, you will develop your mathematical problem-solving skills and algebraic skills further and you will study the topics from AS Level in greater depth.

If your Maths is sufficiently strong, taking two A Levels in Maths should be easier than taking two separate A Levels in two separate subjects, because the various parts of the subject reinforce each other.

Where does it lead?

- Further Maths is needed for a Maths degree at a small number of the most competitive universities. It is also more or less necessary for Physics, Engineering and Computer Science (and highly desirable for Chemistry too) at a couple of the most competitive universities.
- Further Maths gives the strongest possible background for Maths based university courses such as Mathematics, Physics, Engineering, Computer Science and straight Chemistry degrees.
- Doing Further Maths can help clinch a grade A in ordinary A level Maths.

Further information

What are the additional topics Pure Maths includes in the A Level Further Maths?

- Imaginary numbers – How negative numbers can have square roots and what the consequences are. This is the basis of chaos theory and is unexpectedly useful in electrical engineering.
- Maclaurin's Series – The Maths behind how values of sin, cos and tan are found.
- Linear Algebra – The Maths behind how a computer can solve 102 simultaneous equations in 102 unknowns as easily as you can solve 2 equations in 2 unknowns.
- Second order differential equations – The Maths behind why bridges can wobble dangerously if people walk across them at a critical speed.

For further information please contact Mr Rowbottom, Head of Maths.

