

Maths (AQA)

ABOUT THE COURSE

Mathematics is the basis for most science and technology. It is recommended that anyone contemplating such a career should study Mathematics and it is essential for most engineering courses. Its emphasis on logic, analysis and deduction makes for an AS or A level qualification, which is highly respected by universities and prospective employers.

Nowadays, universities offer a wide range of degree courses that include Mathematics. More obvious combinations are, for example, Mathematics with Physics, Computer Science or Finance, but Mathematics will also be seen with Philosophy, French, Music and many others. An important aspect of study in the Sixth Form is that students should understand the nature of rigorous argument and proof; they will also be encouraged to see why mathematical methods work. In addition, they will see how various areas of the subject tie together in a way, which is more meaningful than at GCSE level.

HOW YOUR WORK IS ASSESSED

The subject is divided into two main areas of study: Pure and Applied Mathematics. The Pure section develops concepts already met at GCSE, such as graphs, trigonometry, algebra, sequences and vectors, and also introduces new topics such as the fundamentally important calculus, involving differentiation and integration.

Four out of the six units at A Level, including two of three at AS Level, will be Pure Mathematics units. There is some degree of choice with Applied units, but 2 units will be offered from Mechanics, Statistics or Decision Maths. Mechanics introduces the idea of modelling real life situations in order to study the motion or equilibrium of bodies. Students are likely to have come across some of the content, such as forces and Newton's Laws if they have studied Physics at GCSE.

Statistics builds upon GCSE data handling and probability, and introduces random variables and bivariate data (correlation and regression). Decision Maths involves the application of algorithms to complex problems. It is important that those studying the subject in the Sixth Form should have gained at least a B grade at Mathematics GCSE, and preferably A or A*, and teachers should be asked for advice.



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FURTHER MATHEMATICS

This is a separate Advanced Level and is a continuation of Advanced Level Mathematics. It is designed for keen and bright students, and is highly desirable for anyone wishing to study Mathematics at university. It has also proved to be highly beneficial to students who have gone to university to follow courses with a high mathematical content, such as engineering.

Pure Mathematics will be developed further to include concepts such as proof by induction, polar coordinates, imaginary numbers, hyperbolic functions, matrices and group theory. There are various choices for Applied units; Decision Mathematics is studied along with further units in Mechanics and Statistics.

This is a challenging Advanced Level, but stimulating for those who are genuinely very able and keen. It is very highly respected, and a high grade will be an impressive qualification. For those who are interested in the idea of Further Mathematics, but feel that it would be too much in addition to their subjects already chosen, it is possible to take Mathematics Advanced Level plus Further Mathematics AS level. Those wishing to study the subject in the Sixth Form should have an A* grade at GCSE.

