

# A-Level Maths

## Why Mathematics?

Mathematics is a beautiful, fascinating and rewarding subject. Maths and Science are required for the continued development of our increasingly technological lives. The UK's knowledge economy needs mathematical skills for the financial, communication, transportation sectors and areas like genome modelling etc. Without mathematicians, we'd be, in trouble!

Mathematics is good for combining with other subjects and goes particularly well with the physical and social sciences. The most fundamental reason to study mathematics is that it teaches students to learn—to build up an understanding from basic principles, to develop general concepts, and then to apply this to specific examples. Students learn to think logically, to ask questions and check out their conclusions all of which are really useful life skills.

## What can I expect?

The A-level course involves the study of pure and applied mathematics, in a course that allows students to see the links between each area. It builds naturally on the ideas studied throughout GCSE. The course is linear and is assessed through three examinations of two hours each, all taken at the end of Year 13. Each exam is a mix of question styles, from short, single-mark questions to multi-step problems.

## The course covers:

The exams require students to demonstrate the overarching knowledge and skills of mathematical argument, symbols and language, mathematical problem solving and mathematical modelling.

Core Mathematics: Proof, Algebra and functions, Coordinate geometry, Sequences and series, Trigonometry, Exponentials and logarithms, Differentiation, Integration, Numerical methods, Vectors

Mechanics: Quantities and units in mechanics, Kinematics, Forces and Newton's laws, Moments

Statistics: Statistical sampling, Data presentation and Interpretation, Probability, Statistical distributions, Statistical hypothesis testing

## What do I need?

A **Grade 6** in GCSE Mathematics. You will need to be hard-working and self-motivated to succeed.



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## What about the future?

A-level Mathematics is one of the most important facilitating subjects and is essential for many higher education courses and careers. It provides students with a thorough grounding in the mathematical tools and techniques often needed in the workplace, as well as developing logic and reasoning skills widely respected even in non-mathematical tools and techniques often needed in the workplace, as well as developing logic and reasoning skills widely respected even in non-mathematical arenas.

Mathematics is an essential qualification for a large number of careers, including Accountancy, Aerospace & Defence, Automotive, Biosciences, Business support services, Chemical, Construction, Consultancies, Education, Engineering, Environment, Exploration Geophysics, Financial Services, Food & Drink, Government, Healthcare, Insurance, IT & Computing, Manufacturing, Media, Metals & Minerals, Operational Research, Pharmaceuticals, Recruitment, Academic Research, Science, Telecoms, Transport/Travel, Utilities. It can be used as an entry qualification for a wider variety of courses at higher education and indicates that an individual has very strong academic ability.

## Contact for additional information

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