

Key Stage 5 Maths Curriculum

A-Level Mathematics and Further Mathematics

Why choose Maths?

The most fundamental skill that mathematics will equip you with is to be able to learn—to be able to build up an understanding from basic principles, to build upon existing knowledge to develop general concepts and then to apply this general concept to specific examples. You will learn to think logically, to ask questions, and to do thorough and rigorous investigations to answer them.

As well as teaching you problem-solving and data-handling skills, mathematics is the language of most of the lab sciences and many of the quantitative parts of social sciences. It therefore enables you to communicate complicated concepts. These are more general skills that will be useful, no matter what you want to do in the future. But in addition to these general skills, you will need maths to study a wide range of subjects—from engineering to economics, medicine to archaeology.

A-Level Mathematics (AQA 7357)

What will I study?

The course has three major over-arching themes (mathematical argument, language and proof, mathematical problem solving and mathematical modelling). Three branches of mathematics are studied and assessed: Pure Mathematics, Statistics and Mechanics.

- Pure Mathematics: Proof, algebra and functions, coordinate geometry, sequences and series, trigonometry, exponentials and logarithms, differentiation, integration, numerical methods
- Statistics: Statistical sampling, data presentation and interpretation, probability, statistical distributions, statistical hypothesis testing
- Mechanics: Vectors, quantities and units in mechanics, kinematics, forces and Newton's laws and moments

The scheme of work can be found below:

[A Level Maths](#)

How will I be taught?

You will have 9 lessons per fortnight with 2 different teachers. You will be given homework by both staff. There will be regular tests after topics.

A-Level Further Mathematics (AQA 7367)

What will I study?

Further Mathematics provides the opportunity to study aspects of the pure and applied strands of Mathematics to a greater depth. For example, the Pure Mathematics studied at A Level is extended to cover topics such as complex numbers, matrices, further algebra and functions, further calculus, further vectors, polar coordinates, hyperbolic functions and differential equations.

The scheme of work can be found below:

[A Level Further Maths](#)

How will I be taught?

You will have 18 lessons per fortnight with 3 different teachers. You will be given homework by both staff. There will be regular tests after topics.

How will I be assessed?

Mathematics and Further Mathematics A Levels are linear courses and all students will sit their final examinations at the end of Year 13.

In A Level Mathematics students will sit 3×2 hour examinations as follows:

Paper 1: Pure Mathematics

Paper 2: Pure Mathematics/Mechanics

Paper 3: Pure Mathematics/Statistics

In Further Mathematics students will sit a further 3×2 hour examinations:

Paper 1: Further Pure Mathematics

Paper 2: Further Pure Mathematics

Paper 3: Further Mechanics/Further Statistics

What do I need to have at GCSE?

You need to have studied Higher level at GCSE and we would prefer you to have at least a grade 7. If your target grade is below a grade 7, you need to speak to your subject teacher as to whether they feel the course would be suitable. Those students not expected to get a grade 7, will be expected to complete some extra work during the summer holidays before they start the Sixth Form in order to be ready for the first unit of work in September.

What use is maths in getting a job?

Look closer at the job ads and at the kinds of skills employers are looking for: problem solving skills, conceptual and analytical ability, data handling and communication skills. These are transferable skills that are useful in any job, and you can get all of them from studying mathematics. As well as problem solving and logical thinking, maths enables you to communicate complicated ideas in a clear and unambiguous way. Maths is the language used in science, business and many other areas to express complex situations, from analysing costs versus profits to pulling together all the factors affecting whether a structure will stay up. Maths teaches you to handle and interpret data, and ultimately teaches you how to research—how to do a thorough investigation.

So should I give it a go?

If you enjoy GCSE maths and are hard-working, then you are suited to this course.

But, be warned, you will need to keep up to date with all of your homework as Maths is a ‘building blocks’ subject – each lesson builds into the next, so once you fall behind, it is difficult to catch up. The course is assessed through two examination papers and leads to a qualification which carries the same UCAS tariff points as an AS Level (40% of A Level). The awarding body is AQA (1350).

Core Maths (One Year Course)

Core Maths is a qualification designed for students who have achieved a grade 5 or above in GCSE Mathematics and choose not to study A Level Mathematics but wish to take their valuable maths skills to a higher level. Core Maths enables learners to develop their mathematical knowledge and apply it to problems found in other Level 3 courses, further study, life and employment.

Core Maths is a relatively new course but already universities and employers from different sectors have expressed support for the qualification. Many roles in today’s workplace require high levels of budget management and problem-solving skills: Core Maths will be a useful tool in equipping students with these skills.

What will I study?

Core Maths builds on GCSE level work by considering and tackling mathematics in meaningful contexts: the content of the course includes financial applications of mathematics and further statistical ideas that can support work in a wide range of other subjects such as the sciences, Geography, Psychology and Sociology.

The scheme of work can be found below:

[Core Maths](#)

How will I be taught?

You will have 8 lessons per fortnight taught by 2 teachers.

How will I be assessed?

The course is assessed through two examination papers and leads to a qualification which carries the same UCAS tariff points as an AS Level (40% of A Level). The awarding body is AQA (1350).