# Mathematics
# A-Level

## Entry Qualifications

In addition to the standard College entry requirements (see below), this course normally requires students to have achieved grade 6 or above in Higher Level GCSE Mathematics . Students who achieve the minimum grade 6 will be required to take an algebra assessment to assess whether the A -level Mathematics course is appropriate.

## What will I study?

A-level Mathematics builds from GCSE level mathematics and introduces calculus and its applications. It emphasises how mathematical ideas are interconnected and how Mathematics can be applied to model situations mathematically using algebra and other representations, to help make sense of data, to understand the physical world and to solve problems in a variety of contexts, including social sciences and business. It prepares students for further study and employment in a wide range of disciplines involving the use of Mathematics.

Over 2 years you will study the following Pure Mathematics topics which make up two-thirds of the final assessment: Proof, Algebra and functions, Coordinate geometry in the (x,y) plane, Sequences and series, Trigonometry, Exponentials and logarithms, Differentiation, Integration, Vectors and Numerical methods.

You will also study the mathematical applications Statistics and Mechanics topics which make up one-sixth each of the final assessment

Statistics: Statistical sampling, Data presentation and interpretation, Probability, Statistical distributions, Statistical hypothesis testing, familiarity with a large data set.

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

## How will I study?

In lessons students will be expected to take an active part in investigating and discussing new concepts and ideas. Both individual, paired and group work will be undertaken as appropriate. Internal assessment will be taken through the two years enabling feedback on exam technique, development of good study skills as well as supporting students with the focused learning of the concepts, ideas and problem solving skills. A graphical calculator will be used during lessons to support learning.

## How is the course examined?

The course is assessed by three 2 hour examinations taken at the end of two years of study. Each exam is worth one third of the final grade.

## Where next?

It is by no means the case that those with mathematics qualifications necessarily follow careers in which they practice the art of Mathematics. The application of Mathematics can, however be found to varying degrees in many career areas. Mathematics graduates can expect to be looked upon favourably by a wide range of prospective employers.

## What does the course combine well with?

Mathematics goes well alongside subjects such as Physics, Chemistry, Economics, Psychology, Computer Science and Biology.

## College Entry Requirements

We normally expect applicants to have achieved good GCSE passes in at least six subjects, these must:
- demonstrate the suitability for Advanced Level study
- have been achieved at Grade 4/C as a minimum
- include two at Grade 5/B as a minimum
- include English Language - a minimum grade of 4/C

Mathematics - If not achieved within the scope of the above should normally be achieved at grade 3/D. If mathematics is not achieved at grade 4/C then it will be a requirement to continue to study at the correct level until a grade 4 is achieved. Subjects with a mathematical content will require a higher grade.