

# Maths

## A – Level Edexcel

### General Course Information

Over the two years, students will study a broad range of Pure Mathematics, Mechanics and Statistics.

- The Pure Core content builds on students' existing skills in Algebra and Trigonometry as well as introducing new topics, such as Calculus, which allows us to calculate the gradients of curved graphs, and applies this to rates of change of physical quantities. To succeed at this level students must be confident in using the Algebra met at GCSE Level, and also enjoy using it, as they will meet a lot of it!
- Mechanics involves the study of forces and their effects on moving objects. Topics include Newton's laws of motion, friction and projectile motion. It is particularly useful for students also studying Physics at Advanced Level or wishing to study Engineering in higher education.
- Statistics includes further study of probability and measures of the average and spread of data. Topics include population sampling, data representation, probability and statistical distributions. Statistics has useful applications to Biology, Economics, Geography and Psychology.

### How is the course assessed?

Students take three exams in the summer of their final year.

	Duration	Total marks	% of qualifications
Paper 1: Pure Mathematics	2 hours	100	33.33
Paper 2: Pure Mathematics	2 hours	100	33.33
Paper 3: Statistics and Mechanics	2 hours	100	33.33

### Who's it for?

The most important requirement is an interest and enjoyment of Mathematics. Also are you a natural thinker who enjoys solving problems? Then Maths is for you!

**Skills:** persistence, consistent hard work, ability to solve problems, good algebraic skills, ability to think in abstract, a logical mind, motivation to work independently while seeking and accepting guidance when necessary.

### Entry Requirements

Students require at least a grade 6 at GCSE.

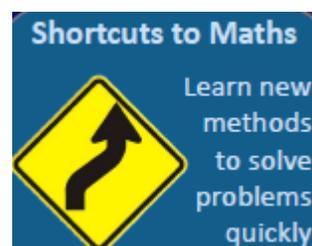
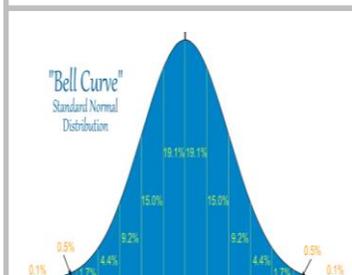
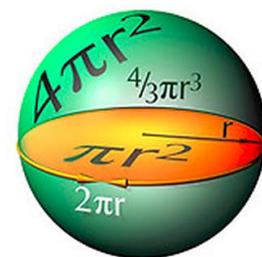
*Students will need to be self motivated and show a high level of commitment to the subject.*

### Progression

A level Mathematics is an important and highly regarded subject for university entrance. Many students combine Mathematics with Chemistry, Physics, Computing, Psychology, Biology, Geography, Economics and Business Studies, but each year there are students from almost all other subject areas.

We have a number of students who go to university to study Mathematics but many also study Engineering, Computing, Medicine and the Sciences.

Mathematics students often gain employment in the financial services industries. Even if you do not choose a career directly related to your subject, Maths provides you with an *essential life-long skill that will be valued in any job.*



$$\int_{-1}^0 (x^3 - x^2 - 2x) dx = \left[ \frac{x^4}{4} - \frac{x^3}{3} - x^2 \right]_{-1}^0$$

$$= [0] - \left[ \frac{1}{4} + \frac{1}{3} - 1 \right] = \frac{5}{12}$$

$$\int_0^2 (x^3 - x^2 - 2x) dx = \left[ \frac{x^4}{4} - \frac{x^3}{3} - x^2 \right]_0^2$$

$$= \left[ \frac{16}{4} - \frac{8}{3} - 4 \right] - [0] = -\frac{8}{3}$$

