# Why study Mathematics?

**Mathematics**

Mathematics is one of the most useful and versatile subjects you can study in the Sixth Form.

If you enjoy the intellectual challenge that mathematics offers and the great satisfaction that is gained from working through difficult mathematical problems, then you have chosen the right subject.

There are very few career routes that do not value A-Level mathematics and many that demand A-Level mathematics.

**What do I need to know or be able to do before taking this course?**

A sound mathematical basis is crucial to be able to follow the course. Therefore, a grade 7 in GCSE mathematics is essential.

**Features of the course:**

Over the two years, you study a combination of algebraic techniques in order to solve co-ordinate geometry, trigonometry and sequences problems amongst others. In addition, you will study mechanics and statistics.

Pure mathematics includes proof; algebra and functions; coordinate geometry in the (x, y) plane; sequences and series; trigonometry; exponentials and logarithms; differentiation; integration; numerical methods and vectors.

Mechanics studies things that move and what causes them to move, and things that do not move and the forces within them. The topics include: quantities and units in mechanics; kinematics; forces and Newton’s laws and moments.

Statistics allow you to analyse data using increasingly sophisticated techniques. The topics include: statistical sampling; data presentation and interpretation; probability; statistical distributions and statistical hypothesis testing.

For all lessons and examinations students will be expected to have a scientific calculator; we recommend the Casio FX-991EX or if students wish to use a graphical calculator the Casio CG50.

**Key information:**

|  |  |
| --- | --- |
| **Topics for Study:** | Pure Mathematics, Statistics, Mechanics |
| **Assessment summary** | Paper 1: Pure Mathematics, 2 hour examination (33.33%)Paper 2: Pure Mathematics, 2 hour examination (33.33%)Paper 3: Statistics and Mechanics, 2 hour examination (33.33%) |
| **Entry requirements** | Grade 7 in GCSE Mathematics |
| **Exam Board** | Edexcel |
| **Subject lead contact details:** | Mrs Ford, Head of Mathematics;NFord@qegs.cumbria.sch.uk |