Mathematics & Further Mathematics

Mrs C Thomas

Academic Requirements

The A Level Mathematics syllabus has been designed to build upon the work studied for the Higher Tier at GCSE. The study of Mathematics in the Sixth Form will appeal to those students who enjoyed mathematics at GCSE; it will appeal particularly to those who enjoyed, and had a flair for, the more abstract topics of algebra and geometry. To succeed at A Level the student will need a sound understanding of all the topics studied for GCSE and she should have strong algebraic skills. To be reasonably sure of success at A Level, the student should have obtained at least a grade 7 or above in Higher Tier GCSE: to obtain a high grade at A-Level, the student should have achieved grade 8 or 9 at GCSE. Students who really enjoy Mathematics, and would welcome the opportunity to study complex algebra and new abstract topics, should consider taking Further Mathematics A Level. However, students should consider this option only if they obtained a grade 8 or 9 at GCSE.

Course Summary

The Mathematics studied at A Level falls into two categories – Pure Mathematics and Applied Mathematics. Pure Mathematics is the study of abstract topics such as geometry, algebra, trigonometry, functions and calculus. Applied Mathematics relates the knowledge and skills learned in Pure Mathematics to real life situations in Mechanics and Statistics: Mechanics is the study of forces and moving objects; Statistics is the study of probability and the analysis of data. All mathematics students will be assessed on their knowledge of Pure Mathematics, Mechanics and Statistics. The assessment objectives include an emphasis on modelling, problem-solving and reasoning. The examinations will be taken at the end of the course and questions will link different aspects of the course.

Students of Further Mathematics follow the programme described above. In addition to the 8 Mathematic lessons, students will have 6 lessons a week of Further Mathematics. At least half of the content is made up of Pure Mathematics and the remainder is of applied topics including Discrete Mathematics.

Students who wish to study mathematical subjects at some universities, notably Oxford, Cambridge and Warwick, may be required to sit extra examinations (STEP, AEA or other admissions tests). We provide a programme of support and study for such students.

Why Mathematics?

Students who have studied Mathematics will acquire skills and knowledge that can be applied in many fields. In addition to the acquisition of mathematical skills, students will develop their powers of reason and logic, and their communication skills. Because these skills are transferable, the worth of having studied Mathematics is universally recognised.

There are many career opportunities open to those who have studied A Level Mathematics, in Science and Technology and also in Business, Finance and Management. A Level Mathematics is a preferred qualification for entry to many degree courses.

Some students go on to study mathematics at university. There has been a shortage of Mathematics graduates for many years and they sought after by industry, commerce and the public sector. Because of the excellent training that Mathematics gives, graduates are always likely to be in demand.

A Student's Perspective

"I feel that I really have made progress in Maths. Everything is much clearer than when I was doing GCSE."

"In Maths you have to think clearly to get to the solution. This is a valuable skill."

"Maths is fun, interesting, wonderful………. The work is hard but you do not feel this when you know how to enjoy it."

"Some of the Maths is really hard but you get a lot of satisfaction when you solve a difficult problem."

"I really enjoyed Further Maths. It was fun studying all these things that most people have never heard of."

"There is no denying that the maths is much harder than at GCSE, but there is always someone at hand to help – either a fellow student or a member of staff. However, with constant practice and commitment the work gets easier."

"Wow! Talk about hard work! But at the end of it all you feel so good about yourself. You really feel like you've achieved something. And you have!"