A Level Mathematics and Further Mathematics

Mathematics is a popular and much enjoyed subject at Beaumont. The skills and insights gained through a course in Mathematics are highly valued by Universities and employers. There are 2 courses available for study at Key Stage 5 in Mathematics: A-Level Mathematics and A-Level Further Mathematics. Further Mathematics is taken as a fourth option.

Mathematics A-Level Course Content

The A level consists of a mixture of pure and applied topics. Two thirds of the material is devoted to the pure maths element and one third to the applied element. Many of these topics are encountered in GCSE Maths but are extended and studied in greater depth. It also introduces new concepts such as logarithms, calculus and parametric equations. The course also includes Mechanics (the foundations of Engineering) in which forces, friction, projectile motion, moments, dynamics and kinematics are taught. The Statistics section introduces students to different statistical distributions, hypothesis testing, correlation and regression. The aim of the course is to enable students to apply mathematical ideas to solve problems in a range of contexts and to be able to reason mathematically in coming to conclusions.

Students will need to be very comfortable with the more challenging GCSE concepts, algebra in particular. For this reason, students will need to have at least a grade 7 at GCSE Maths.

A-Level Mathematics Assessment Details

We follow the Edexcel specification (8MA0) with 100% examination.
There are three papers which students sit at the end of the course.
Each paper is two hours long and all have equal weighting.
Papers 1 and 2 are both Pure Mathematics.
Paper 3 is Mechanics and Statistics.
Use of a calculator is allowed on all three papers.

Further Mathematics Course Content

The Further Mathematics option will give a second A level in Mathematics and is very useful for those students who are considering doing Mathematics or a related subject at university. The Further Maths course builds on the A Level course with further study of key areas such as calculus and proof. It also introduces further new concepts such as matrices, complex numbers and polar coordinates. The course allows students to specialise in mechanics, statistics and further pure maths. Students do not need to choose their specialisms until the second year by which time they will have a greater understanding of what these areas involve. Students wanting to do Further Mathematics would be expected to achieve a grade 7 at GCSE maths, however we would suggest that grade 8 or 9 is a better indicator of success.

Further Mathematics Assessment Details

We follow the Edexcel specification (9MFO) with 100% examination.
There are four papers which students sit at the end of year 13.
Each paper is 90 minutes and all have equal weighting.
Papers 1 and 2 are both Pure Mathematics.
Papers 3 and 4 are selected by teachers from the optional modules.
Use of a calculator is allowed on all four papers.

ESSENTIAL STUDENT QUALITIES

The students must be proactive in taking responsibility for their learning and asking questions. They should ensure that they manage their time and keep up with regular practice and finally they need to demonstrate perseverance and a willingness to work through challenging problems – be prepared to get things wrong.

MATERIALS

Students will be required to purchase their own textbooks, details will be given at a later date, and a suitable calculator. The calculator will need to have an iterative function and the ability to compute summary statistics and access probabilities from standard statistical tables. We will provide information on an appropriate model at a later date and will be making a bulk order if you would like to purchase a calculator through the school, which usually works out cheaper.

COMPLEMENTARY SUBJECTS/FUTURE

Mathematics can be taken as a discrete subject at university and is also a key component of undergraduate courses such as Physics, Engineering, Economics, Business, Computer Science and Architecture.

ENRICHMENT OPPORTUNITIES

In addition to rigorous preparation for A Levels we strive to retain an excitement in the subject and offer opportunities for further involvement, for example through participation in the UK Maths Challenges. We can also offer preparation for STEP Maths and other university admissions tests. We also have many sixth form students who support and mentor younger mathematicians.