Mathematics

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Key topics covered

Year 12 Content

Autumn Term – Algebra, proof, equations and inequalities, quadratics, coordinate geometry, calculus, trigonometry, graphs and transformations.

Spring Term – Integration, logarithms an exponentials, kinematics, Newton's laws of motion, data collection, processing and representation, probability.

Summer Term – Variable acceleration, the binomial distribution and hypothesis testing, functions, sequences and series, further algebra

Year 13 Content

Autumn Term – Further calculus, trigonometric functions and identities, vectors.

Spring Term – Differential equations, parametric equations, numerical methods, kinematics, force and motion, moments, projectiles, friction, working with data, probability statistical distributions, statistical hypothesis testing.

Recommended Textbook and/or resources

MEI A Level Mathematics Year 1 (AS) 4th Edition

MEI A Level Mathematics Year 2 4th Edition

Casio FX-991CW (newer version) or FX-991EX (older version) Classwiz Scientific Calculator

All are available on Amazon or a similar website.

The school also provides online access to the whole course using the Integral website https://integralmaths.org/

Why Study the Subject/what students Like about it

Mathematics A-level is one of the biggest facilitating subjects and it is essential for many higher education courses and careers. Whether working in the fields of Science, Business, Economics, Psychology, Geography and many other subjects; Mathematics forms the language of reasoning that allows models to be designed and patterns and associations to be identified in order to make accurate predictions. Mathematics helps to develop key life skills such as numeracy, data analysis, logical thinking, and problem-solving.

"I have really enjoyed the challenge of A-level maths, it was a big jump up from GCSE but with the support of my teachers and friends on the course, I have made a lot of progress and plan to train as an engineer at university."

Opportunities outside the classroom

Last year several Year 12 students visited UEA for a day course on problem solving lead by the Advanced Mathematics Support Programme (AMSP). Students reported back that the day was really useful in helping them to structure answers to extended problems and it was a great opportunity to get a feel for university life.

Students are also given the opportunity to participate in the Senior Maths Challenge which is a 90-minute, multiple-choice math competition for students in Years 12 and 13 in England and Wales, designed to promote mathematical reasoning and problem-solving skills for students aged 16-18.

Future progression/career routes

Mathematics leads to a vast range of career options in many different fields such as engineering, computer science, architecture, medicine, finance, business, accounting and teaching.

