



Post 16 Prospectus: MATHEMATICS

Advanced Subsidiary (AS) & Advanced Level (A2) SYLLABUS A

Examining Board: OCR

The study of Mathematics at AS and A Level is both challenging and rewarding. Each year it attracts many students, some of whom have not always found Mathematics easy. While we expect a certain degree of mathematical ability, a willingness to work hard and a determination to achieve success with complex problems are just as important.

Mathematics is of use in a wide variety of future careers and degree courses, especially those with a mathematical, numerical, scientific, medical, statistical or engineering component.

The following subject titles will be offered:

- AS Level Mathematics
- A Level Mathematics

Aims

The AS and A Level subjects listed above are intended to encourage students to:

- develop their understanding of mathematics and mathematical processes in a way that promotes confidence, fosters enjoyment and provides a strong foundation for progress to further study;
- develop abilities to reason logically and recognise incorrect reasoning, to generalise and to construct mathematical proofs;
- extend their range of mathematical skills and techniques and use them in more difficult, unstructured problems;
- develop an understanding of coherence and progression in mathematics and of how different areas of mathematics can be connected;
- recognise how a situation may be represented mathematically and understand the relationship between 'real world' problems and standard and other mathematical models and how these can be refined and improved;
- use mathematics as an effective means of communication;
- acquire the skills needed to use technology such as calculators and computers effectively, recognise when such use may be inappropriate and be aware of limitations;
- develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general;
- take increasing responsibility for their own learning and evaluation of their own mathematical development.



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COURSE CONTENT

AS Level (Stand-alone AS Exam)	Advanced Level (Decoupled Exam)
Pure Maths – including exponentials and logarithms, integration and differentiation	All the content studied at AS in more depth plus additional content including:
Statistics – including binomial distribution and the use of a Large Data Set	Pure Maths – functions, numerical methods, differential equations
Mechanics – including kinematics and Newton's Laws	Statistics – normal distribution Mechanics – motion under gravity and moments.
AS ASSESSMENT	A2 ASSESSMENT
2 x 1.5 hour exams	3 x 2 hour exams
Paper 1 – Pure and Statistics Paper 2 – Pure and Mechanics	Paper 1 – Pure Mathematics Paper 2 – Pure and Statistics Paper 3 – Pure and Mechanics

SUBJECT ENRICHMENT

UKMT Senior Maths Challenge; UKMT Senior Maths Team Challenge; Maths Inspiration visit; Cipher challenge

SUBJECT SPECIFIC ENTRY REQUIREMENTS

General entry requirement for Post-16: 5 grade 4/C at GCSE, preferably including English and Maths. Specific entry requirements: Ideally a grade 7 in Maths. Students who got a level 6 at GCSE Maths may do A-level Maths if they successfully reach a pre-specified pass mark for in an algebra test in the first week of the course. Topics to be shared on GCSE results day.

A STUDENT PERSPECTIVE

“A Level Maths is a good base for a huge variety of University courses”

“It is a highly respected A Level”

“It is fun because it is satisfying when you get it right”

“It is generally a good course”

WHERE NEXT?

This course can lead to a variety of higher education and career opportunities including: Mathematics, Accounting, Engineering, Architecture, Medicine, Economics, Physics, Natural Sciences, Veterinary Sciences, and Business Studies. There are a large number of students studying Maths (the most popular post 16 subject in school). Last year out of the top 18 students leaving the school with the highest attainment and progress, 14 of these studied Mathematics and/or Further Mathematics. 3 of these students went on to gain places at Oxford or Cambridge to study further, with many others achieving highly coveted places at a various universities



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STUDENT SUPPORT

Students have support available through dedicated KS5 Workshops during two lunchtimes every week. This support is provided by an experienced Mathematics Key Stage 5 teacher. Pupils can come for support with homework, extra private study or may be directed there by their teacher as a result of areas of concern identified from recent assessments.

The school also has a subscription to www.mymaths.co.uk which has a dedicated A Level section offering students tutorials and tasks to be completed which give instant feedback.

Students who commence the course with a grade 6 or a low grade 7 will also have an extra timetabled hours to support their learning.