



Post 16 Prospectus: MATHEMATICS

Advanced Subsidiary (AS) & Advanced Level (A2) SYLLABUS A Examining Board: OCR

INTRODUCTION

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

AIM

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.

SUBJECT SPECIFIC ENTRY REQUIREMENTS

A Grade 7 in GCSE Mathematics.

Students who commence the course with a low grade 7 may also have compulsory extra timetabled hours to support their learning and progress.



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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 1 – Pure Mathematics
Paper 2 – Pure and Mechanics	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; Problem Solving Club.

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, Statistics, Accounting, Engineering, Architecture, Medicine, Economics, Physics, Natural Sciences, Veterinary Sciences, and Business Studies. There are a large number of students studying Maths (consistently one of the most popular post-16 subjects in school).

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.

Students will sit regular assessments aimed at highlighting areas for improvement therefore developing their mathematical skills and providing a focus for independent study.

The school also has a subscription to online textbooks and [Integral \(integralmaths.org\)](https://www.integralmaths.org) offering students skills practice, tasks and exam style questions to support their independent study and progress.