A Level Maths and Further Maths Curriculum Overview

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Curriculum Intent

We build confidence in mathematical reasoning, an essential skill for every pupil's future. Our curriculum ensures that all pupils develop the fluency, reasoning and problem-solving skills needed not only to excel in assessments, but to pursue their ambitions beyond school.

We motivate, challenge and inspire a very able cohort, while also supporting and nurturing pupils who lack confidence or find Mathematics difficult. Our aim is to deliver a curriculum that enables every pupil to achieve the best they can.

Core Knowledge	**Procedural Knowledge**
Exam Board: Pearson Edexcel **AS Mathematics**: Students will study 3 components: Pure Mathematics, Statistics and Mechanics. **A-Level Mathematics**: Students will complete further study of the 3 components: Pure Mathematics, Statistics and Mechanics. **AS Further Mathematics**: Students will study a core component of Core Pure Maths alongside Decision Maths and Further Mechanics. **A-Level Further Mathematics**: Students will complete further study of the 3 components of AS Further Mathematics.	**Pupils Will:** • Become fluent in the fundamentals of A Level Mathematics through varied and frequent practice. • Develop conceptual understanding and recall knowledge accurately and efficiently. • Reason mathematically by following lines of enquiry, forming conjectures, and constructing arguments or proofs. • Be exposed to mixed topic questions in order to secure recall and improve method selection. • Understand how and why mathematical methods work. • Solve routine and non-routine problems by breaking them into manageable steps. • Apply mathematics to real-world contexts and use mathematical models across subjects such as science, geography and computing. • Present work clearly, logically and with pride. • Use correct mathematical language and notation to justify and explain reasoning. • Use a scientific/graphical calculator effectively. • Apply methods in calculus to a range of topics. • Become fluent in graphical methods, transformations and use graphs to solve problems.
Homework	

A-Level Maths is a continuation of GCSE in that you learn new mathematical concepts in class and have the opportunity to practise new skills, develop fluency in those skills and ultimately learn to solve problems.

We do not have time to do all of this in class, and much of this practice must be done by you independently, using the course textbook and other resources.

We expect you to complete any unfinished questions from the textbook exercises following each lesson. You may fall behind if you fail to do this.

You will be given a Homework booklet to keep track of which exercises you have done, and any problems you need to sort out.

Your teachers will check that you are completing the exercises by collecting in your folder on a regular basis.

We expect you to spend up to 5 hours per week outside lesson time to consolidate and master the new skills learned. It is vitally important that you get into good habits and invest this time from day one.

Assessment

AS Mathematics will comprise of 2 assessed papers – Pure & Statistics, Pure & Mechanics. The papers are taken in May /June of Y12.

A-Level Mathematics will assess the whole 2-year course and will comprise of 3 papers – Pure Maths, Pure & Statistics, Pure & Mechanics. This will be assessed in June of Y13.

For AS and A2 Further Mathematics, modules will be assessed in May/June of Y12 and Y13.

Further Mathematics is equivalent to taking 2 A-Levels. Students completing this course will be awarded A-Levels in Mathematics and Further Mathematics.

Ongoing Assessment

Assessment for learning takes place in every lesson to ensure teaching is responsive to pupil needs. Mock exams will be taken at the end of Y12, with smaller 'over-time' assessments taking place throughout the year.

Links to Personal Development

- Mathematical problem-solving builds resilience and encourages pupils to learn from mistakes.
- Real-world applications are used wherever possible.
- Cross-curricular links are made with Physics, Biology, Technology, Geography, and other subjects.
- Strong mathematical outcomes support wider career choices and future pathways.

Progression: Careers and University Study

Career prospects are infinite. Mathematics opens up the possibility of careers in medicine, banking and insurance, commerce, marketing, accountancy, engineering, operational research and design, education, government and public services, research statisticians, managers, administrators, manufacturing, industry and the armed forces to name but a few. Naturally, A-Level Mathematics is a very highly valued subject in the eyes of universities and other institutes of Higher Education.