Edexcel A Level Further Mathematics

Vision Statement
The Maths Faculty sets its vision as: 'Teaching students Mathematics skills for life.'

Intent: Curriculum Intent – Edexcel A Level Further Mathematics

Our Edexcel A Level Further Mathematics curriculum is designed for highly ambitious, mathematically inquisitive students, extending and deepening their analytical power beyond the standard A Level course. Driven by our faculty vision—'Teaching students Mathematics skills for life'—the curriculum cultivates exceptional problem-solving autonomy, high-level abstract reasoning, and mathematical maturity. It prepares students for the quantitative demands of top-tier university degrees in Mathematics, Engineering, Physics, Computer Science, and Economics, while instilling lifelong critical-thinking frameworks.

The curriculum is structured around Edexcel's mandatory Core Pure Mathematics modules alongside specialized Further Statistics and Further Mechanics options, creating a rich pathway that connects abstract theory directly to complex physical and data-driven systems:

• Core Pure Mathematics: Students encounter fundamental concepts that revolutionize their understanding of mathematical structure. Through complex numbers, matrices, proof by mathematical induction, differential equations, vectors, polar coordinates, hyperbolic functions, and advanced calculus, students build high-level fluency in abstract manipulation. They learn to generalize ideas across dimensions, analyse non-linear dynamics, and construct rigorous proofs—developing the foundational tools underpinning modern technology, physics, and advanced modelling.

• Further Statistics: Expands on data science and quantitative analysis through discrete and continuous probability distributions (including Poisson and Geometric), linear combinations of random variables, confidence intervals, hypothesis testing, and Chi-squared tests. Students gain vital research, risk modelling, and data-analysis skills, enabling them to evaluate complex real world datasets and make evidence-based decisions in an increasingly data driven world.

• Further Mechanics: Investigates advanced physical systems, extending mechanics concepts to work, energy, power, impulse, momentum, direct and oblique elastic collisions, and circular motion. This component develops spatial intuition, structural reasoning, and practical modelling capabilities, providing essential tools for understanding and predicting dynamic systems in engineering and physical sciences.

Central to Edexcel Further Mathematics is the mastery of high-level Mathematical Problem Solving and Modelling in unfamiliar, multi-step contexts. Students are regularly challenged with non-routine problems which builds exceptional intellectual resilience, adaptability, and academic confidence—crucial attributes for any future pathway. Precision in mathematical communication, formal notation, and the efficient deployment of advanced technology (such as graphing calculators) are embedded throughout.

Why study Further Mathematics at The Sixth Form at Ridgewood?

- You will achieve two A levels when studying this course, one in Maths and one in Further Maths
- We have a strong team of A level teachers who have been teaching the subject for many years and have a history of excellent A level results
- Students at Ridgewood have said that the support they receive from the maths team is exemplary; we are always willing to spend time with students to help them if they are struggling
- We offer a weekly support session after school
- Maths is one of the most popular subjects and is essential for many higher education courses and careers
- In 2026, 100% of students on this course achieved a grade A* - C
  In 2026 57% of students achieved a grade A*/A

What topics will I study in this subject?

Topic	What this means
Pure Mathematics	The use and application of algebra, trigonometry, calculus and other core mathematical skills.
Mechanics	An applied unit that focuses on real-world problems such as kinematics, forces and moments.
Statistics	An applied unit that focuses on real-life uses of maths to analyse data and trends focusing on topics such as sampling, hypothesis testing and probability.

What skills will I need in this subject?

Skill	What this skill involves in this subject
Use and apply standard techniques	• Select and correctly carry out routine procedures • Accurately recall facts, terminology and definitions
Reason, interpret and communicate mathematics	• Construct rigorous mathematical arguments • Make deduction and inferences • Assess the validity of mathematical arguments • Explain their reasoning • Use mathematical language and notation correctly
Solve problems within mathematics	• Translate problems in mathematical and non-mathematical contexts into mathematical processes • Interpret solutions to problems in their original context • Translate situation in context into mathematical models • Use mathematical models • Evaluate the outcomes of modelling in context

What will my lessons involve?

- Teaching in Further Maths consists of 5 one hour lessons each week (As well as 5 one hour lessons of Maths each week).
- Lessons usually consist of teacher-led examples followed by questions set for students to complete as individuals or as groups when appropriate
- Questions set in lessons will include practising key skills, using written reasoning to fully justify answers, problem solving and using maths within unfamiliar contexts
- Lessons will also be used to complete improvements on set independent learning or exam papers

What will my independent study involve?

- You are set independent study to compliment what you have learnt in lesson and are expected to complete independent study on topics you need more practice on
- In general, students are set one hour of independent study for each hour of teaching
- You will be set a variety of independent study varying from questions to recap prior knowledge, consolidation questions of topics covered in lesson, end of topic tests and past exam papers

How will I be assessed?

Percentage exam assessment: 100%	Percentage coursework assessment: 0%

Assessment	Details of assessment
	Four one and a half hour exam papers at the end of Year 13. Each exam paper consists of 75 marks and will make up 25% of your overall grade.
Paper 1 – Core Pure 1	Core pure mathematics covering advanced algebra, calculus, vectors, complex numbers, matrices, differential equations and other pure topics.
Paper 2 – Core Pure 2	Further questions covering the full range of Core Pure mathematics, requiring students to apply and connect concepts from across the course.
Paper 3 – Further Statistics 1	Further statistical methods, including probability distributions, statistical tests, confidence intervals and hypothesis testing.
Paper 4 – Further Mechanics 1	Further mechanics covering momentum, collisions, work, energy and power, centres of mass, circular motion and modelling.

How do I know this is the right course for me?

- This course is suitable for students with a passion for maths combined with the dedication to work hard in the subject
- You should be thoroughly interested in maths and its applications as it will take up half of your study time at the Sixth Form
- You should be an organised, self-motivated learner who is willing to ask questions both in and outside of lesson time