The Cardinal Wiseman School
A Level courses

FURTHER MATHEMATICS

Entry Requirements:

6 x grades 9 to 4 GCSE passes, including a 4 in English Language. You also need an **8 in GCSE Maths**.

What will I study?

For the first two terms you will study A level Maths, then you will progress to the Further Maths content.

- **Core Pure Mathematics** which includes: Complex Numbers, Numerical Solutions, Coordinate Systems, Matrices, Series, Proof, Inequalities, Differential Equations, Polar Coordinates.
- **Further Applied Mathematics** which includes Further Mechanics and Statistics. These will involve the study of:
  Mechanics - Centres of Mass, Kinematics of Particles, Work Energy and Power, Collisions and Statics of Rigid Bodies.
  Statistics - Binomial and Poisson distribution, Continuous Random Variables, Normal Approximations, Population and Samples, Sampling, Hypothesis Testing, Estimation and Confidence Intervals, Goodness of Fit and Contingency Tables, Regression and Correlation.

What are the examination/coursework requirements?

- We follow the Edexcel A level Further Maths course.
- Assessment is based on 4 examinations: 2 Core Pure, 1 Statistics and 1 Mechanics papers. The examinations are 1 hour and 30 minutes long, each scored out of 75.
- Each exam carries equal weighting and a calculator is allowed for all examinations. There is no coursework for A level Further Mathematics.

What skills will I develop?

- Problem-Solving: You'll learn to approach complex problems logically and systematically, which is beneficial in many areas of life and work.
- Analytical Thinking: A level Further Maths enhances your ability to analyse data, recognise patterns, and draw meaningful conclusions, which is crucial for decision-making in various fields.
- Logical Reasoning: The subject trains you to think logically and make reasoned arguments, which is valuable in both academic and professional contexts.
- Time Management: Managing the workload and meeting deadlines in A level Further Maths helps you develop strong time management skills.
- Organisational Skills: You'll get better at organizing information and breaking down complex tasks into manageable steps.
- Attention to Detail: Precision is key in mathematics, and this attention to detail can be applied to many other areas of study and work.
- Numeracy and Data Analysis: You'll become proficient in handling numerical data and performing statistical analysis, which is essential for careers in finance, engineering, and technology.

How will this subject help me with my future career?

Further Maths is regarded as one of the most demanding A Levels and will be very well received on any CV or application form. Government analysis shows students who take Further Maths earn more on average than any other A level. Additionally, studying A Level Further Maths can significantly enhance your future career prospects in various ways:

- Enhanced Problem-Solving Skills: Further Maths develops your ability to tackle complex problems, which is highly valued in many fields.
- University Admissions: Many top universities prefer or even require Further Maths for certain courses, particularly in STEM fields.
- Career Opportunities: It opens doors to careers in finance, engineering, data analysis, actuarial science, and more. For example:
    - Finance and Accountancy: Roles like actuary, financial analyst, and accountant benefit from the analytical skills gained.
    - Engineering: Fields such as aerospace, electrical, and mechanical engineering value the advanced mathematical knowledge.
    - Data Science and Technology: Careers in data analysis, software development, and cyber intelligence also benefit greatly.
- Transferable Skills: The critical thinking, quantitative reasoning, and ability to present complex information are useful in many professions.