



# Mathematics

## Course objectives

Mathematics has been a subject valued highly in society since antiquity, from Pythagoras, Newton and Descartes through to the modern day. Students will study a stimulating and challenging course increasing their knowledge and understanding of mathematical techniques and their application whilst developing transferrable skills, including problem solving, logical reasoning, mathematical communication and resilience.

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## Main qualifications

A Level

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## Awarding Body

Edexcel

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## Duration/ Lessons per week

10 x 1 hour lessons over a two week timetable

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## Entry requirements

Students will need at least a grade 6 on the Higher Tier in GCSE Mathematics

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## Progression opportunities

For progression to many courses at university it is important to have strong mathematical skills. Mathematical qualifications are also highly valued by employers demonstrating an individual's capacity for problem solving, thinking logically and analytically, whilst also having good numeracy skills.

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## Course content

Problem solving, proof and mathematically modelling are the overarching themes of the course. Students will develop the skills to work scientifically over the course.

Topics covered in Pure Mathematics over the two years include:

- Proof
- Algebra and Functions
- Coordinate Geometry in the  $(x,y)$  plane
- Sequences and series
- Trigonometry
- Exponentials and logarithms
- Differentiation
- Integration
- Numerical methods
- Vectors



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## Course content

Topics covered in Statistics over the two years include:

- Statistical Sampling
- Data Presentation and interpretation
- Probability
- Statistical distributions
- Statistical hypothesis testing

Topics covered in Mechanics over the two years include:

- Quantities and units in mechanics
- Kinematics
- Forces and Newton's laws
- Moments

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## Costs

Students will need a Casio Classwiz fx-991EX or equivalent.  
Students may wish to purchase a Casio CG50 instead.

These will be able to be purchased from the school at the beginning of Year 12.

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## Assessment

Any of the Pure content can be examined in either Paper 1 or Paper 2

Students sit 3 externally-examined papers.

Paper 1: Pure Mathematics  
33 1/3 % of the qualification  
2 hours

Paper 2: Pure Mathematics  
33 1/3 % of the qualification  
2 hours

Paper 3: Statistics and Mechanics  
33 1/3 % of the qualification  
2 hours

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## Staff contact

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