

# A-LEVEL MATHEMATICS

## WHY STUDY MATHS AT A-LEVEL?

Studying mathematics allows us to better understand the world around us. While studying A-Level mathematics you will expand your knowledge of calculus, trigonometry, statistics and mechanics while exploring their practical applications. In addition, studying mathematics offers students the opportunity to gain essential life skills such as problem solving, logical / analytical thinking, organisation and resilience which are invaluable at University and beyond.

Mathematics is also an essential thread running through other subjects such as Physics, Biology, Chemistry, Geography or Psychology, Business Studies or Computing. Studying mathematics will help when studying these subjects.

## TOPICS STUDIED

Mathematics is split into 3 parts: Pure Mathematics, Statistics and Mechanics

### Pure Mathematics

- Proof
- Algebra and functions
- Coordinate geometry
- Sequences and series
- Trigonometry
- Exponentials and logarithms
- Differentiation
- Integration
- Numerical methods
- Vectors

### Statistics

- Statistical sampling
- Data presentation and interpretation
- Probability
- Statistical distributions
- Statistical hypothesis testing

### Mechanics

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

## ASSESSMENT STRUCTURE

Students will follow the Edexcel Course and sit 3 exam papers at the end of Year 13.

### PAPER 1

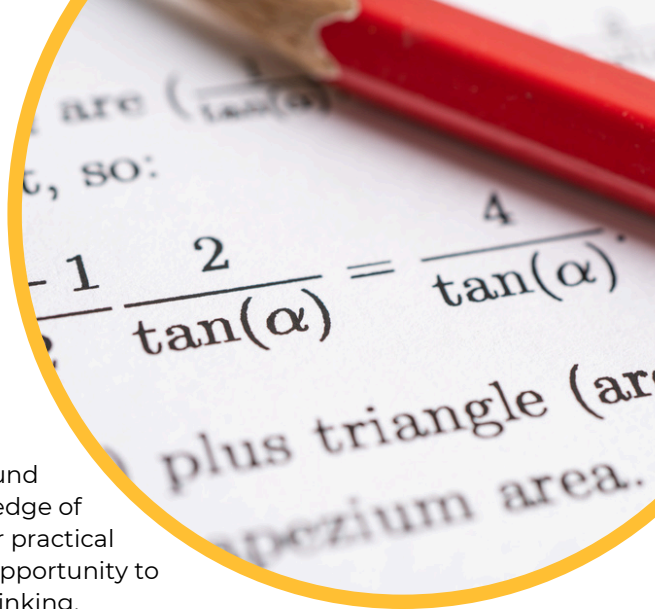
Pure Mathematics – 33.3%

### PAPER 2

Pure Mathematics – 33.3%

### PAPER 3

Applied Mathematics (Statistics and Mechanics) – 33.3%



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## ENTRY REQUIREMENTS

Grade 6 in GCSE Mathematics

## CAREER PATHWAY

Due to the rigorous nature of Mathematics A-Level it is highly regarded by both Universities and employers alike. Degrees that typically prefer Mathematics A-Level are Engineering, Accounting and Finance, Computer Science, Physics, Biology, Chemistry, Economics and Architecture.

Some of the best paid careers can be accessed through studying mathematics such as Finance, Engineering, Science, Business or Medicine.

## IS THIS COURSE FOR ME?

As one of the most challenging A-Levels, a good work ethic and love of maths are essential. Students of Mathematics A-Level need to be highly motivated and willing to spend a significant amount of time working on new ideas away from the classroom.

The challenge of mathematics means it is one of the most rewarding subjects to study. Students of mathematics understand the effort it takes to achieve success, which is why it is valued so highly by Universities and employers.

## NEED MORE INFORMATION?

Please contact Mr S. Daniels Subject Lead of Maths [sdaniels@lighthall.co.uk](mailto:sdaniels@lighthall.co.uk)

For more information, the Edexcel Specification can be found here.

<https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/mathematics-2017.html>

## READING LIST

- Bridging GCSE and A-Level Student Book (Collins)
- Towards Higher Mathematics: A companion by Richard Earl
- As Easy as Pi : Stuff about numbers that isn't (just) maths by Jamie Buchan

