

# Maths

## Advanced Higher

### Entry Requirements

A or B at  
Higher  
Maths

### Progression through Maths

Pupils who study Maths at Advanced Higher will find the qualification useful when applying to STEM university courses.

### Course Content

Mathematics is important in everyday life, allowing us to make sense of the world around us and to manage our lives. Using mathematics enables us to model real-life situations and make connections and informed predictions. The Higher Mathematics Course enables learners to select and apply mathematical techniques in a variety of mathematical situations. Learners interpret, communicate and manage information in mathematical form.

#### Methods in Algebra and Calculus

This unit covers partial fractions; standard procedures for both differential calculus and integral calculus, as well as methods for solving both first order and second order differential equations. The importance of logical thinking and proof is emphasised throughout.

#### Applications of Algebra and Calculus

This unit covers the binomial theorem, the algebra of complex numbers, properties of functions, rates of change and volumes of revolution. Aspects of sequences and series are introduced, including summations, proved by induction.

#### Geometry, Proof and Systems of Equations

This unit covers matrices, vectors, solving systems of equations, the geometry of complex numbers, as well as processes of rigorous proof.

### Skills Developed

The Higher course aims to

- motivate and challenge learners by enabling them to select and apply mathematical techniques in a variety of mathematical situations
- develop confidence in the subject and a positive attitude towards further study in mathematics and the use of mathematics in employment
- deliver in-depth study of mathematical concepts and the ways in which mathematics describes our world
- allow learners to interpret, communicate and manage information in mathematical form; skills
- which are vital to scientific and technological research and development

### Assessment

#### Question Paper 1 (non-calculator)

1 hour - 35 marks

#### Question Paper 2

2 hours, 30 minutes - 80 marks

Both question papers will assess operational and reasoning skills, and will include both short answer and extended response questions.

### Related Careers

A sound grasp of Maths is useful in most jobs but some popular career paths include:

- Accountant
- Data Analyst
- Statistician
- Maths teacher
- Engineering
- Banking and Financial Services
- Retail
- Research scientist

It may surprise you to know that Michael Jordon, Brian May, Dara O'Briain, Carol Vorderman and Donald Trump all studied maths!

