

## **Mathematics A level**

### **Course outline**

Continuing to study mathematics in the sixth form is an excellent foundation for university and employment applications. It remains a particularly impressive qualification that demonstrates core intelligence, a logical mind and excellent problem-solving skills.

The AQA mathematics course offered at St. Peter's Sixth Form will deepen your understanding of quadratics, geometry, trigonometry, algebra, equations, vectors and more, as well as introducing a number of completely new areas of study including mechanics and statistics. The school offers a variety of support mechanisms catering to the needs of different students, all of which allow students to develop their knowledge of mathematical principles in order to analyse problems logically and effectively.

The further study of mathematics has strong links with many other subjects including science, engineering, design, computer science, medicine and many more. In many cases it is a pre-requisite for further study in many of these areas, as the skills that are developed provide a secure base for further study of many other subjects at university level.

### **How you will be assessed?**

The school follows the AQA A level mathematics specification.

The AS level exam in the summer consists of two 90 minute papers in pure maths and mechanics followed by pure maths and statistics. There is no coursework element. The AS content covers 40% of a full A level.

The A level exam entry in the summer consists of three 120 minute papers in pure maths, pure maths and mechanics and finally pure maths and statistics. There is, again, no coursework element.

**Entry requirements:** Five grades 9 - 4 including grade 6 in GCSE Mathematics.

### **Where could the course take you?**

Aside from A level mathematics opening the door to leading universities in the UK, there are many varied career paths that heavily lean on mathematics skills at this level. There are many new applications of mathematics in technology, games design, internet security, programming and communications. On-going applications in engineering, such as aircraft modelling, fluid flows, acoustic engineering, electronics, civil engineering and new scientific processes such as modelling populations, diseases, quantum physics, astronomy, forensics and DNA sequencing.

Financial systems and online purchasing systems are underpinned by mathematics, relying heavily on online security and encryption. GCHQ has the largest group of mathematicians working anywhere in the country. A good understanding of mathematics is beneficial for the study of chemistry, biology and geography. Psychologists use statistics to analyse the relationships between variables and predict behaviours. Lawyers rely on statistical data and the logical thought processes developed through the study of mathematics.

## **A Level Mathematics – Content**

### **Paper 1 (2 hrs / 100 marks)**

The following can be assessed ...

- A: Proof
- B: Algebra and functions
- C: Coordinate geometry
- D: Sequences and series
- E: Trigonometry
- F: Exponentials and logarithms
- G: Differentiation
- H: Integration
- I: Numerical methods

### **Paper 2 (2 hrs / 100 marks)**

The following can be assessed ...

Any content from Paper 1 and content from:

- J: Vectors
- P: Quantities and units in mechanics
- Q: Kinematics
- R: Forces and Newton's laws
- S: Moments

### **Paper 3 (2 hrs / 100 marks)**

The following can be assessed ...

Any content from Paper 1 and content from:

- K: Statistical sampling
- L: Data presentation and Interpretation
- M: Probability
- N: Statistical distributions
- O: Statistical hypothesis testing

**On all papers there will be a mix of question styles, from short, single-mark questions to multi-step problems.**