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| **AS Level Further Maths AQA** |  |

A-level Further Mathematics is designed to broaden and deepen the mathematical knowledge and skills developed when studying A-level Mathematics. Students taking Further Mathematics overwhelmingly find it to be an enjoyable, rewarding, and empowering experience. For someone who enjoys mathematics, it provides a challenge and a chance to explore new and/or more sophisticated mathematical concepts.

**Course Structure:**

The A Level course is split and assessed in 2 papers with a heavy focus on Pure Maths and a minor focus on two of Discrete Maths, Mechanics and Statistics. Depending on the students who take Further Maths, we will choose the suitable option.

**Paper 1: Pure Mathematics (Compulsory)**

Students build on many topics from the Maths A level and meet a variety of important new topics too. They will study familiar topics such as algebra and functions, calculus and vectors. They will also study new and important topics such as complex numbers, polar coordinates and hyperbolic functions.

**2 of the 3 Paper 2 options must be sat**

**Paper 2 option A: Mechanics**

Students build on the Mechanics covered in A level and the content also ties in with A level Physics. They will study topics such as the work-energy principle, which looks at how energy is transferred as well as Hooke’s Law concerning elasticity of springs.

**Paper 2 option B: Discrete Mathematics**

Students study a relatively new branch of mathematics interested in optimisation. This is widely used in the modern world, especially where a business uses programming. Students will study topics such as graphs and networks and very practical topics such as critical path analysis. They will also study sophisticated concepts such as game theory as well as introductory group theory.

**Paper 2 option C Statistics**

Students study new topics including discrete and continuous random variables as well as building on their knowledge of Statistics from the Maths A level by studying further statistical distributions and type I and type II errors when carrying out hypothesis tests.

**Course Delivery:**

Lessons will be delivered in a small group setting. In particular with Further Maths we feel we provide excellent provision for pupils offering high levels of support and individualised challenge. All of the teaching techniques employed in A level Maths are implemented here and so pupils will spend plenty of lesson time on problem solving and practicing key skills alongside a greater level of discussion and exploration of the maths.

**Assessment:**

Externally assessed through 2 exam papers taken at the end of Yr13. Each paper is worth one third of the A level.

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| Paper 1 | Paper 2 – part 1 | Paper 2 – part 2 |
| Pure Mathematics | Mechanics, Discrete or Statistics | Mechanics, Discrete or Statistics |
| 1.5 hrs | 45 minutes | 45 minutes |

**Resources:**

There is a course text for each of the three modules and we will advise students on the details of these once we have made a choice for the applied units. Students will also have access to the Integral website which has notes, examples and worksheets as well as assessment materials.

**Progression:**

AS level Further Maths will benefit anyone who is intending to study courses that have a high maths content at university. Examples of these include Economics, Computer Science, Physics and Engineering. For some courses in these subjects, students will not be accepted without having studied Further Maths at a minimum of AS level.

**Minimum Entry Requirements:**

For students to take A Level Further Maths they need to achieve a minimum grade 7 in GCSE Maths and should ideally have achieved a grade 8. They should achieve at least a grade 6 in GCSE Further Maths if this has been studied.