Mathematics A Level (AQA)

Programme of Study:

Section 1 - Pure Maths

- *Proof*
- *Algebra and Functions*
- *Coordinate Geometry*
- *Sequences and Series*
- *Trigonometry*
- *Exponentials and Logarithms*
- *Differentiation*
- *Integration*
- *Numerical Methods*
- *Vectors*

Section 2 - Statistics

- *Data Presentation and Interpretation*
- *Probability*
- *Statistical Distributions*
- *Statistical Hypothesis Testing*
- *Correlation and Regression*

Section 3 - Mechanics

- *Kinematics*
- *Forces and Newton's Laws*
- *Moments*

Assessment (at the end of Yr13 only):

- *Paper 1 (Pure) - 2 hours - 100 marks - Section 1 Topics*
- *Paper 2 (Pure and Mechanics) - 2 hours - 100 marks - Section 1 and 3 Topics*
- *Paper 3 (Pure and Statistics) - 2 hours - 100 Marks - SEctions 1 and 2 Topics*

A formula booklet will be provided for use in the Exams.
A Large Data Set will be studied throughout the course (Only for Paper 3) Questions might include

- *Terminology and context of the data*
- *Using summary statistics based on the large dataset*
- *Statistical diagrams*
- *Using a sample from the large dataset*

Questions focus on Modelling, Problem Solving and Proof. You will be required to answer questions by combining different areas of Maths or by interpreting information given. You might be asked to think about the validity of models or to interpret values in context.

Entry Requirements:

- *Students are expected to have achieved a Grade 7 in GCSE Mathematics*

Recommended Reading

- *A Slice of Pi - Liz Strachan*
- *The Shoelace Problem and Other Puzzles - Ivan Moscovich*
- *Numberpedia - Herb Reich*
- *"Why Maths Isn't Boring: An exploration of mathematical curiosities" by Daniel Cove*
- *"Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy" by Cathy O'Neil*

Subject Enrichment - *Senior Maths Challenge (Individual and Team), Chess Club, Maths Masterclasses, Maths Prefects / Supporting KS3 and KS4*

Higher Education and Career Pathways

Various University options / Apprenticeships
Possible Careers – Engineering, Architect, Financial Analyst, IT Specialist, Teacher, Physicist, Meteorologist and many more

Complimentary Subjects - *Computer Science, Physics, Economics and Chemistry*