The Mathematics Department

Subject Overview

The maths department will organise lessons so that students construct and develop their own understanding of mathematics, see how topics fit together and into the world around them. They will be taught how to reason mathematically and how to solve problems.

Across the key stages students will have an opportunity to study:

- Number
- Algebra
- Ratio, Proportion and Rates of Change
- Geometry and Measures
- Statistics
- Probability

Students will become familiar with the following symbols to help them recognise when they are using different mathematical competencies:

Fluency 	**Reasoning** 
Mathematical Vocabulary 	**Problem Solving** 

We have established **six guiding principles** for the way in which teachers and students should approach teaching and learning in mathematics. These are as follows:

Understanding mathematics - Mathematics is about much more than just an examination grade. Capabilities in problem-solving and reasoning are developed alongside highly relevant and important skills.

Intuitive-Concrete-Pictorial-Abstract - New mathematics will be taught initially using something that students can relate to and this is often a physical object or manipulative to represent a concept.

Deep thinkers – Teachers plan what they want students to think about. This involves searching for patterns, describing what you see, and making connections between concepts.

High expectations - Effort and belief lead to success. Everyone can make progress in mathematics.

Developing mastery – Understanding of prerequisite knowledge is checked carefully before new maths is introduced. Key learning points are studied in depth. Those who grasp concepts quickly are challenged through rich and sophisticated problems. Those who are not yet fluent are given more time to consolidate understanding before moving on.

Resilient learners - Mathematics provides challenges that knock you off balance and force you to think. The ability to recover quickly from difficulties is a valuable skill for life.

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Students will study a scheme of work which is based the National Curriculum for England.

Key Stage 3 students will study the following pathways:

- **Year 7 scheme of work**
- **Year 8 scheme of work**

Key Stage 4 students will work towards the Edexcel GCSE maths qualification 1MA1, they will study the following pathways:

- **Stage 8 or 9**
- **Stage 10**
- **Stage 11**
- **Crossover**

In **Key Stage 5** A' Level students will work towards the Edexcel A' Level maths qualification 9MA0 and Further mathematicians will also work towards the Edexcel further maths qualification 8FM0 at the end of year 12 and 9FM0 at the end of year 13.

From September 2023 we will also offer Core Maths at Key Stage 5.

Scientific calculator requirements:

We would prefer students to have the CASIO FX-85GT or the solar powered version (the CASIO FX-85GT PLUS).

A'Level students must have the CASIO ClassWiz FX-991EX**.**