Maths

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Curriculum Intent: We build confidence with mathematical reasoning, which is essential for everybody's future We ensure that all students have the mathematical fluency, reasoning and problem-solving skills to not only excel in assessments, but to fulfil their hopes and dreams in the world beyond We motivate, challenge and inspire a very able cohort, whilst supporting and nurturing students who lack confidence and those that struggle with Mathematics. We deliver a curriculum which allows students to achieve the best they can.

Core Knowledge	Procedural Knowledge
Topics: Guided by the subject content of the KS4 National Curriculum, building on KS3 and preparing for KS5, and the OCR GCSE Maths Syllabus under the headings: • Number • Algebra • Ratio, proportion and rates of change • Geometry and measures • Probability • Statistics Each end of year assessment will examine all of the headings above. The exact content of core curriculum is defined by the schemes of work for each year group which are based on the OCR GCSE syllabus. • Calculating • Using Our Number System • Accuracy • Fractions • Percentages • Ratio and Proportion • Number properties • Starting Algebra • Sequences • Functions and Graphs • Algebraic methods • Working with Quadratics • Properties of non-linear graphs • Units and scales • Properties of Shapes • Measuring shapes • Construction • Transformations • Three-dimensional shapes • Vectors • Statistical Measures • Statistical diagrams • Collecting Data • Probability	**Students will:** Become fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time, so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Reason how and why the mathematics works. Solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. Be able to apply their mathematics to solve problems which are both abstract and from the real world. Be able to apply their mathematical knowledge in science, geography, computing and other subjects. Have a willingness to have a go and know that making mistakes is part of the learning process. Develop mathematical skills through independent practice in and out of lesson. Set out mathematics in an ordered and structured way, showing all working and take pride in their work Have a good level of subject oracy and be able to justify and explain their mathematical reasoning. Be able to describe numbers and shapes in terms of their properties. Use geometric instruments accurately and effectively Use a scientific calculator. Be able to apply proportional reasoning in a range of problems – pie charts, recipes, value for money, rates of change. Understand the importance of algebra to solve contextual problems. Plot coordinates and draw graphs. Recall, apply and manipulate a range of formulae and analyse and compare data sets.

Homework:
Weekly homework is set using Mathswatch or Dr Frost, mostly practising the skills learnt that week.
Students should write their working out for homework in the back of their maths exercise book.
Revision tasks are also set as homework to prepare for the two main assessments.
In Year 11 there will be a programme of practice exam papers and students will need to do some at home.

Assessment:

2 main formative assessments in Year 10 assessing the skills taught and the student's ability to apply the skills and knowledge to answering GCSE questions. Results will determine any tier changes from Higher to Foundation during the 2-year course.
2 summative assessments including the Trial Exams where students will do a full GCSE in exam conditions in Year 11.
Assessment for learning during lessons is key to assessing students informally in every Maths lesson so teaching is tailored to the students.

Links to Personal Development:

Mathematical knowledge, skills and their application to problem solving is key and requires resilience and the willingness to make mistakes and learn from them.
The curriculum is linked to the real world wherever possible.
We make cross curricular links with Science, Technology, Geography, Food etc wherever possible.
We support students to get the best grades that they can, so that they have as much career choice as possible.

How is my knowledge developed further at Key Stage Five?

The study of GCSE Higher Maths will facilitate your access to a number of A Level courses including Maths, Further Maths and Sciences. Foundation GCSE Maths will facilitate the study of Core Maths which supports the study of subjects such as Geography and Psychology.