

GCSE Mathematics Curriculum Overview

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Curriculum Intent

We build confidence in mathematical reasoning, an essential skill for every pupil's future. Our curriculum ensures that all pupils develop the fluency, reasoning and problem-solving skills needed not only to excel in assessments, but to pursue their ambitions beyond school.

We motivate, challenge and inspire a very able cohort, while also supporting and nurturing pupils who lack confidence or find Mathematics difficult. Our aim is to deliver a curriculum that enables every pupil to achieve the best they can.

Core Knowledge

Topics:

Guided by the KS4 National Curriculum and the Pearson Edexcel GCSE Mathematics syllabus, pupils study:

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

Each assessment covers a mixture of all of these areas – both important topics taught in previous years, and those that have been recently taught.

Procedural Knowledge

Pupils Will:

- Become fluent in the fundamentals of mathematics through varied and frequent practice.
- Develop conceptual understanding and recall knowledge accurately and efficiently.
- Reason mathematically by following lines of enquiry, forming conjectures, and constructing arguments or proofs.
- Understand how and why mathematical methods work.
- Solve routine and non-routine problems by breaking them into manageable steps.
- Apply mathematics to real-world contexts and across subjects such as science, geography and computing.
- Develop resilience, recognising that mistakes are part of learning.
- Present work clearly, logically and with pride.
- Use correct mathematical language to justify and explain reasoning.
- Describe numbers and shapes using their properties.
- Use geometric instruments accurately.
- Use a scientific calculator effectively.
- Apply proportional reasoning (e.g. pie charts, recipes, value for money, rates of change).
- Understand the importance of algebra in solving contextual problems.

- Plot coordinates and draw graphs.
- Recall, apply and manipulate formulae.
- Analyse and compare data sets.

Homework

Weekly homework is set using Sparx. The main focus of tasks is to review skills taught approx. 2 weeks prior, over time the system adapts to the level and needs of each individual student; to provide targeted long-term consolidation. Pupils should complete written working in their Sparx Exercise Book (available from their maths teacher).

Revision tasks are also set to prepare for the two main assessments each year. In Year 11, pupils will complete a programme of practice exam papers, some of which must be done at home.

Assessment

Year 10

- Two main formative assessments covering taught skills and GCSE-style application.
- Real past papers are used but in a reduced form i.e. topics not yet taught are removed.
- Results may inform tier changes (Higher ↔ Foundation).

Year 11

- Two summative assessments, including PPE Exams where pupils complete a full GCSE paper set under exam conditions.

Ongoing Assessment

Assessment for learning takes place in every lesson to ensure teaching is responsive to pupil needs.

Links to Personal Development

- Mathematical problem-solving builds resilience and encourages pupils to learn from mistakes.
- Real-world applications are used wherever possible.
- Cross-curricular links are made with Science, Technology, Geography, Food and other subjects.
- Strong mathematical outcomes support wider career choices and future pathways.

Progression to Key Stage Five

Studying GCSE Higher Maths supports progression to A Levels in Maths, Further Maths and Sciences. Studying GCSE Foundation Maths supports progression to Core Maths, which complements subjects such as Geography and Psychology.