Curriculum Overview

Curriculum Area: Mathematics Year: 10

Autumn 1: Algebraic Thinking and Proportion

Pupils begin Year 10 by consolidating and extending their algebraic fluency. They manipulate expressions involving powers, brackets and factors, and solve equations and inequalities, including those with unknowns on both sides. Quadratic expressions are expanded, factorised and solved using efficient methods, deepening pupils' understanding of algebraic structure.

They apply this knowledge to real-world contexts through ratio, proportion and percentages, interpreting and solving multi-step problems involving growth, change and scaling. This term strengthens pupils' ability to reason algebraically and proportionally, laying secure foundations for advanced problem solving.

Autumn 2: Fractions, Ratio and Functional Skills

Pupils refine their understanding of fractions, developing fluency in addition, subtraction, multiplication and division across algebraic and numerical contexts. They connect fractional reasoning to proportional and percentage problems, applying their knowledge to ratio and scaling scenarios.

Through practical and contextualised tasks, pupils apply mathematics flexibly, building confidence with multi-step reasoning and precise use of operations. This term ensures a strong grasp of proportional relationships and prepares pupils for applied mathematical problem solving in later GCSE topics.

Spring 1: Geometry, Graphs and Probability

Pupils extend their understanding of measure and representation. They calculate perimeter, area and volume of compound shapes, including prisms and cylinders, and apply these to real-life and design problems. Pupils interpret and represent data graphically, drawing and analysing straight line graphs and introducing non-linear graphs to represent quadratic relationships.

Probability is developed through frequency tables and diagrams, enabling pupils to calculate theoretical and experimental probabilities. Pupils also practise non-calculator methods and estimation to strengthen accuracy, efficiency and number sense in preparation for formal assessments.

Spring 2: Connections Across Number, Algebra and Geometry

Work this term focuses on building coherence across topics. Pupils apply rounding, ratio, and proportional reasoning to geometry and data contexts, making links between algebraic representations and graphical forms. They interpret real-world problems through equations, formulae and scale models, demonstrating flexible problem solving and resilience.

This unit emphasises fluency and reasoning, developing confidence in applying mathematical tools to unfamiliar situations — a vital step toward success in GCSE Mathematics.

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Summer 1: Geometry and Vectors

Pupils consolidate their understanding of geometric reasoning by calculating angles in a variety of contexts, including polygons and intersecting lines. They explore vector notation and operations, representing movement and translation mathematically. Pupils interpret and draw graphs and diagrams accurately, using coordinate geometry to describe relationships between algebraic and geometric forms.

This work strengthens spatial reasoning, problem solving and precision, linking geometric understanding to algebraic representation.

Summer 2: Pythagoras, Trigonometry and Powers

In the final term, pupils extend their understanding of relationships between sides and angles through Pythagoras' Theorem and trigonometric ratios, applying them to right-angled triangles in both 2D and 3D contexts. They explore the use of indices and powers to generalise number patterns and simplify expressions.

By the end of Year 10, pupils can select and apply appropriate methods to solve complex problems, explain reasoning clearly, and demonstrate readiness for the abstract and applied demands of Year 11 GCSE work.

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Helpful resources/revision guides/websites/exam preparation

The best research consistently shows that success in GCSE Mathematics is built on what students do outside the classroom as well as during lessons. While high-quality teaching provides the foundation, independent practice and regular retrieval of knowledge are required for exam success. The most successful students develop a consistent routine of study throughout year 10 and 11, rather than relying on last minute revision.

Revision guides are available to purchase from school, and pupils should use this to work through one topic at a time by

- Reviewing the key methods and worked examples
- Completing practice questions without looking at the answers.
- Marking their work carefully.
- Recording mistakes and revisiting them regularly.

There are excellent free online resources available, including MathsGenie, CorbettMaths and Dr Frost Maths. The most effective strategies involve the deliberate practice of focusing revision and practice on weaker topics and using past paper questions available widely on the sites above to practice. Watching videos alone is not sufficient.

Exam Board/Exam Paper Requirements/% Weighting
Key dates

We study the Edexcel GCSE Mathematics (9-1) course at either Higher or Foundation Tier. Course code is 1MA1.
All final examinations are taken at the end of year 11.

The exam consists of 3 papers (90 minutes each) which all have equal weighting (33.3%) and combine to give a GCSE grade.
Paper 1H is a non-calculator paper and papers 2H and 3H are calculator.

Any part of the specification can be tested on any paper.

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