# 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.

**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.

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**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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**Internal Assessment**

Class work is assessed during the lesson. Pupils self-assess their work in green pen, ensuring that misconceptions are captured, and progress is continuous. Teachers circulate the room, facilitate discussions, and use mini whiteboards and directed questions to assess progress and re-shape the learning where misconceptions occur.

The GCSE course is taught in units. Each curriculum unit is followed by an assessment. This demonstrates retention of core knowledge and the ability to apply this to exam questions.

All pupils will sit two more formal assessments containing GCSE questions related to the content that has been studied in class. These take place in February and June.

**Helpful resources/revision guides/websites/exam preparation**

The best way to revise maths is to do maths. Further practice outside of lesson time is vital for success. Pupils should work through questions/examples from their exercise books, attempt practice GCSE questions and watch the mathswatch tutorial videos, pausing and going back when they need to.
Along with being given a personal mathswatch login, pupils can purchase CGP 9-1 maths revision guides at the start of the year at a reduced price of £3.30 through Parent pay (rrp £5.95).
Revision lists are produced for formal assessments and include links to mathswatch tutorial videos.
Pupils are required to have their own scientific calculator (Casio fx-83GT X). These are widely available and are also available to purchase through parent pay for £10.
Recommended websites include:
Mathsgenie/onmaths/Corrbettmaths/BBC bite size/YouTube.
There is also an array of excellent support materials on the Edexcel website, such as exam specifications and past papers.

**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.