



Curriculum Overview

Curriculum Area: Mathematics

Year: 10

Autumn Term:

Autumn 1: Similarity:

Congruence, Similarity, and Enlargement: Students build on previous knowledge of enlargement and similarity, focusing on manipulating similar shapes and using ICT for demonstrations. They learn about parallel line angle rules and establish congruence through transformations and unique triangle properties.

Trigonometry: Trigonometry is introduced as a special case of similarity in right-angled triangles. Students learn to link trigonometric ratios with functions and apply Pythagoras' Theorem and trigonometric ratios to find unknown lengths and angles. Emphasis is placed on understanding and applying the sine, cosine, and tangent ratios.

Autumn 2: Developing Algebra:

Equations and Inequalities: Pupils deepen their understanding of equations and inequalities, learning to distinguish between solutions and statements. They practice solving linear and quadratic equations, factorizing quadratics, and interpreting graphs of linear functions. This period emphasizes forming equations from given information and revisits key topics like angles and probability.

Simultaneous Equations: Students focus on solving simultaneous equations using both algebraic and graphical methods, including substitution and elimination techniques. They handle linear and quadratic simultaneous equations, developing skills in modelling mathematical solutions and expressing them graphically. Emphasis is placed on understanding, solving, and interpreting these equations in various contexts.

Spring Term:

Spring 1: Geometry:

Angles and Bearings Students revisit angles and bearings, focusing on accurate drawing, use of scales, and parallel line angles. They reinforce trigonometry and Pythagoras' Theorem skills from earlier years, applying them in new contexts and mathematical modelling.

Working with Circles: Introduces use and extension of circle theorems, particularly for higher-tier students. Covers areas and volumes of spheres and cones, enhancing understanding of area and volume ratios.

Vectors: Revisits vectors to describe translations and operations such as addition, subtraction, and multiplication. Connects vectors to algebra and proofs, deepening understanding of geometric properties and shapes.



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Spring 2: Proportions and Proportional Change:

Ratios and Fractions: Builds on KS3 ratio and fractions, focusing on similarities and differences, and using notation to support problem-solving. Includes comparing lengths, areas, and volumes, and applying concepts of congruence and similarity.

Percentages and Interest: Focuses on percentages and interest, key for GCSE papers. Emphasizes calculator and non-calculator methods for percentage changes, growth, and decay problems. Financial contexts help students become familiar with relevant vocabulary.

Probability: Revisits fraction arithmetic and conversion between fractions, decimals, and percentages. Covers expected frequencies using two-way tables, tree diagrams, and Venn diagrams to model and predict probabilities of various events.

Summer Term:

Summer 1: Delving into Data/Using Number:

Collecting, Representing, and Interpreting Data: Focuses on collecting, representing, and interpreting data, building on KS3 knowledge. Students learn about graphical representation, frequency diagrams, box plots, cumulative frequency graphs, and measures like quartiles and interquartile range. Emphasis on project-based learning where students collect and analyze data, making hypotheses.

Non-Calculator Methods: Revisits KS3 content on mental methods and non-calculator techniques for arithmetic, focusing on integers, decimals, and fractions. Covers accurate calculations, rounding, estimating, and the importance of using appropriate methods. Prepares students for GCSE with practical applications in financial contexts.

Summer 2: Using Number/Expressions:

Types of Number and Sequences: Revisits KS3 content, focusing on prime factorization, HCF, and LCM. Extends for Higher Tier with quadratic sequences. Students describe and continue sequences, use arithmetic progressions, and calculate n th terms.

Indices and Roots: Consolidates understanding of indices and roots, exploring negative and fractional indices. Emphasizes non-calculator methods and problem-solving, preparing students for algebraic simplifications.

Manipulating Expressions: Builds on equations and inequalities from Autumn term, with a focus on algebraic fractions for Higher Tier. Students simplify and manipulate algebraic expressions, understand identities, and construct mathematical arguments.



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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.