

Year 9 Maths Curriculum Map

Curriculum Vision	Mathematics develops resilience, logical reasoning, and confidence in problem solving, equipping students with essential analytical and quantitative skills to tackle real-world challenges such as managing finances, interpreting data, and understanding technology. It supports informed decision-making and enables learners to engage with global issues including climate change, public health, and economic inequality. Through analysing and interpreting data, students are empowered to recognise and challenge societal inequities, fostering fairness and equity. At the same time, mathematics inspires curiosity by revealing patterns and structures that underpin the modern world. Ultimately, it combines practical relevance with intellectual depth, preparing learners to contribute meaningfully to their communities and wider society.		
Domains of Knowledge	• Number • Algebra	• Geometry • Ratio & Proportion	• Statistics & Probability • Problem Solving
End points (KS4)	Number – Students confidently apply a wide range of numerical skills with accuracy and efficiency. They can perform written and mental calculations fluently, round numbers to appropriate degrees of precision, and use factors, multiples, and primes to simplify and solve problems. Students reason about numerical relationships, check the validity of results, and select suitable methods for different contexts. These skills enable them to approach complex mathematical problems with confidence and form a secure foundation for algebraic and proportional reasoning. Algebra – Students confidently use algebra to generalise, represent, and solve mathematical problems. They can manipulate expressions, expand and factorise accurately, and solve equations and inequalities using a range of methods. Students understand and interpret algebraic graphs, recognising key features and relationships between variables. They apply algebraic reasoning to model real-world situations, make predictions, and justify their methods. This deep understanding of structure and generalisation enables them to connect algebra fluently with number, geometry, and functions across the GCSE curriculum. Geometry – Students extend their understanding of geometry to solve complex, multi-step problems involving 2D and 3D shapes. They apply geometric reasoning to justify results, derive and use formulae, and construct formal proofs involving congruence, similarity, and circle theorems. Students confidently use Pythagoras' Theorem and trigonometry in a wider range of contexts, including problem solving with bearings and vectors. They interpret and manipulate geometric information algebraically, analyse relationships between shapes, and communicate reasoning using precise mathematical language and diagrams. Ratio & Proportion – Students extend their understanding of ratio and proportion to reason multiplicatively across a wide range of contexts. They apply proportional reasoning to complex, multi-step problems, linking it to algebraic, graphical, and geometric representations. Students interpret gradients and equations as measures of proportional change, use ratio to compare compound measures such as speed, density, and pressure, and solve growth and scaling problems with accuracy. They move beyond procedural fluency to justify methods, interpret results, and model real-world situations using proportional reasoning with confidence and precision. Statistics & Probability – By the end of KS4, students develop a deep understanding of statistics and probability, enabling them to interpret, analyse, and evaluate data with confidence and precision. They extend their KS3 skills by working with complex, grouped, and bivariate data, using appropriate diagrams, averages, and measures of spread to draw valid comparisons and conclusions. Students understand the role of sampling and bias in data collection and can critically assess the reliability of statistical representations. In probability, they move beyond simple events to calculate and represent combined and conditional probabilities using diagrams, tables, and algebraic methods. They use these tools to model uncertainty, justify reasoning, and make informed predictions about real-world situations. Problem Solving – By the end of KS4, students confidently tackle complex, multi-step and non-routine problems that require them to draw on knowledge from across all mathematical domains. They plan and refine strategies independently, selecting efficient methods and evaluating the validity of their approaches. Students generalise patterns, form and test conjectures, and justify conclusions using rigorous mathematical reasoning. They interpret and model real-world situations, communicate solutions precisely using appropriate notation and structure, and reflect critically on the effectiveness of their methods and results.		

Term	Weeks	Domain	Key Concepts	Broken Down Knowledge
Y9 Autumn 1	5	Number	Unit 1: Calculations, Factors, Standard Form & Surds	Perform calculations with integers and decimals; round to a given degree of accuracy and significant figures; estimate calculations; apply laws of indices including negative and fractional powers; identify factors, multiples and prime numbers; use prime factorisation to find HCF and LCM; convert numbers to and from standard form and perform calculations; simplify surds.

Y9 Autumn 2	5	Algebra	Unit 2: Algebraic Manipulation, Equations & Sequences	Substitute into expressions and formulae; expand and factorise expressions including quadratics; solve linear equations including those requiring rearrangement; change the subject of a formula; generate and analyse arithmetic, quadratic and geometric sequences, including finding the nth term.
Y9 Autumn 2	4	Statistics & Probability	Unit 3: Averages & Representing Data	Calculate and interpret mean, median, mode and range from raw and frequency table data; estimate averages from grouped data; construct and interpret bar charts, pie charts, stem-and-leaf diagrams and scatter graphs; analyse correlation and recognise limitations of data representations.
Y9 Spring 1	4	Ratio & Proportion	Unit 4: Fractions, Percentages, Ratio & Proportion	Add, subtract, multiply and divide fractions and mixed numbers; identify equivalent fractions; convert between fractions, decimals and percentages; calculate percentages of amounts and percentage change; determine percentages of quantities; apply ratio and proportion to real-life contexts including scaling and exchange rates.
Y9 Spring 2	4	Geometry	Unit 5: Angles, Polygons & Trigonometry	Apply angle rules including vertically opposite parallel line and polygon angle properties; calculate interior and exterior angles of regular and irregular polygons; use Pythagoras' theorem and trigonometric ratios to find missing sides and angles in right-angled triangles, including exact values.
Y9 Spring 2	4	Algebra	Unit 6: Graphs & Coordinate Geometry	Plot and interpret coordinates; construct and interpret real-life graphs; calculate gradients and midpoints; write and interpret equations of straight lines; plot quadratic and other non-linear graphs from tables of values and use graphs to find approximate solutions.
Y9 Summer 1	4	Geometry	Unit 7: Perimeter, Area, Volume & Accuracy	Calculate perimeter and area of composite 2D shapes; use circle formulae including arc length and sector area; calculate volume and surface area of prisms, cylinders, pyramids, cones and spheres; convert between units of length, area and volume; apply upper and lower bounds to calculations.
Y9 Summer 2	4	Geometry	Unit 8: Transformations, Constructions & Loci	Perform and describe translations, reflections, rotations and enlargements using vector and coordinate notation; construct accurate diagrams using ruler and compass; interpret and draw loci; solve problems involving bearings and scale drawings.
Assessment	Assessment is embedded throughout the curriculum, with topic tests after every Unit. At KS4, topic tests are 24 minutes long and are composed of a combination of 1-mark knowledge and recall questions alongside longer, multi-mark problem-solving questions. In addition, students sit three GCSE past papers spread across the year, each followed by a Question Level Analysis (QLA) to identify strengths and areas for development. While summative in nature, these assessments are also used formatively to inform future teaching; they assess recently taught content alongside key concept retrieval questions (such as directed numbers, percentages, and algebraic simplification) to support long-term retention, and teachers use the outcomes to revisit common areas of need identified across the class. QLAs reference Dr Frost website codes linked directly to support videos and practice. Formative assessment also takes place in every lesson through common Do It Now tasks focusing on key concepts such as directed numbers, fractions–decimals–percentages, and algebraic basics. These tasks run for four weeks before changing to ensure interleaving of topics and promote long-term retention, alongside the use of mini whiteboards to regularly check understanding and enable timely reinforcement or reteaching.			