



Curriculum Intent of Maths

September 2026

Key Stage 3 Mathematics

Intent

The KS3 Mathematics curriculum aims to develop students who are fluent, confident, and resilient mathematicians. Through frequent practice and increasingly complex problems, students build secure conceptual understanding and develop the ability to recall and apply mathematical knowledge accurately. Students learn to solve both routine and non-routine problems by breaking them into manageable steps and persevering to find solutions.

Mathematics is a vital life skill, underpinning everyday decision-making and future learning. At Wexham School, the department provides a supportive and inclusive environment where all students are encouraged to achieve their full potential while developing confidence and enjoyment in mathematics.

The KS3 curriculum strengthens prior learning from Key Stage 2, with a focus on number, calculation, algebra, geometry, statistics, and probability. Students develop understanding of shape, space, graphs, transformations, and data handling while building a strong foundation for GCSE. A two-pathway model ensures learning is appropriately matched to students' needs, with regular assessment informing progression and intervention.

Knowledge and Skills

Students develop **fluency** by:

- Extending their understanding of number, including decimals, fractions, powers, roots, and place value.
- Selecting efficient calculation strategies for increasingly complex problems.
- Using algebra to represent relationships, simplify expressions, substitute values, and solve equations.
- Moving confidently between numerical, algebraic, graphical, and diagrammatic representations.
- Developing fluency with linear and simple quadratic relationships.
- Using accurate mathematical vocabulary to describe numbers, shapes, statistics, and probability.

Students develop **reasoning** by:

- Making connections between numerical, algebraic, graphical, and geometric concepts.
- Applying ratio and proportion in geometry and measures.
- Identifying variables and representing relationships algebraically and graphically.
- Investigating patterns, testing conjectures, and beginning to construct mathematical proofs.
- Using deductive reasoning within number, algebra, and geometry.

Students develop **problem-solving** by:

- Applying mathematical knowledge to multi-step and unfamiliar problems.
- Using mathematics in practical and financial contexts.
- Modelling real-life situations using mathematical representations.
- Selecting appropriate methods and evaluating solutions.

GCSE Mathematics

Intent

The GCSE curriculum builds on KS3 by developing students' mathematical fluency, reasoning, and problem-solving skills to prepare them for further education, employment, and everyday life. Students gain confidence in selecting and applying mathematical techniques, communicating mathematical ideas clearly, and making logical deductions across a broad range of contexts.

Learning is structured around the key areas of Number, Algebra, Ratio and Proportion, Geometry and Measures, Statistics, and Probability.

Knowledge and Skills

Students develop **fluency** by:

- Extending knowledge of number to include powers, roots, fractional indices, surds, standard form, limits of accuracy, and calculations involving π .
- Solving increasingly sophisticated numerical and algebraic problems.
- Manipulating algebraic expressions, including quadratics, algebraic fractions, simultaneous equations, and inequalities.
- Moving fluently between algebraic, graphical, numerical, and diagrammatic representations, including linear, quadratic, reciprocal, exponential, and trigonometric functions.
- Using precise mathematical language and notation.

Students develop **reasoning** by:

- Applying ratio, proportion, and trigonometry within geometry and algebra.
- Representing relationships algebraically and graphically.
- Constructing mathematical arguments, proofs, and counter-examples.
- Using deductive reasoning across number, algebra, and geometry.
- Determining when additive, multiplicative, or proportional reasoning is required.
- Interpreting statistical and probabilistic information critically.
- Evaluating the validity and accuracy of mathematical arguments and presentations.

Students develop **problem-solving** by:

- Solving complex, multi-step problems in mathematical and real-life contexts, including financial mathematics.
- Connecting different areas of mathematics to solve unfamiliar problems.
- Modelling practical situations and interpreting solutions within context.
- Reflecting on modelling assumptions and selecting efficient strategies for non-routine problems.

Key Stage 5 Mathematics

Intent

At Key Stage 5, students deepen their mathematical understanding while developing independence, confidence, and enjoyment of the subject. The curriculum prepares students for higher education, apprenticeships, and careers by extending mathematical knowledge and promoting analytical thinking.

Students learn to apply mathematics across a variety of contexts, construct logical arguments, communicate mathematical reasoning effectively, and solve increasingly challenging problems. They also develop the ability to represent real-world situations mathematically, evaluate models, and take responsibility for their own learning.

Knowledge and Skills

Mathematical Argument, Language and Proof

Students learn to:

- Construct clear mathematical arguments using diagrams, graphs, symbols, and logical reasoning.
- Use accurate mathematical language and notation confidently.
- Apply concepts from set theory, functions, inequalities, and probability.
- Understand domains, ranges, identities, expressions, variables, and equations.
- Critically evaluate mathematical arguments, proofs, methods, and formulae.

Mathematical Problem Solving

Students develop the ability to:

- Recognise underlying mathematical structures and simplify complex situations.
- Solve extended, unstructured problems, including those set in real-life contexts.
- Interpret and communicate solutions effectively.
- Understand when numerical methods are required and evaluate their accuracy and limitations.
- Apply the mathematical problem-solving cycle by identifying problems, processing information, modelling solutions, and refining approaches.

- Interpret information from diagrams and construct mathematical representations, including in mechanics.

Mathematical Modelling

Students learn to:

- Translate real-world situations into mathematical models using appropriate assumptions.
- Apply and adapt mathematical models to investigate problems.
- Interpret model outputs within their original context.
- Evaluate the effectiveness and limitations of models and refine assumptions where appropriate.
- Understand the role of modelling in representing and solving complex real-world situations.

Across all key stages, the curriculum promotes fluency, reasoning, and problem-solving while fostering resilience, independence, and confidence. Students progressively develop the mathematical knowledge and skills required for academic success, informed decision-making, and lifelong learning.