

## Mathematics – Year 8

### Curriculum Intent

In Year 8, Mathematics builds on the secure numerical and algebraic foundations established in Year 7, developing greater fluency, precision and reasoning across algebra, geometry, statistics and proportional thinking. Students move from early algebraic ideas towards more formal manipulation, graphical representation and proof, while strengthening their ability to apply mathematics to unfamiliar problems. The curriculum is deliberately sequenced to prepare students for the increased abstraction and complexity of GCSE mathematics.

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### What Students Will Study Across the Year

#### Autumn Term – Estimation, Sequences and Linear Graphs

Students develop more sophisticated estimation skills, including rounding to significant figures, error intervals and evaluating the accuracy of calculations. They explore arithmetic and geometric sequences, generating terms using both term-to-term and position-to-term rules, and begin to find and use  $n$ th term expressions. This learning is extended into graphical representations of linear relationships, where students plot straight-line graphs, identify gradients and intercepts, and interpret equations in the form  $y = mx + c$ .

#### Autumn and Spring Terms – Algebraic Manipulation and Inequalities

Students deepen their understanding of algebra by constructing expressions, solving linear equations and working confidently with unknowns. They solve equations involving brackets, fractions and unknowns on both sides, and apply algebraic reasoning to perimeter, angle and worded problems. The curriculum then extends to linear inequalities, where students represent solutions on number lines and solve increasingly complex inequality statements.

#### Spring Term – Percentages, Proportion and Statistics

Students strengthen their understanding of percentages and proportional reasoning, including percentage change, profit and loss, and original value problems. They explore direct and inverse proportion through real-life contexts and non-algebraic problem-solving. Alongside this, students develop statistical skills by constructing and interpreting bar charts, pie charts and scatter graphs, and identifying correlation and outliers.

#### Summer Term – Geometry, Measures and Construction

Students revisit and extend geometric knowledge through the study of polygons, angle properties and formal proof. They calculate perimeter, area and volume for a wide range of shapes, including circles, prisms and composite figures, applying formulae accurately. The year concludes with geometric constructions, where students use ruler and compass techniques to construct shapes, bisect lines and angles, and explore loci.

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### Assessment and Progression

Students are assessed through regular retrieval activities, problem-solving tasks and formal end-of-unit assessments. Assessment focuses on accuracy, algebraic reasoning, mathematical communication and application of knowledge in unfamiliar contexts. By the end of Year 8, students are confident working with algebraic structures, graphical representations and complex geometric reasoning, providing a strong foundation for Year 9 and GCSE preparation.