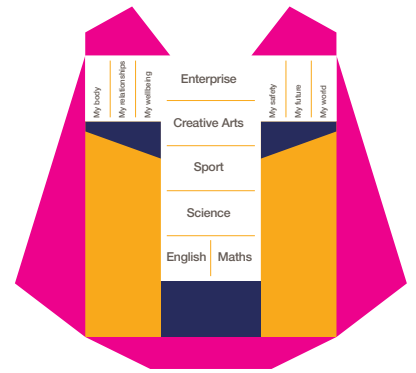


Maths



The maths curriculum consists of three steps.

Build

In the 'Build' stage students will be supported in learning the fundamentals of number skills, through varied and frequent practice.

Grow

At the 'Grow' stage, students will be supported in becoming confident learners who are able to work with increasing independence.

Launch

By the time students reach 'Launch' stage students will be fluent users of mathematical vocabulary who can communicate, justify, argue and prove using mathematical language, use mathematical reasoning to follow lines of enquiry, speculate relationships or generalisations and to develop an argument, justification or proof and are able to solve mathematical problems by applying their mathematics to routine and non-routine problems.

Build

The knowledge and skill to:

- › Understand numbers in order to develop the skill of understanding place value, properties of numbers, integers & decimals, percentages and fractions, as well as factors, multiples, estimation and approximation.
- › Understand Algebra in order to develop the skill of being able to work with expressions, equations and coordinates, linear equations, sequences and graphical representations of linear relationships.
- › Understand ratio, proportion and rates of change in order to develop the skill of using multiplicative relationships with fractions and ratios.
- › Understand geometry and measure in order to develop the skill of understanding the core concepts used in perimeter, area and transformations.

The attitudes of a student who building resilience and confidence in their mathematical knowledge through practical and methods.

Grow

The knowledge and skill to:

- › Understand numbers in order to further develop the skill of working with numbers, including standard form.
- › Understand Algebra in order to develop the skill of being able to have working knowledge of non-linear sequences, expressions & formulae and graphical representations.
- › Understand ratio, proportion, and rates of change in order to develop the skill of multiplicative relationships with percentages and proportionality.
- › Understand geometry and measure in order to further develop the skills of calculating Perimeter, area, and volume, understanding geometrical properties including polygons Constructions, similarity and congruence, Pythagoras' Theorem and trigonometry.
- › Understand probability in order to develop the skill of understanding what probability means and how to calculate probability for dependent and independent events, including the use of tree diagrams and frequency tables.
- › Understand statistics in order to develop the skill of using statistical representations, measures & analysis.

The attitudes of a student who is resilient and is confident in exploring and challenging their understanding of mathematics.

Launch

The knowledge and skill to:

- Understand numbers in order to develop the skill of structure and calculations in maths, building on fractions, decimals and percentage knowledge (including being able to work interchangeably with terminating decimals and their corresponding fractions and interpreting fractions and percentages as operators) and prior knowledge of measures and accuracy (including working with standard units, significant figures and using estimation to check calculations).
- Understand algebra in order to develop the skill of understanding notation, vocabulary and manipulation (including being able to simplify and manipulate algebraic expressions, expanding products of two binomials and factorising quadratic expressions of the form $x^2 + bx + c$), graphs (including real-life graphs and time-distance graphs), solving equations and inequalities and sequences (such as recognising and using sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions).
- Understand ratio, proportion, and rates of change in order to develop the skill of being able understand the difference between ratio and direct proportion, and be able to solve problems involving direct proportion, work out percentage change, solve problems involving percentage change, and be able to interpret and analyse graphical representations of percentage change, understand what rate of change means, and be able to calculate and compare rates of change in different contexts, solve problems involving rates of change, and be able to interpret and analyse graphical representations of rates of change.
- Understand geometry and measure in order to develop the skill of properties and constructions, Mensuration and calculation, and vectors including being able to apply geometric reasoning to solve problems, apply algebraic reasoning to solve problems involving geometry and measures, use Pythagoras' theorem in similar triangles to solve problems involving right-angled triangles, apply trigonometric ratios and Pythagoras' theorem to solve problems involving right-angled triangles, apply geometric and trigonometric reasoning to solve problems involving 2D and 3D shapes.
- Understand probability in order to further develop the skill of calculating the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions, and being able to use Venn diagrams and tree diagrams to count sets and combinations of sets.
- Understand statistics in order to develop the skill of inferring properties of populations or distributions from a sample, being able to interpret, analyse and compare the distributions of data sets from univariate empirical distributions, apply statistics to describe a population and, use and interpret scatter graphs of bivariate data.

The attitudes of a student who is resilient and developing strong fluency in mathematical reasoning and problem-solving.