Mathematics Year 9 Learning Journey

Ratio & Proportion

- Inverse proportion
- ‘Best Buy’ problems
- Ratio problems with algebra

Rates

- Speed and distance-time graphs
- Density, mass & volume
- Rates of flow

Probability

- Relative frequency
- Expected outcomes
- Independent events

Enlargement & Similarity

- Use similarity to find missing sides
- Enlarge a shape by a positive scale factor

Pythagoras’ Theorem

- Identify the hypotenuse
- Find missing sides of a right-angled triangle
- Use in context of co-ordinate axes

Reflection, Rotation & Translation

- Reflect & rotate shapes about a point
- Translate shapes using vectors

Using Percentages

- Percentage increase & decrease
- Reverse percentages
- Simple & compound interest

Straight Line Graphs

- Lines parallel to the axes
- Understanding gradient
- Using $y = mx + c$
- Real life graphs

Forming & Solving Equations

- Unknowns on both sides
- Solving equations in context
- Rearranging formulae

Three-dimensional Shapes

- Plans & Elevations
- Surface Area & Volume of 3D shapes including cylinders & prisms

Measures of Location

- Mode, median and mean from ungrouped and grouped data sources

Data Handling Cycle

- Pictograms, line graphs bar and pie charts
- Interpret grouped data

Area of Trapezia & Circles

- Area of a trapezium
- Area of a circle
- Area of compound shapes

Angles in Parallel Lines and Polygons

- Alternate, corresponding and co-interior
- exterior and interior angles in polygons

Sequences

- Generate sequences
- Find the position to term rule for linear sequences

Indices

- Simplify expressions with indices
- Laws of indices

Standard Form

- Large & small numbers
- Operations with standard form
- Using a calculator

Year 9

Year 9 Overview

In Year 9, students build on understanding from Year 7 and 8 to acquire a more developed schema of mathematical concepts. This allows them to execute complex processes and apply these in the context of problem solving. Topics such as Pythagoras’ Theorem give students their first real taste of mathematical proof. Whereas the topics of data handling, probability and compound interest allow students to see how mathematics is essential to the real world. This year focuses on securing the mathematical knowledge that forms the foundation of success in Key Stage 4 and GCSEs.

“Without mathematics, there’s nothing you can do.
Everything around you is mathematics. Everything around you is numbers.” Shakuntala Devi