MATHS

YEAR 10 FOUNDATION
LEARNING JOURNEY INFORMATION

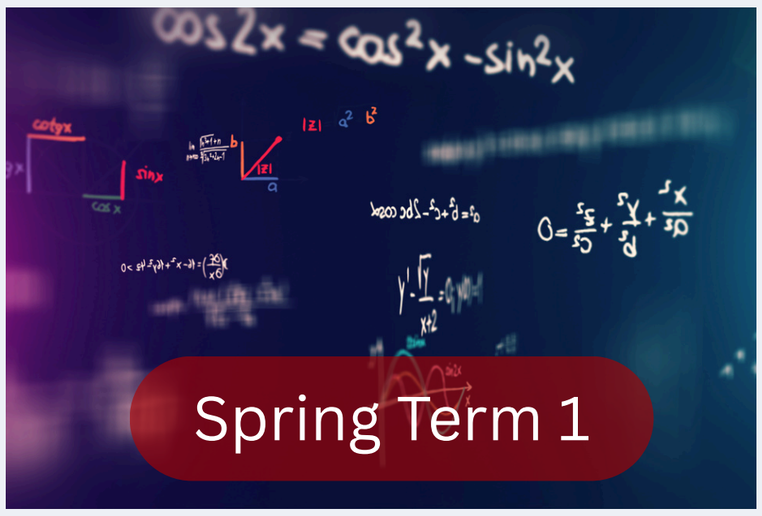
Algebraic manipulation
Equations
inequalities and formulae
Quadratic expressions and equations

Students start with core algebra skills: substitution, collecting like terms, simplifying expressions, and applying laws of indices, including powers of powers. They learn to expand and factorise single brackets and solve linear equations, including fractional equations and those with unknowns on both sides. Inequalities are introduced alongside changing the subject of simple and complex formulae. Quadratic work includes expanding double brackets, factorising positive quadratics, and solving by factorisation.

Percentages
Ratio and Scale
Work with fractions

This half term focuses on percentages: calculating amounts, percentage change, repeated change, and simple interest, with compound interest for extension. Along with ratio and scale, including sharing in a ratio when total, part, or difference is given, linking ratios to fractions, and solving ratio problems algebraically for extension. Students work with fractions in depth: finding fractions of amounts, using fractions to find the whole, and performing all four operations, including mixed numbers.

Non-calculator methods
Straight line graphs
Probability
Rounding and estimation



Non-calculator methods are revisited for place value, ordering numbers, and multi-step problems. Straight-line graphs are introduced, covering plotting, finding solutions, gradients, and equations of lines, including real-life contexts. Students study probability basics, including listing outcomes, relative frequency, sample spaces, two-way tables, frequency trees, and tree diagrams for independent and dependent events. Rounding and estimation are covered, including decimal places, significant figures, and error intervals.

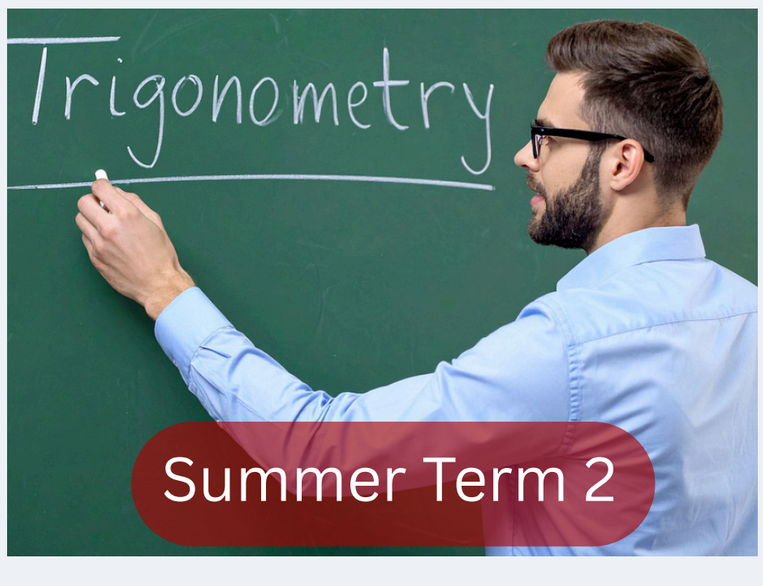
Perimeter
area and volume
Interpret and represent data
Non-linear graphs

Geometry topics include naming 2D and 3D shapes, perimeter and area of simple and compound shapes, and circle work (circumference and area). Volume and surface area of prisms are introduced, alongside nets and practical applications. This term introduces data handling: pictograms, bar charts, pie charts, time-series graphs, and scatter graphs, with interpretation and comparison of distributions. Students learn averages from raw data and frequency tables, and interpolation for extension. Non-linear graphs include quadratics and cubics, with approximate solutions using graphs.

Angles Graphs
and diagrams
Vectors

Angle work covers rules for points, lines, triangles, quadrilaterals, and polygons, as well as parallel lines and proofs for extension. Students develop skills with vectors, including notation, translation, scalar multiplication, addition, and subtraction, applying these to problem-solving. Factors and powers are revisited, including prime factorisation, HCF and LCM, square and cube numbers, roots, and negative indices. Surds are introduced for extension.

Factors powers and surds
Pythagoras' theorem and trigonometry
Simultaneous equations



The final term focuses on Pythagoras' theorem for finding sides in right-angled triangles and applying it to problem-solving. Trigonometry begins with identifying sides in right-angled triangles and using sine, cosine, and tangent ratios to find unknown sides and angles, with exact values for extension. Students extend trigonometry to include ratios for angles and sides, reinforcing earlier work. Simultaneous equations are introduced, starting with graphical solutions and progressing to solving algebraically, including adjustments and substitution for extension. These topics prepare students for end-of-year assessments and progression to Year 11.