



Year 10 Foundation Scheme of Work

Parent Overview 2026-2027

This parent-friendly Scheme of Work provides an overview of the mathematics taught across Year 10 Foundation. For each unit, it shows the building blocks students draw upon, the key learning objectives and the mathematical vocabulary they will meet.

Half Term	Curriculum Overview
Autumn 1	Unit 1: Rounding, Estimation and Error Intervals; Unit 2: Perimeter, Area and Volume; Baseline Assessment; Unit 3: Algebraic Manipulation; Unit 4: Standard Form
Autumn 2	Assessment; Unit 5: Properties of Shape, Angle Facts and Angles in Parallel Lines; Unit 6: Indices; Unit 7: Sequences; Unit 8: Ordering FDP; Assessment
Spring 1	Unit 9: Quadratic Equations and Graphs; Unit 10: Representing Data; Unit 11: Changing the Subject; Assessment
Spring 2	Unit 12: Proportion 1 - Direct and Inverse Proportion; Unit 13: Careers Week - Plans and Elevations; Unit 14: Linear Graphs; Unit 15: Proportion 2 - Compound Measures; Work Experience
Summer 1	Unit 16: Right-Angled Triangles; Unit 17: Linear Equations and Simultaneous Equations; Unit 18: Transformations
Summer 2	Unit 19: Similarity; Unit 20: Percentage Change; Mock Exams; Mock DIRT and topic consolidation

What the sections mean

Building blocks: knowledge and skills used as a starting point for the unit. | Key objectives: the main mathematics students will learn. | Key words: important mathematical vocabulary used during the unit.

Unit 1: Rounding, Estimation and Error Intervals

Building blocks

- Round to the nearest integer
- Round to the nearest 10, 100, 1000
- Round to a given number of decimal places and significant figures

Key objectives

- Estimate answers to calculations by rounding numbers to 1 significant figure
- Truncate a number to a given degree of accuracy
- Use inequality notation to specify simple error intervals due to truncation or rounding

Key words

Integer, Decimal, Significant figures, Truncate, Upper bound, Lower bound, Round, Estimate, Error interval

Unit 2: Perimeter, Area and Volume

Building blocks

- Find the perimeter of rectangles, triangles, parallelograms, trapezia and compound shapes
- Recall and use the formulae for the area of a rectangle and triangle. Recall and use formulae for the circumference of a circle and the area enclosed by a circle circumference of a circle and area of a circle
- Use $\pi \approx 3.142$ or use the π button on a calculator
- Give an answer to a question involving the circumference or area of a circle in terms of π
- Find radius or diameter, given area of a circle.
- Find the volume of a prism, including a cube, cuboid, triangular prism, cylinder and composite solids
- Estimation

Key objectives

- Recall and use the formulae for the area of a parallelogram and trapezium
- Calculate areas and perimeters of compound shapes made from triangles and rectangles
- Find radius or diameter, given area or perimeter of a circle
- Find the perimeters and areas of semicircles, quarter-circles and areas of composite shapes made from circles and parts of circles
- Find the volume of composite solids
- Estimate volumes etc by rounding measurements to 1 significant figure
- Convert between units of measure within one system, including time and metric units to metric units of length, area and volume and capacity e.g. $1\text{ml} = 1\text{cm}^3$

Key words

Isosceles Triangle, Rectangle, Trapezium, Parallelogram, Sector, Arc, Prism, Cylinder

Unit 3: Algebraic Manipulation

Building blocks

- Manipulate and simplify algebraic expressions by collecting 'like' terms
- Multiply together two simple algebraic expressions, e.g. $2a \times 3b$
- Simplify expressions by cancelling, e.g. $\frac{2x}{2} = x$
- Multiply a single number term over a bracket
- Write and simplify expressions using squares and cubes
- Simplify expressions involving brackets, i.e. expand the brackets, then add/subtract
- Recognise factors of algebraic terms involving single brackets
- Factorise algebraic expressions by taking out common factors
- Substitute numbers into simple algebraic expressions
- Substitute numbers into expressions involving brackets and powers
- Substitute positive and negative numbers into expressions

Key objectives

- Algebraic Fluency:
- Argue mathematically to show algebraic expressions are equivalent
- Write expressions to solve problems representing a situation
- Derive a simple formula, including those with squares, cubes and roots
- Substitute numbers into a (word) formula
- Define a 'quadratic' expression
- Expand, Factorise and Solve:
- Multiply together two algebraic expressions with brackets
- Square a linear expression, e.g. $(x + 1)^2$
- Factorise quadratic expressions of the form $x^2 + bx + c$
- Factorise a quadratic expression $x^2 - a^2$ using the difference of two squares

Key words

Expression, Expand, Factorise, Quadratic, Like Terms, Equivalent, Linear, Coefficient

Unit 4: Standard Form

Building blocks

- Use index notation for squares and cubes
- Index laws
- Calculation with decimals
- Multiply and divide by powers of 10

Key objectives

- Convert large and small numbers into standard form and vice versa
- Add, subtract, multiply and divide numbers in standard form
- Interpret a calculator display using standard form and know how to enter numbers in standard form.

Key words

Index (Indices), Power, Root, Standard Form

Unit 5: Properties of Shape, Angle Facts and Angles in Parallel Lines

Building blocks

- Use two-letter notation for a line and three-letter notation for an angle
- Given some information about a shape on coordinate axes, complete the shape
- Understand and use the angle properties of triangles, use the symmetry property of isosceles triangle to show that base angles are equal
- Use the side/angle properties of isosceles and equilateral triangles
- Understand and use the angle properties of intersecting lines

Key objectives

- Use geometric language appropriately
- Identify a line perpendicular to a given line on a diagram and use their properties
- Understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices
- Use geometrical language appropriately, give reasons for angle calculations and show step-by-step deduction when solving problems. Identify parallel lines on a diagram and use their properties
- Understand and use the angle properties of parallel lines

Key words

Parallel, Perpendicular, Alternate, Co-Interior, Corresponding, Vertically opposite, Isosceles, Equilateral

Unit 6: Indices

Building blocks

- Find squares and cubes:
- Recall integer squares up to 10×10 and the corresponding square roots
- understand the difference between positive and negative square roots
- recall the cubes of 1, 2, 3, 4, 5 and 10
- Use index notation for squares and cubes
- Recognise powers of 2, 3, 4, 5
- Evaluate expressions involving squares, cubes and roots: add, subtract, multiply and divide numbers in index form
- cancel to simplify a calculation

Key objectives

- Use index notation for powers of 10, including negative powers
- Use the laws of indices to multiply and divide numbers written in index notation
- Use brackets and the hierarchy of operations with powers inside the brackets, or raising brackets to powers
- Use calculators for all calculations: positive and negative numbers, brackets, square, cube, powers and roots, and all four operations. Use numbers raised to the power zero, including the zero power of 10

Key words

Index (Indices), Power, Root, Exponent

Unit 7: Sequences

Building blocks

- Recognise sequences of odd and even numbers, and other sequences
- Use function machines to find terms of a sequence
- Write the term-to-term definition of a sequence in words
- Find a specific term in the sequence using position-to-term or term-to-term rules
- Generate arithmetic sequences of numbers, triangular number, square and cube integers and sequences derived from diagrams
- Recognise such sequences from diagrams and draw the next term in a pattern sequence
- Find the next term in a sequence, including negative values

Key objectives

- Find the n th term for a pattern sequence, a linear sequence or an arithmetic sequence
- Use the n th term of an arithmetic sequence to generate terms, decide if a given number is a term in the sequence, or find the first term over a certain number
- Find the first term greater/less than a certain number
- Continue a geometric progression and find the term-to-term rule, including negatives, fraction and decimal terms
- Continue a quadratic sequence and use the n th term to generate terms
- Distinguish between arithmetic and geometric sequences. Recognise and work with Fibonacci-type sequences

Key words

Arithmetic, Geometric, Nth term

Unit 8: Ordering FDP

Building blocks

- Use diagrams to find equivalent fractions or compare fractions
- Write fractions to describe shaded parts of diagrams
- Express a given number as a fraction of another, using very simple numbers, some cancelling, and where the fraction is both < 1 and > 1
- Write a fraction in its simplest form and find equivalent fractions
- Order fractions, by using a common denominator
- Compare fractions, use inequality signs, compare unit fractions
- Convert between mixed numbers and improper fractions

Key objectives

- Recall the fraction-to-decimal conversion and convert fractions to decimals
- Convert a fraction to a decimal to make a calculation easier
- 1
- Recognise recurring decimals and convert fractions such as $\frac{1}{3}$ and $\frac{2}{3}$ into
- 7 recurring decimals
- Compare and order fractions, decimals and integers, using inequality signs
- Convert between fractions, decimals and percentages
- Order fractions, decimals and percentages, including use of inequality signs.

Key words

Convert, Recurring, Terminating, Integer, Fraction, Ascending Descending

Unit 9: Quadratic Equations and Graphs

Building blocks

- Factorise quadratic expressions of the form $x^2 + bx + c$
- Factorise a quadratic expression $x^2 - a^2$ using the difference of two squares
- Plot a quadratic graph using a table of values
- Solve quadratic equations by factorising

Key objectives

- Find the roots of a quadratic function algebraically
- Identify the line of symmetry of a quadratic graph
- Find approximate solutions to quadratic equations using a graph
- Interpret graphs of quadratic functions from real-life problems
- Identify and interpret roots, intercepts and turning points of quadratic graphs

Key words

Linear, Quadratic, Factorise, Solutions, Roots, Minimum/Maximum, Turning Point, Intercept

Unit 10: Representing Data

Building blocks

- Construct pie charts for categorical data and discrete/continuous numerical data
- Draw scatter graphs
- Interpret points on a scatter graph
- Distinguish between positive, negative and no correlation using lines of best fit
- Interpret scatter graphs in terms of the relationship between two variables
- Interpret correlation in terms of the problem

Key objectives

- Produce and interpret time-series graphs and identify trends
- Produce and interpret stem-and-leaf diagrams, including back-to-back diagrams, and calculate the mode, median and range
- Draw and interpret pie charts, including finding frequencies and comparing charts with different totals
- Produce and interpret frequency polygons for grouped data
- Draw and interpret scatter graphs and describe positive, negative or no correlation
- Identify outliers and draw a line of best fit by eye
- Use a line of best fit to make predictions, including interpolation and extrapolation
- Understand that correlation does not imply causation and judge the reliability of predictions

Key words

Categorical data, Discrete data, Continuous data, Grouped data, Axis, axes Time series, Scatter graph (scatter diagram, scattergram, scatter plot), Bivariate data, (Linear) Correlation, Positive correlation, Negative correlation, Line of best fit, Interpolate, Extrapolate, Trend

Unit 11: Changing the Subject

Building blocks

- Strategies used for solving equations using the balancing method which can be applied to changing the subject. Order of Operations BIDMAS

Key objectives

- Change the subject of a formula involving the use of square roots and squares
- Change the subject of a formula where the subject appears on both sides

Key words

Formula, Inverse, Term

Unit 12: Proportion 1 - Direct and Inverse Proportion

Building blocks

- Understand and use direct proportion situations such as recipes and best buys
- Unitary method for scaling

Key objectives

- Understand that X is inversely proportional to Y is equivalent to X is proportional to $1/Y$
- Solve problems involving inverse proportion e.g. number of workers Interpret equations that describe direct and inverse proportion.

Key words

Proportion, Directly proportional, Inversely proportional

Unit 13: Careers Week - Plans and Elevations

Building blocks

- Measure and draw lines, to the nearest mm
- Draw sketches of 3D solids
- Know the terms face, edge and vertex
- Identify and sketch planes of symmetry of 3D solids

Key objectives

- Understand and draw front and side elevations and plans of shapes made from simple solids
- Given the front and side elevations and the plan of a solid, draw a sketch of the 3D solid
- Careers Week activities centred around set design

Key words

Plan, Front elevation, Side elevation, Solid, 3D, 2D

Unit 14: Linear Graphs

Building blocks

- Recognise straight-line graphs parallel to the axes
- Plot and draw graphs of $y = a$, $x = a$, $y = x$ and $y = -x$
- Recognise that equations of the form $y = mx + c$ correspond to straight-line graphs in the coordinate plane

Key objectives

- Plot straight-line graphs of the form $y = mx + c$ using a table of values
- Plot straight-line graphs in the form $ax + by = c$
- Sketch a linear graph using its gradient and y-intercept
- Find the equation of a straight line from a graph
- Find the equation of a line through a point with a given gradient
- Rearrange equations into the form $y = mx + c$ to identify gradient and y-intercept
- Interpret information presented in linear graphs and use graphs to find approximate solutions

Key words

Gradient, Plot Sketch y-intercept Parallel, Rearrange

Unit 15: Proportion 2 - Compound Measures

Building blocks

- Understand and use compound measures: speed and density

Key objectives

- Convert between metric speed measures
- Calculate average speed, distance, time - in miles per hour as well as metric measures
- Change d/t in m/s to a formula in km/h , i.e. $d/t \times (60 \times 60)/1000$ - with support
- Solve problems involving density and pressure

Key words

Proportion, Metric, Imperial, Speed, Density, Pressure, Directly proportional, Inversely proportional

Unit 16: Right-Angled Triangles

Building blocks

- Understand, recall and use Pythagoras' Theorem in 2D, including leaving answers in surd form.
- Rounding to Significant figures/decimal places
- Be able to justify if a triangle is right-angled or not.
- Calculate the length of a line segment AB given pairs of points
- Understand, use and recall the trigonometric ratios sine, cosine and tan, and apply them to find angles and lengths in general triangles in 2D figures
- Use the trigonometric ratios to solve 2D problems including angles of elevation and depression

Key objectives

- Calculate the length of the hypotenuse and of a shorter side in a rightangled triangle, including decimal lengths, a range of units and leaving answers in surd form
- Apply Pythagoras' Theorem with a triangle drawn on a coordinate grid
- Use and recall the trigonometric ratios (sine, cosine and tangent) and apply
- them to find angles and lengths in right-angled triangles
- Round answers to appropriate degree of accuracy, either to a given number of significant figures or decimal places, or make a sensible decision on rounding in context of question

Key words

Similar, Congruent, Hypotenuse, Adjacent, Opposite, Sine, Cosine, Tangent

Unit 17: Linear Equations and Simultaneous Equations

Building blocks

- Solve simple equations with integer coefficients, in which the unknown appears on either side of the equation
- Solve linear equations with one unknown, with integer or fractional coefficients
- Solve linear equations involving fractions

Key objectives

- Solve Equations
- Solve linear equations in which the unknown appears on both sides of the equation
- Solve linear equations which contain brackets, including those that have negative signs occurring anywhere in the equation, and those with a negative solution
- Write and solve simultaneous equations to represent a situation
- Solve Simultaneous Equations Graphically
- Solve simultaneous equations (linear/linear) algebraically and graphically
- Solve simultaneous equations (linear/quadratic given) algebraically and graphically
- Solve simultaneous equations representing a real-life situation, graphically and algebraically, and interpret the solution in the context of the problem

Key words

Equation, Solve, Simultaneous, Variable, Inverse, Eliminate, Substitute

Unit 18: Transformations

Building blocks

- Identify congruent shapes by eye
- Rotate and draw the position of a shape after rotation about the origin or any other point including rotations on a coordinate grid
- Translate a given shape by a vector
- Transform 2D shapes using single reflections (including those not on coordinate grids) with vertical, horizontal and diagonal mirror lines
- Scale a shape on a grid (without a centre specified)
- Enlarge a given shape using $(0, 0)$ as the centre of enlargement, and enlarge shapes with a centre other than $(0, 0)$

Key objectives

- Translate a shape using a column vector
- Reflect a shape in a given mirror line
- Rotate a shape using a given centre, angle and direction
- Enlarge a shape using a positive or fractional scale factor and a centre of enlargement
- Describe reflections, rotations, translations and enlargements fully
- Find the centre of rotation or centre of enlargement from a diagram
- Understand that rotations, translations and reflections preserve lengths and angles
- Understand that enlargements produce similar shapes
- Solve problems involving combinations of transformations

Key words

Translation, Reflection, Rotation, Enlargement, Vector, (Anti) Clockwise, Scale Factor, Mirror Line, Centre, Object, Image, Ray line

Unit 19: Similarity

Building blocks

- Identify shapes which are similar
- including all circles or all regular polygons with equal number of sides

Key objectives

- Understand similarity of triangles and of other plane shapes, use this to make geometric inferences, and solve angle problems using similarity
- Solve problems to find missing lengths in similar shapes
- Solve similarity problems involving similar triangles, such as “bow tie” and triangles within triangles
- Understand the effect of enlargement on angles and perimeter of shapes
- Identify the scale factor of an enlargement of a similar shape as the ratio of the lengths of two corresponding sides
- Write the lengths as ratios in their simplest form

Key words

Similar, Congruent, Scale Factor, Corresponding

Unit 20: Percentage Change

Building blocks

- Understand that a percentage is a fraction in hundredths
- Find a percentage of a quantity without a calculator: 50%, 25% and multiples of 10% and 5%
- Find a percentage of a quantity or measurement
- Use percentages to solve problems, including comparisons of two quantities using percentages
- Percentages over 100%
- Use decimals to find quantities
- Find a percentage of a quantity, including using a multiplier
- Understand the multiplicative nature of percentages as operators.

Key objectives

- Express one number as a percentage of another
- Use multipliers to increase or decrease an amount by a percentage, including percentages greater than 100%
- Find an original amount after a percentage increase or decrease
- Calculate repeated percentage change
- Calculate percentage profit and loss
- Use percentages in real-life contexts including VAT, simple interest and income tax
- Calculate compound interest and depreciation
- Solve growth and decay problems and interpret the results
- Calculate income tax and take-home pay

Key words

Multiplier, Appreciation, Depreciation, Compound interest, VAT, Simple interest, Profit, Loss, Growth, Decay