



Year 11 Foundation Scheme of Work

Parent Overview 2026-2027

This parent-friendly Scheme of Work provides an overview of the mathematics taught across Year 11 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: Probability Unit 2: Ratio Unit 3: Angles In Polygons Unit 4: Forming Expressions And Equations Assessment (Maths Genie mini test) Unit 5: Bearings And Scale
Autumn 2	Mock Exams Unit 6: Linear Inequalities Unit 7: Interpreting Data Unit 8: Arcs And Sectors
Spring 1	Unit 9: Surface Area And Volume Unit 10: Right Angled Triangles Mock Exams Unit 11: Cubic And Reciprocal Graphs
Spring 2	Unit 12: Proportion 3 Unit 13: Real Life Graphs Unit 14: Constructions And Loci
Summer 1	Exam Revision and Topic Consolidation GCSE Maths Paper 1 GCSE Maths Paper 2

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: Probability

Building blocks

- Add and multiply fractions and decimals
- Express one number as a fraction of another
- Distinguish between events which are impossible, unlikely, even chance, likely, and certain to occur
- Mark events and/or probabilities on a probability scale of 0 to 1
- Write probabilities in words or fractions, decimals and percentages
- Find the probability of an event happening using theoretical probability
- Use theoretical models to include outcomes using dice, spinners, coins
- List all outcomes for single events systematically
- Work out probabilities from frequency tables
- Record outcomes of probability experiments in tables
- Add simple probabilities
- Identify different mutually exclusive outcomes and know that the sum of the probabilities of all outcomes is 1
- Using $1 - p$ as the probability of an event not occurring where p is the probability of the event occurring
- List all outcomes for combined events systematically
- Use and draw sample space diagrams

Key objectives

- Work out probabilities from two-way tables and frequency trees
- Work out probabilities from Venn diagrams to represent real-life situations and also 'abstract' sets of numbers/values
- Use union and intersection notation
- Find a missing probability from a list or table including algebraic terms.
- Find the probability of an event happening using relative frequency; Estimate the number of times an event will occur, given the probability and the number of trials – for both experimental and theoretical probabilities
- Compare experimental data and theoretical probabilities; Compare relative frequencies from samples of different sizes
- Find the probability of successive events, such as several throws of a single dice
- Use tree diagrams to calculate the probability of two independent events; Use tree diagrams to calculate the probability of two dependent events.

Key words

Probability, Dependent, Independent, Conditional, Tree diagrams, Sample space, Outcomes, Theoretical, Relative frequency, Fairness, Bias, Experimental

Unit 2: Ratio

Building blocks

- Understand and express the division of a quantity into a of number parts as a ratio
- Write ratios in their simplest form
- Write ratios in form 1 : m or m : 1
- Write/interpret a ratio to describe a situation
- Share a quantity in a given ratio including three-part ratios
- Write a ratio as a fraction
- Use a ratio to find one quantity when the other or the difference is known; Express a multiplicative relationship between two quantities as a ratio or a fraction.

Key objectives

- Solve a ratio problem in context, such as problems involving mixing, e.g. paint colours, cement and drawn conclusions
- Compare ratios
- Combine ratios
- Solve problems that involve ratio with percentages and fractions of amounts
- Write a ratio as a linear function
- Write lengths, areas and volumes of two shapes as ratios in simplest form

Key words

Ratio, Part, Combine, Compare

Unit 3: Angles In Polygons

Building blocks

- Recognise and name pentagons, hexagons, heptagons, octagons and decagons
- Understand 'regular' and 'irregular' as applied to polygons
- Identify shapes which are congruent (by eye)
- Know and use the angle sum of a triangle and quadrilateral

Key objectives

- Calculate and use the sums of the interior angles of polygons
- Calculate and use the angles of regular and irregular polygons
- Use the sum of the interior angles of an n-sided polygon
- Use the sum of the exterior angles of any polygon is 360°
- Use the sum of the interior angle and the exterior angle is 180°
- Explain why some polygons fit together and others do not

Key words

Angle, Interior, Exterior, Polygon, Regular, Irregular, Tessellate, Degrees

Unit 4: Forming Expressions And Equations

Building blocks

- Solve linear equations, with integer coefficients, in which the unknown appears on either side or 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
- Solve linear equations in one unknown, with integer or fractional coefficients

Key objectives

- Write an equation to solve a word problem
- Solve angle or perimeter problems using algebra

Key words

Represent, Equation, Solve, Form, Expression, Formula

Unit 5: Bearings And Scale

Building blocks

- Use a protractor to measure directions
- Use three-figure bearings to specify direction
- Converting units of length e.g. m to km or cm to km

Key objectives

- Scale
- Use and interpret maps and scale drawings
- Estimate lengths using a scale diagram
- Make an accurate scale drawing from a diagram
- Use a ratio to compare a scale model to a real-life object
- Bearings
- Mark on a diagram the position of point B given its bearing from point A
- Give a bearing between the points on a map or scaled plan
- Given the bearing of a point A from point B, work out the bearing of B from A
- Use accurate drawing to solve bearings problems

Key words

Scale, Scale drawing / diagram, Map, Estimate, Bearing, From / Of, Locus

Unit 6: Linear Inequalities

Building blocks

- Write down whole number values that satisfy an inequality
- Use the correct notation to show inclusive and exclusive inequalities

Key objectives

- Show inequalities on number lines
- Construct inequalities to represent a set shown on a number line
- Solve simple linear inequalities in one variable and represent the solution set on a number line
- Solve an inequality such as $-3 < 2x + 1 < 7$ and show the solution set on a number line
- Solve two inequalities in x , find the solution sets and compare them to see which value of x satisfies both

Key words

Integer, Greater than, Less than, Greater than or equal to, Less than or equal to, Inequality, Strict, Exclusive, Inclusive, Solve, Satisfy

Unit 7: Interpreting Data

Building blocks

- Calculate the mean, mode, median and range for discrete data

Key objectives

- Can interpret and find a range of averages as follows: median, mean and range from a (discrete) frequency table
- range, modal class, interval containing the median, and estimate of the mean from a grouped data frequency table; mode and range from a bar chart
- median, mode and range from stem and leaf diagrams; mean from a bar chart
- Solve reverse mean problems
- Understand that the expression 'estimate' will be used where appropriate, when finding the mean of grouped data using mid-interval values; Compare the mean, median, mode and range (as appropriate) of two distributions using bar charts, dual bar charts, pictograms and back-to-back stem and leaf
- Recognise the advantages and disadvantages between measures of average

Key words

Mean, Median, Mode, Range, Modal class, Interval, Estimate, Grouped, Discrete, Compare, Consistent

Unit 8: Arcs And Sectors

Building blocks

- Recall the definition of a circle
- Identify, name and draw parts of a circle including tangent, chord and segment
- Recall and use formulae for the circumference and the area of a circle
- Find circumferences and areas enclosed by circles
- 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

Key objectives

- Find radius or diameter, given area or perimeter of a circles
- Find the perimeters and areas of semicircles and quarter-circles
- Calculate perimeters and areas of composite shapes made from circles and parts of circles
- Calculate arc lengths, angles and areas of sectors of circles

Key words

Circle, Radius, Diameter, Pi, Area, Circumference, Arc, Sector, Arc Length, Perimeter

Unit 9: Surface Area And Volume

Building blocks

- Identify and name common solids: cube, cuboid, cylinder, prism, pyramid, sphere and cone
- Sketch nets of cuboids and prisms
- Recall and use the formula for the volume of a cuboid
- Rounding to 1 significant figure
- Find the volume of a prism, including a triangular prism, cube and cuboid; Calculate volumes of right prisms and shapes made from cubes and cuboids
- Find the volume of a cylinder
- Convert metric units
- Find the surface area of a cuboid
- Find the area of rectangles, triangles and circles

Key objectives

- Find the volume of spheres, pyramids, cones and composite solids
- Estimate volumes etc by rounding measurements to 1 significant figure
- Convert between metric volume measures
- Convert between metric measures of volume and capacity e.g. $1\text{ml} = 1\text{cm}^3$
- Find the surface area of a prism
- Find the surface area of a cylinder
- Find the surface area of spheres, pyramids, cones and composite solids
- Estimate surface areas by rounding measurements to 1 significant figure
- Solve problems that involve volume and surface area

Key words

Surface, Area, Volume, Formula, Rectangle, Triangle, Circle, Length, Width, Circumference, Radius, Diameter, Pi, Face, Cube, Cuboid, Prism, Triangular Prism, Cylinder, Sphere, Cone, Pyramid, Hemisphere, Estimate

Unit 10: Right Angled Triangles

Building blocks

- Most of this unit, except for exact values, is revision of previously studied content. The focus of the unit will be on applied problems but some revision of the procedures will likely be necessary.
- Understand, recall and use Pythagoras' Theorem in 2D, including leaving answers in surd form
- Calculate the length of the hypotenuse in a right-angled triangle, including decimal lengths and a range of units
- Find the length of a shorter side in a right-angled triangle
- 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

Key objectives

- Given 3 sides of a triangle, justify if it is right-angled or not
- Apply Pythagoras' Theorem with a triangle drawn on a coordinate grid
- Calculate the length of a line segment AB given pairs of points
- Solve problems requiring the use of Pythagoras' Theorem, especially where the triangle is not immediately obvious
- Use the trigonometric ratios to solve 2D problems
- Find angles of elevation and depression
- Decide whether a problem requires the use of Pythagoras' Theorem or trigonometry
- Know the exact values of $\sin \theta$ and $\cos \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and 90° ; Know the exact value of $\tan \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ$ and 60° .

Key words

Triangle, Right angle, Angle, Pythagoras' Theorem, Sine, Cosine, Tan / Tangent, Trigonometry, Opposite, Hypotenuse, Adjacent, Ratio, Elevation, Depression, Length

Unit 11: Cubic And Reciprocal Graphs

Building blocks

- Plot coordinates in all four quadrants
- Complete a table of values and use to plot a graph
- Substitute into formulae including negative numbers
- Plot linear and quadratic graphs

Key objectives

- Recognise, sketch and interpret graphs of simple cubic functions
- Recognise, sketch and interpret graphs of the reciprocal function with x not equal to 0
- Recognise different types of graphs and match them to appropriate equations

Key words

Reciprocal, Functions, Cubic, Substitution, Axes / Axis, Origin

Unit 12: Proportion 3

Building blocks

- Scale up recipes
- Writing and simplifying Ratios
- Sketching/Drawing Linear Graphs

Key objectives

- Use a variety of measures in ratio and proportion problems:
- currency conversion
- rates of pay; best value; recipes
- Draw and use straight line graphs for real-life situations, including ready reckoner graphs, conversion graphs, fuel bills graphs, fixed charge and cost per unit

Key words

Ratio, Proportion, Best Buy, Unitary, Currency, Rate, Conversion

Unit 13: Real Life Graphs

Building blocks

- Use axes and coordinates to specify points in all four quadrants in 2D; Identify points with given coordinates and coordinates of a given point in all four quadrants
- Find the coordinates of points identified by geometrical information in 2D (all four quadrants); Draw, label and scale axes

Key objectives

- Draw distance–time graphs and velocity–time graphs
- Work out time intervals for graph scales
- Interpret distance–time graphs, and calculate: the speed of individual sections, total distance and total time
- Interpret information presented in a range of linear and non-linear graphs
- Find the gradient of a straight line from real-life graphs
- Interpret gradient as the rate of change in distance–time and speed–time graphs, graphs of containers filling and emptying, and unit price graphs; Interpret graphs with negative values on axes

Key words

Linear, Graph, Distance, Time, Velocity, Coordinate, Quadrant, Real-life graph, Rate of change, Gradient, Intercept, Function, Solution, Parallel

Unit 14: Constructions And Loci

Building blocks

- Use a compass
- Use a protractor
- Measure accurately using a ruler
- Use 3 figure bearings
- Construct triangles

Key objectives

- Use straight edge and a pair of compasses to do standard constructions: understand, from the experience of constructing them, that triangles satisfying SSS, SAS, ASA and RHS are unique, but SSA triangles are not; construct the perpendicular bisector of a given line; construct the perpendicular from a point to a line; construct the bisector of a given angle
- construct angles of 90° , 45°
- Draw and construct diagrams from given instructions, including the following: a region bounded by a circle and an intersecting line; a given distance from a point and a given distance from a line; equal distances from two points or two line segments; regions may be defined by 'nearer to' or 'greater than'; Find and describe regions satisfying a combination of loci
- Use constructions to solve loci problems (2D only)
- Use and interpret maps and scale drawings

Key words

Constructions, Construct, Compasses, Protractor, Ruler, Bisector, Bisect, Line segment, Perpendicular, Loci, Bearing, Region