



Year 8 Scheme of Work

Parent Overview 2026-2027

This parent-friendly Scheme of Work provides an overview of the mathematics taught across Year 8. 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: Negative Numbers; Unit 2: Substitution, Simplifying and Expanding; Unit 3: Investigating Angles; Revision Skills; Unit 4: Standard Form; Autumn Assessment
Autumn 2	Unit 5: Circles; Unit 6: Solving Equations; Unit 7: Scales and Bearings; Revision Skills; Maths Week
Spring 1	Unit 8: Proportional Reasoning; Synoptic 1 Assessment; Unit 9: Volume; Unit 10: Calculating Percentages; Unit 11: Enlargement From a Point
Spring 2	Unit 12: Calculating Fractions; Unit 13: Understanding Gradient; Spring Assessment; Careers Week; Revision Skills; Unit 14: Inequalities
Summer 1	Unit 15: Exploring FDP; Unit 16: Sequences; Synoptic Assessment 2; Unit 17: Plotting Graphs; Unit 18: Averages and Range
Summer 2	Unit 19: Presentation of Data; Unit 20: Understanding Risk; Unit 21: Real-Life Graphs

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: Negative Numbers

Building blocks

- Subtract a number from a smaller number
- Add a positive number to a negative number
- Work across zero on a number line

Key objectives

- Subtract a positive number from a negative number
- Add a negative number
- Subtract a negative number
- Multiply a positive number by a negative number
- Multiply a negative number by a negative number
- Divide a positive number by a negative number
- Divide a negative number by a negative number
- Square and cube positive and negative numbers

Key words

Negative number, Directed number, Operation, Inverse, Indices, Roots

Unit 2: Substitution, Simplifying and Expanding

Building blocks

- Use and interpret algebraic notation, including powers and fractional coefficients
- Simplify expressions involving terms with combinations of variables
- Expand a term over a single bracket
- Substitute into simple expressions

Key objectives

- Substitute positive and negative numbers into formulae
- Simplify expressions using the laws of indices for multiplication, division and powers
- Know and use the zero index
- Factorise an algebraic expression by taking out common factors
- Expand and simplify expressions involving two brackets
- Expand and simplify squared brackets and more complex products

Key words

Product, Variable, Term, Coefficient, Common factor, Factorise, Power, Indices, Formula, Formulae

Unit 3: Investigating Angles

Building blocks

- Know that angles around a point sum to 360° and angles on a straight line sum to 180°
- Know and use angle sums in triangles and quadrilaterals

Key objectives

- Solve missing angle problems involving alternate angles
- Solve missing angle problems involving corresponding angles
- Use alternate and corresponding angles to calculate missing angles in geometrical diagrams
- Solve missing angle problems involving co-interior angles
- Establish and use the fact that angles in a triangle total 180°

Key words

Degrees, Right angle, Acute angle, Obtuse angle, Reflex angle, Vertically opposite, Geometry, Geometrical, Parallel, Alternate angles, Corresponding angles, Interior angle, Exterior angle, Co-interior angle, Regular polygon

Unit 4: Standard Form

Building blocks

- Multiply and divide numbers by powers of 10
- Understand the use of notation for powers

Key objectives

- Round numbers to a given number of significant figures
- Use standard form to write large numbers
- Use standard form to write small numbers
- Order numbers in standard form

Key words

Ascending, Descending, Standard form, Significant figures, Power

Unit 5: Circles

Building blocks

- Know how to work out the area of rectangles, triangles, parallelograms and trapezia
- Work out the area of compound shapes involving these shapes

Key objectives

- Know circle definitions and properties, including centre, radius, chord, diameter, circumference, arc, sector and segment
- Understand the relationship represented by pi
- Calculate the circumference of a circle when the radius or diameter is given
- Calculate the perimeter of composite shapes that include sections of a circle
- Calculate the area of a circle when the radius or diameter is given
- Given the area or circumference, find the radius or diameter

Key words

Circle, Centre, Radius, Diameter, Chord, Circumference, Pi, Arc, Sector, Segment

Unit 6: Solving Equations

Building blocks

- Solve one-step equations when the solution is a positive integer or fraction
- Solve two-step and three-step equations when the solution is a positive integer or fraction
- Solve multi-step equations including brackets when the unknown is on one side

Key objectives

- Solve linear equations with the unknown on one side when calculating with negative numbers is required
- Solve linear equations with the unknown on both sides when the solution is a whole number, fraction or negative number
- Solve linear equations with the unknown on both sides when the equation involves brackets
- Form expressions and equations from worded questions and contexts such as perimeter

Key words

Algebra, Algebraic, Algebraically, Unknown, Equation, Operation, Solve, Solution, Brackets, Symbol, Substitute, Balance, Constant

Unit 7: Scales and Bearings

Building blocks

- Measure a line accurately
- Use a protractor
- Convert units
- Use co-interior angles

Key objectives

- Use scale diagrams, including maps
- Use scaling in diagrams
- Use map scales to convert between distances on a map and distances in real life
- Understand the concept of a bearing
- Measure and draw bearings
- Use the co-interior property of angles to solve bearings problems
- Construct scale diagrams involving bearings
- Solve geometrical problems using bearings

Key words

Scaling, Scale, Scale drawing, Map, Bearing, North, South, East, West, Three figure bearing

Unit 8: Proportional Reasoning

Building blocks

- Understand and use ratio notation
- Simplify ratio
- Share a quantity into a ratio

Key objectives

- Understand and use proportion and ratio tables
- Find a relevant multiplier in a situation involving proportion
- Express the division of a quantity into two parts as a ratio
- Share a quantity into a three-part ratio
- Use ratio to find one quantity when the other is known
- Use ratio to find quantities when the difference is known
- Combine two two-part ratios into a single three-part ratio

Key words

Ratio, Proportion, Proportional, Multiplier, Part, Whole

Unit 9: Volume

Building blocks

- Know how to work out the area of rectangles, triangles, parallelograms and trapezia
- Work out the area of compound shapes involving these shapes
- Calculate the volume of a cube or cuboid

Key objectives

- Calculate the volume of a right prism
- Calculate the volume of a cylinder
- Work backwards to find missing lengths given the volume
- Solve volume problems

Key words

Right prism, Prism, Cross-section, Cylinder, Polygon, Polygonal, Solid, Volume

Unit 10: Calculating Percentages

Building blocks

- Understand non-calculator methods to find percentages
- Find percentage increase and decrease using non-calculator methods
- Convert percentages into decimals

Key objectives

- Use a calculator to find percentages of an amount with a multiplier
- Use a calculator to increase or decrease by a given percentage using a multiplier
- Identify and use the multiplier for a percentage increase or decrease when the percentage is greater than 100%
- Calculate the percentage change in an amount
- Solve problems involving percentage change, including profit and loss
- Solve financial problems including simple interest

Key words

Percent, Percentage, Percentage change, Original amount, Multiplier, Simple interest, Interest, Appreciation, Depreciation

Unit 11: Enlargement, Plans and Elevations

Building blocks

- Enlarge a shape by a given scale factor

Key objectives

- Use the centre and scale factor to carry out an enlargement with a positive integer scale factor
- Use the centre and scale factor to carry out an enlargement with a positive fractional scale factor
- Find the centre of enlargement
- Find the scale factor of an enlargement

Key words

Similar, Similarity, Enlarge, Enlargement, Scale factor, Centre of enlargement, Object, Image

Unit 12: Calculating Fractions

Building blocks

- Add proper and improper fractions
- Subtract proper and improper fractions
- Multiply proper and improper fractions
- Find a fraction of an amount
- Divide proper and improper fractions

Key objectives

- Find a fraction of an amount
- Given a fraction of a number, work backwards to find the whole
- Add and subtract mixed numbers
- Multiply a mixed number by a proper fraction or mixed number
- Divide a mixed number by a proper fraction or mixed number
- Use the order of operations with fractions
- Use a calculator for mixed number calculations

Key words

Proper fraction, Improper fraction, Mixed number, Simplify, Cancel, Lowest terms, Operation, Reciprocal

Unit 13: Understanding Gradient

Building blocks

- Plot coordinates
- Write one value as a fraction of another
- Divide with negative numbers
- Read scales

Key objectives

- Understand gradient as a measure of steepness and a rate of change
- Know when a gradient is positive or negative
- Calculate the gradient of a straight line using a unitary method or change in y divided by change in x
- Find gradients that are negative and/or fractional
- Calculate gradients when scales are not unitary

Key words

Coordinate, Rate of change, Steepness, Gradient, Positive, Negative, Unit, Change, Scale

Unit 14: Inequalities

Building blocks

- Write down in words what an inequality represents
- Write an inequality from a worded description

Key objectives

- Find the set of integers that are solutions to an inequality
- Represent an inequality on a number line
- Solve a simple linear inequality in one variable with unknowns on one side
- Solve a more complex linear inequality in one variable with unknowns on one side
- Solve an inequality in one variable with unknowns on both sides

Key words

Inequality, Less than, Greater than, Integer, Satisfy, Solve

Unit 15: Exploring FDP

Building blocks

- Recall common decimal and fraction equivalents, including tenths, fifths, eighths, thirds and quarters
- Use division with remainders

Key objectives

- Identify if a fraction is terminating or recurring
- Write a terminating decimal as a fraction
- Write a fraction in its lowest terms by cancelling common factors
- Use a calculator to change any fraction to a decimal

Key words

Fraction, Mixed number, Improper fraction, Percentage, Decimal, Proportion, Terminating, Recurring, Simplify, Cancel

Unit 16: Sequences

Building blocks

- Generate sequences from a worded rule
- Use a term-to-term rule or function machine to generate a sequence
- Find the term-to-term rule for a sequence
- Describe a sequence using the term-to-term rule
- Find missing terms in a sequence

Key objectives

- Generate terms of a sequence from a position-to-term rule
- Use the n th term to find specific terms in a sequence
- Find the n th term of an ascending linear sequence
- Find the n th term of a descending linear sequence
- Find the n th term of pattern sequences

Key words

Sequence, Linear, Term, Difference, Term-to-term rule, Position-to-term rule, Ascending, Descending

Unit 17: Plotting Graphs

Building blocks

- Plot coordinates
- Write the equation of a line parallel to the x-axis or y-axis
- Draw a line parallel to the x-axis or y-axis given its equation
- Identify and plot the lines $y = x$ and $y = -x$

Key objectives

- Complete a table of values using patterns and substitution
- Appreciate the link between a table of values and linear sequences
- Plot graphs of functions of the form $y = mx \pm c$ using a table of values
- Plot graphs of quadratic functions of the form $y = x^2 \pm c$
- Spot patterns linked to m and c

Key words

Substitute, Plot, Coordinate, Linear, Quadratic, Parabola, Gradient

Unit 18: Averages and Range

Building blocks

- Understand the mean, mode and median as measures of typicality
- Find the mean, median, mode and range of a set of data
- Analyse and compare sets of data, appreciating the limitations of different statistics
- Choose appropriate statistics to describe a set of data

Key objectives

- Find the mode, median, mean and range from a frequency table
- Find the modal class of a set of grouped data
- Find the class containing the median of a set of data
- Calculate an estimate of the mean from a grouped frequency table
- Estimate the range from a grouped frequency table

Key words

Average, Spread, Consistency, Mean, Median, Mode, Range, Statistic, Approximate, Round, Estimate, Grouped frequency, Midpoint

Unit 19: Presentation of Data

Building blocks

Interpret and construct frequency tables

Construct and interpret pictograms, bar charts and pie charts

Key objectives

- Represent data using a stem and leaf diagram
- Interpret data on a stem and leaf diagram using averages
- Plot a scatter diagram of bivariate data
- Interpret a scatter diagram using understanding of correlation
- Use a line of best fit to make predictions
- Draw frequency polygons
- Draw pie charts where the multiplier is not a whole number

Key words

Scale, Graph, Axis, Axes, Scatter graph, Scatter diagram, Bivariate data, Linear correlation, Positive correlation, Negative correlation

Unit 20: Understanding Risk

Building blocks

Know and use the vocabulary of probability

Understand the use of the 0-1 scale to measure probability

Use fractions, decimals and percentages to give probabilities

List all outcomes for an experiment, including the use of tables

Work out theoretical probabilities for events with equally likely outcomes

Know that the sum of probabilities for all mutually exclusive outcomes is 1

Key objectives

- List outcomes of an event systematically
- Construct a sample space diagram for combined experiments with equally likely outcomes
- Calculate probabilities using a sample space
- Use theoretical probability to calculate expected outcomes
- Use experimental probability to calculate expected outcomes
- Know the difference between $P(A \text{ or } B)$ and $P(A \text{ and } B)$
- Calculate the probability of two mutually exclusive events
- Calculate the probability of independent combined events

Key words

Outcome, Event, Experiment, Combined experiment, Enumerate, Possibility space, Sample space, Mutually exclusive, Equally likely outcomes, Theoretical probability, Random, Bias, Fairness, Relative frequency, Independent, Dependent

Unit 21: Real-Life Graphs

Building blocks

Coordinates

Understand gradient as a rate of change

Plot linear graphs

Find the area of rectangles, triangles and trapezia

Key objectives

- Plot and interpret distance-time graphs
- Describe in words what is happening on a distance-time graph
- Plot and interpret speed-time graphs (velocity-time graphs)
- Describe in words what is happening on a speed-time graph
- Draw and interpret time series graphs
- Draw straight line graphs for real-life situations, including filling containers, fuel bills, fixed charges and cost per unit

Key words

Distance, Time, Speed, Gradient, Axes