

Year 8 Curriculum Plan

Maths



	Term 1	Term 2	Term 3
PRIOR LEARNING	From KS2 pupils should have learnt: • Measuring. • Lines and angles. From Year 7 pupils should have learnt: • Place value. • Vectors on a number line. • Equality & inverse operations. • Solving equations. • Simplifying expressions. • Expanding brackets. • Multiplicative reasoning. • Fractions. • Double number lines and ratio tables. • Percentages.	From KS2 pupils should have learnt: • Measuring and drawing angles. • Area of a rectangle. • Bar charts and pictograms. • Perimeter. From Year 7 and Year 8 term 1, pupils should have learnt: • Basic angle facts. • Median. • Mean. • Range. • Area of rectilinear shapes. • Types of polygons. • Multiplication and division; multiples and factors. • Writing values as a fraction; equivalent fractions. • Ratio tables.	From Year 7, Year 8 term 1 and 2, pupils should have learnt: • Arithmetic strategies. • Order of operations. • Negative numbers. • Algebraic expressions. • Solving equations. • Number lines. • Substitution. • Writing expressions, equations and formulae. • Number lines. • Reading tables. • Interpreting graphs and charts. • Mean. • Arithmetic. • Solving linear equations. • Formulae. • Linear graphs.

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KNOWING WHAT ...

Geometry/ Measure unit 1 -

Using a protractor to measure angles. Labelling angles correctly, type of angles.
Estimating angles.
Construction.
Simple loci.

Algebra unit 3 –

Difference between identity and equations.
Expanding a single bracket.
Factorising into a single bracket.
Expanding two simple binomials and the difference of two squares.
Writing more complex algebraic expressions.

Algebra unit 4 -

Understanding equality and balancing.
Simple one-step solutions.
Two-step solutions.
Collecting like terms.
Solving equations with the unknown on both sides, simple equations with the unknown in the denominator.
Applications and problems, including forming and solving equations in a geometric or "real-life" context.

Number unit 10 -

Direct and Inverse proportion - use double number line and can be connected to other known representations.
Comparing quantities (value for money, exchange rate).
Scaling up/down - recipes, shapes (simple enlargements), etc, use scaling diagram to represent and connect to other known representations.

Geometry/Measure unit 2 -

Naming, labelling and recognising the features of triangles, quadrilaterals (including sum of angles).
Naming and recognising the features of other polygons, including interior angles increasing by 180.
Angles on a straight line, around a point, vertically opposite.
Angles in parallel lines (alternate, corresponding, cointerior).

Statistic/Probability unit 1 -

The data handling cycle.
Bar charts, pictograms, pie charts.
Ungrouped and grouped frequency tables.
Vertical line, stem and leaf.
Ungrouped data - mean, mode and median, from lists and from a frequency table.
Measures of spread - range, interquartile range, outliers (by sight).
Compare data sets through graphs, central tendency and spread. Selecting the best graph for the job. Know how graphs can mislead.

Geometry/Measure unit 3 –

Bearings.
Defining area, counting squares, rectilinear area.
Area of triangles and quadrilaterals (incl. kite, parallelogram, trapezium).
Area of a circle, always give answers in exact form and rounded.
More complex areas of compound shapes, problems involving area.
Scale drawings.

Algebra unit 5 -

Evaluating expressions and formulae by substitution.
Writing formulae in words and letters, including SDT/DMV/PFA.
Generating sequences from formulae.
Rearranging linear and non-linear formulae.

Algebra unit 6 -

Plotting 2D coordinates in four quadrants.
Introduction to two-dimensional vectors.
Finding the midpoint of a line segment.
Expressing number relationships algebraically and graphically, as a means of picturing the relationship.
Plotting quadratic number relationships on a Cartesian grid.
Reading values of variables from a graph (including quadratic, piecewise linear, exponential and reciprocal graphs).
Drawing and recognising graphs of $y=n$ and $x=n$.
Finding integer gradients.
Use the gradient and y-intercept of a line to write the equation in the form $y = mx+c$.
Identify parallel lines from their equations.

Statistic/Probability unit 2 -

Scatter graphs.
Interpret and construct tables and line graphs for time series data.

Algebra unit 7 -

Generate terms of a sequence.
Find and use the nth term of an arithmetic (linear) sequence.
Recognise common sequences (triangular numbers, square numbers, cube numbers, Fibonacci-style sequences).

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KNOWING HOW...	• Understanding of mathematical equipment such as compass and protractor. • Use a Multiplication grid to expand and factorise. • Use of algebra tiles and double-sided counters to solve equations. • Vectors on a number line and ratio tables to scale recipes or shapes. • Ratio tables and number lines to understand proportion. • Read axis to convert two variables.	• Label 2D shapes. • Reason with angle rules. • Construct bar charts, pie charts, pictograms. • Construct and read frequency tables. • Use area formula for multiple shapes.	• Substitution. • Rearrange equations. • Plot coordinates. • Construct axis. • Use gradient formula. • Construct / read scatter graphs. • Construct / read time series. • Understand nth term rule. • Recognise sequences.
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ASSESSMENT	After each unit pupils complete a short assessment based on each bullet point from above. The test is split into 3 parts. Part 1 - skill questions and key definitions/literacy. Part 2 - more difficult reasoning questions. Part 3 - problem solving questions which also link to prior knowledge from other units. Pupils also sit two larger assessments; one is at the halfway point for the year and the other is during whole school exam week in June.	
	Assessment 1 - Solving problems with time accurately and by estimating. - Approximation. - Error intervals. - Truncation. - Algebraic notation. - Collecting like terms. - Simplifying indices. - Writing algebraic expressions - Points, lines, rays and segments, using a ruler to measure lines, labelling segments correctly. - Using a protractor to measure angles, labelling angles correctly, type of angles, and estimating angles. - Using a compass to draw circles and arcs; construct and equilateral triangle and a hexagon (60/120-degree angles). - Constructing triangles given SSS, SAS, ASA. - Constructing a perpendicular bisector. - Constructing 30, 45, 90 angles. - Simple loci. - Expanding a single bracket. - Simplifying expressions. - Factorising into a single bracket. - Expanding two simple binomials and the difference of two squares. - Writing more complex algebraic expressions. - Simple one-step solutions (four rules). - Two-step solutions (four rules), including with brackets. - Solving equations with the unknown on both sides. - Simple equations with the unknown in the denominator. - Forming and solving equations in a geometric or "real-life" context. - Direct and inverse proportion. - Comparing quantities (value for money, exchange rates). - Scaling up/down - recipes, shapes (simple enlargements). - Percentage increase and decrease, decimal multipliers. - Finding a percentage change.	Assessment 2 - Naming, labelling and recognising the features of triangles (including sum of angles). - Naming, labelling and recognising the features of quadrilaterals (including sum of angles). - Naming and recognising the features of other polygons, including interior angles increasing by 180. - Angles on a straight line, around a point, vertically opposite. - Angles in parallel lines (alternate, corresponding, co-interior). - Bearings. - The data handling cycle. - Ungrouped and grouped frequency tables. - Vertical line, bar charts, pie charts, pictograms, stem and leaf. - Measures of central tendency of ungrouped data - mean, mode and median. - Measures of spread - range, interquartile range, outliers. - Misleading graphs. - Area of triangles and quadrilaterals (incl. kite, parallelogram, trapezium). - Area of a circle, always give answers in exact form and rounded. - Areas of compound shapes. - Ratio notation and using ratio table. - Simplifying ratios. - Unit ratios, applications to scale drawings and maps. - Fractions and ratios. - Evaluating expressions and formulae by substitution, including inputs and outputs. - Generating sequences from formulae. - Rearranging linear formulae. - Rearranging non-linear formulae.