

**Mathematics Department**  
**Year 7 – Scheme of Work**

This is a working document and as such subject to change.

The scheme is arranged in two week blocks, and contains only the basic information about learning objectives. Due to the complexity of each school year, some overlap is inevitable.

Further information about teaching strategies etc, is available in the Year 7 support file.

Topic	Learning objectives
Numeracy	Place value Ordering whole numbers Four rules using whole numbers Approximation
Number facts	Primes, squares, factors, multiples, lowest common multiple, highest common factor

Topic	Learning objectives
Decimals	Decimal place value Ordering decimal numbers Four rules using decimal numbers
Problem solving	Solving word problems involving money <i>Simple word problems involving ratio</i>

Topic	Learning objectives
Directed numbers	Number lines Ordering directed numbers Problem solving including directed numbers Adding and subtracting of directed numbers
Logical skills	Using logical skills to solve numerical puzzles

Topic	Learning objectives
Order of operations	Ability to calculate using the principle of BODMAS Main focus on the order of brackets, $\times$ /, + -
Co-ordinates	Knowledge of language – origin, axes, quadrants Plotting points in 1 quadrant given co-ordinates Giving co-ordinates for specific points in 1 quadrant Plotting points in all 4 quadrants given co-ordinates Giving co-ordinates for specific points in all 4 quadrants

Topic	Learning objectives
Area and volume	Calculation of area by counting squares Area of a square and a rectangle by calculation Perimeter of a rectangle Area of complex shapes (still fairly simple)

	Knowledge of appropriate units and correct notation Extension: changing units of area <i>Volume of cuboids</i> $C \approx 3D$
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Topic	Learning objectives
Fractions	Definition of a fraction Drawing and identifying given fractions Equivalent fractions Simplifying fractions Conversion between mixed numbers and improper fractions Conversion between fractions and decimals Knowledge of decimal equivalents of common fractions e.g. $\frac{1}{2}, \frac{1}{4}$ Conversion between decimals and percentages, and simple fractions and percentages.

Topic	Learning objectives
Algebra	Inserting numbers into algebraic equations for calculation Writing formulae from written information Simplifying algebraic expressions Expanding simple brackets e.g. $3(x+6)$ Solving simple formulae e.g. $3n = 15, n+2 = 8$

Topic	Learning objectives
Angles	Right, acute, obtuse and reflex angles ( identifying) Angles on a straight line Complementary and supplementary angles Angles in a triangle Finding the missing angle – extension to algebraic problems Drawing and measuring angles
Data Collection	Tally charts, bar charts and pictograms

Topic	Learning objectives
Algebra	Forming equations from written instructions Solving more complicated equations
Symmetry	Line symmetry Rotational symmetry Extension: plane symmetry

Topic	Learning objectives
Probability	Outcomes of experiments Theoretical probability $P(A) = \frac{n(A)}{n(TOT)}$ Relative frequency

Topic	Learning objectives
Measurement	Metric units of length Measuring, drawing and estimating lengths Converting between units of length Units of mass Converting between units of mass
Construction and scale drawing	Scale drawing Constructing triangles using ruler and compass.

Topic	Learning objectives
Summarising and comparing data	Mean, median, mode Range Using the mean and range to compare distributions Finding mean for a frequency table

Topic	Learning objectives
Algebra	Review of Bodmas Substituting into formulae
Straight line graphs	Co-ordinates and straight line graphs Conversion graphs Interpreting graphs

Topic	Learning objectives
Number review	
Angles in parallel lines	Vertically opposite angles Drawing parallel lines Alternate angles interior angles

Topic	Learning objectives
Solids	Common names Drawing cuboids on squared and isometric paper Nets Volumes of cuboids

Topic	Learning objectives
Grouped data	Using tally charts Drawing and interpreting bar charts for grouped data Drawing and interpreting pie charts.

In addition a formally assessed investigational type task is planned for Term 2  
The focus of the activity is to develop investigative skills particularly pattern spotting and rule building