Year 7: Mathematics

Long Term Plan

Building on the foundations of key stage 2, the year 7 curriculum strengthens students' mathematical fluency and logical problem solving whilst building vocabulary to accurately articulate their reasoning. We strategically interleave multiple mathematical concepts into all lessons to reinforce the connections between the different strands of number, algebra and geometry.

	Learning Cycle	Key Concepts and Themes	Vocabulary
HT1	Working with place value Introducing algebra	• Use of the number line for representing relationships, ordering and comparing to include integers, fractions and decimals both positive and negative. • Familiarity with terminology and symbols used in algebra. Simplifying expressions by collecting like terms.	Place value, Equivalent, Numerator, Denominator, Proper/improper fraction, Algebra, Commutative, Term, Expression, Simplify
HT2	Lines and angles Probability scale Powers, roots and rounding	• Solving angle problems by using angle facts. • Use of the probability scale and use of fractions to represent probabilities. Using the sum-to-one and calculating probabilities of events not occurring. • Building on understanding of powers and roots to use laws of indices. Rounding to significant digits and estimating.	Intersect, Parallel, Perpendicular, Vertically opposite, Random, Probability scale, Equally likely, Outcome, Power, Root, Square, Cube, Significant digit
HT3	Formulae, sequences and rules Using measurements	• Substituting into formulae. Using growth patterns to understand number sequences and predict based on established patterns. • Convert between standard metric units for mass/distance/ capacity. Calculate perimeter/ area/surface area/volume for 2D and 3D shapes including compound shapes.	Formula/formulae, Substitute, Sequence, nth term, Common difference, Predict, Quadrilateral, Parallelogram, Rhombus, Trapezium, Compound, Cuboid, Surface area, Volume
HT4	Representing data Order of operations	• Use of tally/bar/pie charts and frequency tables including grouped data to display data and draw inferences and comparisons. • Use inverse operations to work backwards including powers and roots and understanding the role of brackets to change the order of operations. Use of BIDMAS. • Use of scientific calculators.	Frequency, Discrete, Continuous, Data, Interpret, Inverse, Order of operations (BIDMAS), Equals, Brackets
HT5	Linear equations Properties of shapes Ratio	• Representing and solving one-step and two-step (and more steps) linear equations. • Illustrate 2D-shapes using accurate measurements and correct conventions for labelling. • Use ratio notation and diagrams for comparing quantities.	Equation, Solve, Solution, Unknown, Radius, Diameter, Vertex, Edge, Face, Ratio, Simplest from
HT6	Graphs of linear functions Congruence and scale drawing	• Plotting coordinates in all four quadrants establishing rules for horizontal, vertical and then diagonal lines. Calculating gradient. • Accurately measuring lengths and angles. Using scale drawings. Establishing congruence in triangles.	Quadrant, Gradient, Origin, Axis/Axes, X/Y-coordinates, Similar (shapes), Congruent, (Line) segment, Scale, Enlargement

Skill Development	• learn to select the most appropriate methods for their calculations through reasoning about the structure of the numerical problems they face. • begin to look at both diagrammatic and algebraic representations to make sense of concrete and abstract problems and start to make connections between these representations and the number relationships they represent. • explore patterns and make conjectures, looking for proof or counter-examples to support their ideas • gain knowledge through their experience of multi-step problems including unfamiliar problems, relating their solutions to the context and evaluating different approaches