Long Term Plan

In year 8 we continue on students' understanding of linear algebra with a deeper look at solving equations and manipulating expressions. This year we look at fundamental geometry through angle reasoning, symmetry, transformations and construction. Students also meet sets and unions as well as averages and spread for the first time.

Year 8: Mathematics

	Learning Cycle	Key Concepts and Themes	Vocabulary
HT1	Arithmetic Linear equations Angles in parallel lines	• Use conventional methods for multiplying and dividing including decimals and negatives • Solve multi-step equations with unknown on both sides including brackets and fractions • Use rules associated with parallel lines to solve for missing angles	Integer, Decimal (place/number), Transform (both sides), Expand, Equals, Parallel, Alternate (angle), Corresponding (angle), Co-interior (angle), Allied (angle)
HT2	Sets and unions Percentages Sequences & relationships	• Use Venn and Carroll diagrams to represent data • Use fractions and percentages as operators. Calculate percentages with or without calculators. Define a quantity as a percentage of another including percentages greater than 100 • Establish nth term rules for linear sequences and use to generate sequences. Construct and interpret conversion graphs, representing relationship algebraically.	Venn diagram, Carroll diagram, Intersection, Union, Green, Linear (sequence), Arithmetic (sequence), Conversion (graph)
HT3	Symmetries and constructions Averages and spread	• Identify symmetries in polygons. Constructions with lines and angles using compasses. • Use averages and range to describe data and make inferences and comparisons. Construct and interpret scatter diagrams.	Reflective symmetry, Rotational symmetry, Polygon, Construct, Bisect, Average, Spread, Mean, Median, Mode, Range, Correlation
HT4	Multiples, factors and primes Linear equations	• List factors and multiples and identify HCF and LCM. Identify prime numbers. Decompose composite numbers into prime factor products. • Complete tables of values to represent linear equations and plot graphs moving on to use of gradient intercept for plotting and using y=mx+c	Factor (HCF), Multiple (LCM), Prime, Composite, Prime factor product, Linear graph, Gradient, Intercept
HT5	Accuracy with perimeter, area and volume Unequal division Algebraic expressions	• Use inequality notation to represent error intervals. Pupils build on their mensuration including rounding to appropriate levels of accuracy when solving problems and moving onto more complex shapes. • Use ratios to share quantities and solve problems with missing quantities. Use ratios 1:n and n:1 for comparison • Use common factors to factorise algebraic expressions with numbers and letters as common factors. Factorise an expression into the difference of two squares.	Inequality, Significant figures, Estimate, Prism, Cylinder, Unitary method, Factorise expressions
HT6	Translations, reflections and rotations Diagrams & constructions	• Translate, reflect and rotate shapes in the plane. • Use scale factors with similar shapes and to construct enlargements.	Translate, Vector, Reflect, Rotate, Enlargement, Scale factor

Skill Development	• select appropriate methods for their calculations based upon their own evaluation of their solutions • explore patterns and make conjectures, increasingly looking to generalise from particular problems • use diagrammatic and algebraic representations based upon the context of a problem and compare different approaches • gain knowledge through their evaluation of approaches to multi-step problems including unfamiliar problems