ORCHARD MEAD ACADEMY

Year 8 Maths Learning Map

- TERM 1 -

Processing and representing data
Year 8 students will extend their data handling skills by interpreting and creating bar charts, pie charts, and tally charts. They will also explore scatter diagrams and pictograms, identifying trends, spotting errors, and recognising misleading or biased representations.

Place Value, Ordering and Rounding
Students will deepen their understanding of place value across very large and very small numbers. They will refine skills in rounding, estimating, and ordering numbers, developing confidence in applying these techniques to solve increasingly complex problems.

Types of Number
Students will work with indices and begin applying the laws of indices with the same base. They will continue to explore primes, factors, multiples, and roots, strengthening number sense and laying a robust foundation for algebraic reasoning and problem-solving.

Algebraic notations and expressions
Students will advance their algebra skills by manipulating expressions, collecting like terms, and using formulae. They will practise factorising and expanding linear expressions and begin solving both equations and inequalities, preparing for more complex algebraic concepts.

PRIOR LEARNING

These topics build directly on Key Stage 2 and earlier Year 7 learning, extending basic number operations, simple data handling, and introductory algebra into more formal representations, generalisation, and reasoning with symbols, accuracy, and structure.

- TERM 2 -

Ratio
This unit focuses on understanding and using ratio notation, simplifying ratios, solving ratio problems, comparing ratios and rates, and linking ratio to scale, direct proportion and understanding gradient from graphs

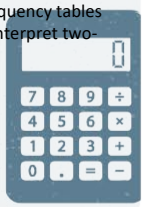
Coordinates and Graphs
Year 8 students learn to plot in all four quadrants and begin to explore and use linear graphs, including the forms $y = x$, $y = kx$ and $y = mx + c$, and relate them to tables and equations. They start to explore non-linear graphs briefly at the end of this unit.

Symmetry and reflection
Students will not only perform reflections, but link this to previous units to develop more conceptual understanding. They will now begin to relate symmetry to geometric properties.

Area, Volume and Density
Year 8 students calculate areas of 2D and compound shapes, find volumes of prisms, convert metric units, understand density as mass/volume, and solve related problems.

Standard Form
Students write very large and very small numbers using powers of 10, convert between ordinary and standard index form, compare and order these numbers and confidently calculate with them.

Interpret and Represent Data
Students confidently draw and interpret scatter graphs, describe correlation, use lines of best fit to make predictions, work with frequency tables and grouped data, and construct/interpret two-way and other tables.



PRIOR LEARNING

These units covered in Spring Term of year 8 build on KS2 and Year 7 foundations in number, proportion, basic algebra, geometry and data handling, extending pupils' understanding towards more formal representations, generalisation, graphical interpretation, and multi-step problem solving.

- TERM 3 -

Angles in parallel lines and polygons
Students learn more notation and properties to calculate missing angles in parallel lines, explore angle relationships in quadrilaterals and polygons, and use angle sums of interior/exterior angles to solve problems.

Tables and probability
Students will construct and use sample spaces, calculate probabilities of events represented in two-way tables and Venn diagrams, interpret data in tables, and apply probability reasoning to solve problems

Circles
Students will understand circle vocabulary, use π to calculate circumference and area, find areas and perimeters of circle parts (semicircles/quarters), and solve problems with compound shapes involving circles

Graphs and Charts
Students build on their learning in Term 1 and will begin to choose appropriate diagrams, represent and interpret grouped data, compare distributions, find ranges and identify misleading graphs.

Equations and Inequalities
Again, developing from Term 1, students will form and solve one- and two-step equations - including with brackets, solve inequalities, represent inequalities on number lines, and solve equations and inequalities with unknowns on both sides.

PRIOR LEARNING

The units covered in Year 8 Term 3 build on Year 7 and KS2 foundations in number, basic algebra, geometry, data handling, and probability, extending students' skills in formal reasoning, problem solving, graphical interpretation, and applying properties to more complex shapes, tables, and equations.