ORCHARD MEAD ACADEMY

Year 11 (F) Maths Learning Map

- TERM 1 -

Substitution
Students will replace a variable in an expression or formula with a given value, then simplifying to calculate a result. It reinforces understanding of algebraic expressions and prepares students for solving equations and real-life problem-solving scenarios

Linear and Non-Linear Graphs
Students learn to represent linear relationships using equations and graphs, interpret gradients and intercepts, and identify parallel and perpendicular lines. Graphing skills develop visual understanding of solutions and real-world trends and students learn to recognise potential misinterpretations.

Fractions, Decimals and Percentages
This topic focuses on converting between fractions, decimals, and percentages, performing calculations with each form, comparing values, and applying them to real-life contexts such as discounts, interest, and proportions.

Standard Form
Students will express very large or small numbers efficiently as a product of a number between 1–10 and a power of ten. Students practice converting, calculating, and applying standard form in scientific and financial contexts.

Simultaneous Equations
Students will solve two or more equations together to find values that satisfy all equations. Methods include substitution, elimination, and graphical interpretation, strengthening algebraic reasoning and problem-solving skills.

Compound Measures
Students calculate rates involving two different measures, such as speed, density, and pressure. Understanding ratios, unit conversion, and formula application is important for solving multi-step real-world problems accurately.

PRIOR LEARNING

These topics build on Year 10 foundations in algebra, number, and geometry. Substitution extends earlier formula work; linear and non-linear graphs develop plotting and interpreting skills; fractions, decimals, and percentages reinforce calculation and conversion; standard form applies prior number sense to very large or small values; simultaneous equations extend equation-solving strategies; compound measures deepen understanding of ratios, rates, and multi-step problem-solving.

- TERM 2 -

Area and Volume
This unit covers calculating surface areas and volumes 3D solids. Students learn and apply formulae, problem-solving, and reasoning to 3D shapes. This incorporates other skills, developing spatial awareness and measurement accuracy.

Pythagoras and Trigonometry
Students apply Pythagoras' theorem in right-angled triangles and use trigonometric ratios (sine, cosine, tangent) to find unknown sides and angles, building essential skills for geometry and real-life applications.

Angle Facts
Angle facts covered include corresponding, alternate and vertically opposite. As well as interior/exterior angles in polygons. Mastery of these in a variety of contexts helps students' reason geometrically, solve equations, and tackle complex geometric proofs.

Averages and Frequency Tables
Students calculate mean, median, mode, and range from raw data and frequency tables. Skills include interpreting data, comparing datasets, and understanding the impact of distribution on averages.

Probability
Probability introduces likelihood as a fraction, decimal, or percentage, covering experimental and theoretical approaches. Students predict outcomes, calculate probabilities, and reason logically about chance events including dependent and independent events.

Transformations and Constructions
Covers translations, reflections, rotations, enlargements, and geometric constructions using compasses and rulers. Students develop spatial reasoning, symmetrical understanding, and precision in drawing shapes accurately.

PRIOR LEARNING

Term 2 further incorporates foundations from Year 10, in geometry, statistics, and data handling. Area and volume extend measurement and formula application to 3D shapes; Pythagoras and trigonometry develop right-angle reasoning; angle facts reinforce geometric relationships; averages and frequency tables build on data interpretation; probability extends likelihood concepts; transformations and constructions apply earlier symmetry, coordinate, and drawing skills for precise geometric reasoning

- TERM 3 -

Final Push

Following the Term 1 and Term 2 mock examinations, your teachers will use Question Level Analysis to identify areas where extra practice is needed. This means that Term 3 lessons will focus on the most important topics for your summer exams, ensuring that mistakes are addressed, gaps in learning are closed, and you are gaining confidence with exam-style questions.

The aim of Term 3 is to ensure you are fully prepared for your summer examinations. Teachers will carefully plan lessons to target the areas where you are most likely to gain marks and make the biggest improvements. You will have opportunities to practise questions similar to those you will see in the exams, allowing you to become familiar with different question types and formats.

By focusing on high-priority content and regularly reviewing your understanding, you will be able to build accuracy, speed, and confidence in applying your knowledge. Term 3 is designed to help you strengthen your skills, reduce errors, revise content better at home and approach your summer examinations with a clear understanding of what is expected. This targeted preparation will give you the best chance to achieve your potential in Maths.

PRIOR LEARNING

Term 3 builds directly on skills developed in Years 9 and 10. Students will apply prior algebra, number, and formula knowledge when solving equations and substitution problems, use earlier graphing, geometry, and measurement skills in area, volume, and trigonometry tasks, and extend data handling, averages, and probability understanding. Previous experience with transformations, constructions, ratios, and rates supports problem-solving and real-life applications, ensuring confidence with exam-style questions