Year 10 Higher 2024/25

Using their strong mathematical roots from key stage 3, students will extend their mathematical knowledge and skills by learning how to tackle more demanding contextual and often abstract GCSE problems that require a firm grasp of, data, geometry, and particularly algebra.

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge & Skills Overview	**Percentages** Solve a full range of contextual percentage problems with & without a calculator, including calculating repeated percentage change. **Linear Graphs** Find and use the equation of a straight line to begin solving simple coordinate geometry problems on an axes grid. **Analysing Data** Hypothesise & learn sampling techniques. Collect &, graphically display data, calculate statistics, analyse and evaluate findings. Apply this principle to real data	**Angles & Reasoning** Know and use formal geometric notation to articulate reasoning when solving angle problems with parallel lines polygons. **Ratio** Move fluently between ratio and fractions. Solve a range of problems using ratio. Begin to form & solve equations from ratio problems. **Triangles** Use a combination of Pythagoras and trigonometry to solve a range of geometric problems in 2D.	**Accuracy & Bounds** Find upper and lower bounds of accuracy in $+ - \times \div$ calculations in context. **Advance Fractions** Perform $+ - \times \div$ with algebraic fractions. Rationalise the denominator of a fraction **Proportionality** Use direct & inverse proportion to solve complex problems. Express relationships using algebra	**Simultaneous Equations** Form & solve linear simultaneous equations algebraically & graphically. **Non-Linear Graphs** Explore the graphs of quadratics, cubic, reciprocals, exponentials & circles **Solving Quadratics** by factorising, using the formula, rearranging, and iteration.	**Probability** of more than one event using two-way tables, sample space diagrams, tree diagrams & Venn diagrams – Set Theory	**Advance Area & Volume** Spheres, cones, pyramids including complex compound 3D shapes. Explore area & volume proportion problems with similar 3D solids. Calculate arc lengths & area of sectors.
Opportunities for Recall & Retrieval of Prior Learning	**From Year 9** • Fraction, decimal & percentage equivalence • Proportional thinking • Linear sequences & equations	**From Year 9** • Changing the subject • Substitution • Proportion with Trigonometric ratio • Area & volume • Surds with Pythagoras	**From Year 9** • $+ - \times \div$ fractions • Manipulate algebra • Proportion tables • Area & volume • Changing the subject	**From Year 9** • Changing the subject • Linear equations • Linear graphs • Factorise quadratics • Plotting coordinates	**From Year 9** • Fractions, decimals, percentages & ratio equivalence	**From Year 9** • FDP & Ratio • Area & volume • Proportion tables • Rearranging
	From Year 10 • Use of percentages & fractions with analysing data	**From Year 10** • Use fractions & percentages with ratio • Angle problems with trigonometry	**From Year 10** • Bounds with % problems • Ratio in Proportionality	**From Year 10** • Solving equations involving fractions & graphs	**From Year 10** • trigonometric problems • Percentages with probability	**From Year 10** • Bound problems in area & volume • Manipulating quadratic equations from area & volume problems

Year 10 Foundation 2024/25

Using their strong mathematical roots from key stage 3, students will extend their mathematical knowledge and skills by learning how to tackle more demanding contextual GCSE problems that require a firm grasp of, data, geometry, algebra, and particularly number, ratio and proportion

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge & Skills Overview	**Ratio & Proportion** Use ratio skills & proportion tables to solve multi-step contextual problems. **Sequences** Solve a range of abstract and contextual problems involving linear patterns or number sequences. Begin to work with quadratic sequences. **Linear Graphs** Solve problems by applying knowledge of abstract linear graphs to real life contexts involving rates that may be described graphically	**Analysing Data** Hypothesise, collect data, calculate statistics, analyse and present data, evaluate findings. Apply this principle to real data. **Displaying Data** Construct and interpret a range of different graphs and charts **Angles & Reasoning** Begin to use formal notation and geometric reasoning statements to explain the steps taken in angle problems. **Indices** Apply the index laws to numerical or algebraic expressions. Include calculating in standard form.	**Indices** Apply the index laws to numerical or algebraic expressions. Use these skills to build on your understanding of expanding and factorising. Include calculating in standard form. **Percentages** Solve contextual problems involving the full range of percentage skills – both with, or without a calculator. **Further Expressions** Extend Y9 algebraic manipulation skills to work with quadratic expressions. Learn to solve a mix of problems.	**Further Proportion** Use direct proportion to work with recipes, currency conversion, and speed-distance-time **Probability** of more than one event using two-way tables, sample space diagrams, and Venn diagrams. **Area & Volume** Calculate the area of 2D shapes including circles. Find the surface area and volume of 3D prisms. Work with compound units like density and pressure	**Inequalities & Equations** Represent inequalities in a variety of forms. Create & solve linear inequalities. **Accuracy & Bounds** Find upper and lower bounds of accuracy in $+ - \times \div$ calculations in context.	**Pythagoras & Trigonometry** Use a combination of Pythagoras and trigonometry to solve a range of geometric problems in 2D. **Vectors** Understand column vectors as a measure of direction & magnitude. Calculate with column vectors
Opportunities for Recall & Retrieval of Prior Learning	**From Year 9** • Four operations • Manipulate algebra • Solving equations • Decimals & % with sequences	**From Year 9** • Four operations • Angle facts • Index rules • Standard form	**From Year 9** • Index rules • Standard form • Fractions & decimals	**From Year 9** • Ratio • Proportion tables • Fractions, decimals & percentages • Area & perimeter	**From Year 9** • Ordering decimals • Solving equations • Rounding numbers • Estimation	**From Year 9** • Pythagoras' theorem • Manipulate algebra • Calculations with negatives
	From Year 10 • Link sequences with linear graphs	**From Year 10** • Manipulate algebra	**From Year 10** • Percentage problems from collected data	**From Year 10** • Ratio & proportion • Percentages with probability and area & volume	**From Year 10** • Bound problems with percentages, perimeter, area & angles	**From Year 10** • Angles, perimeter & area with Trig. & Pythagoras' theorem