

Y10H ROADMAP - Mathematics

Subject Aim: The aim of the Year 10 Higher Tier Maths curriculum is to deepen understanding and develop fluency in the advanced topics required for success at GCSE Higher level. It focuses on mastering key skills, applying mathematical reasoning, and solving complex problems through structured and personalised practice. The curriculum encourages students to make connections across topics, apply maths to real-life and abstract contexts, and prepares them for the demands of Year 11 and beyond.

TERM 1	Students will develop Year 9 algebra through advanced manipulation, including expanding, factorising and working with algebraic fractions. They will then solve equations and inequalities and rearrange increasingly complex formulae. Finally, students will explore quadratic expressions and equations through factorisation, completing the square and the quadratic formula. These units prepare students for Year 11 and higher GCSE work involving functions, algebraic proof, simultaneous equations, quadratic graphs and multi-step problem solving.
TERM 2	Students will extend Year 9 percentage work to solve problems involving repeated change, reverse percentages, growth and decay. They will then develop ratio and scale, including combining and sharing ratios and applying scale factors to similar shapes. Finally, students will strengthen their fraction skills in numerical and algebraic contexts. These units prepare students for Year 11 and higher GCSE work involving compound interest, direct and inverse proportion, similarity, algebraic fractions and multi-step proportional reasoning.
TERM 3	Students will strengthen non-calculator methods with fractions, surds and standard form. They will then extend straight-line graph work to equations, gradients and parallel or perpendicular lines. Students will develop probability through combined events, tree diagrams and conditional situations before exploring rounding, estimation, error intervals and bounds. These units prepare students for Year 11 and GCSE work involving algebraic proof, graphical solutions, iterative processes, independent events and bound calculations.
TERM 4	Students will extend perimeter, area and volume work to compound shapes, circles, prisms and other 3D solids. They will then interpret and represent data using statistical diagrams, including cumulative frequency graphs, box plots and histograms. Finally, students will explore quadratic, cubic and reciprocal graphs, linking their equations to key features. These units prepare students for Year 11 and higher GCSE work involving similarity, complex mensuration, statistical comparisons, graph transformations and graphical solutions.
TERM 5	Students will apply angle facts to polygons, parallel lines, bearings and more complex geometric problems. They will then interpret and construct statistical graphs and diagrams, including scatter graphs, frequency polygons and time series. Finally, students will develop vector notation and use vectors to describe geometric relationships and construct proofs. These units prepare students for Year 11 and higher GCSE work involving circle theorems, constructions, statistical interpretation, transformations and vector geometry.
TERM 6	Students will deepen their understanding of factors, powers and surds, including simplifying expressions and rationalising denominators. They will then extend Pythagoras' theorem and trigonometry to non-right-angled triangles using the sine rule, cosine rule and area formula. Finally, students will solve simultaneous equations algebraically and graphically, including linear and quadratic pairs. These units prepare students for Year 11 and higher GCSE work involving exact values, 3D geometry, bearings, functions and complex algebraic problem solving.



ASSESSMENT

All lessons will assess understanding through a range of activities, including diagnostic questions, mini whiteboard tasks, and find-and-fix activities. Lessons are regularly punctuated with hinge questions, key statements, and opportunities for discussion. In addition to these ongoing checks for understanding, students will complete formal assessments once each term and sit their Year 10 mock exams in Term 6.



INDEPENDENT LEARNING

Sparx Maths is used throughout the year to support independent learning, revision, and personalised "fix-up tasks" following assessments. Weekly independent learning on Sparx is closely aligned with lesson content and includes bespoke tasks tailored to each student's needs, with both the content and level of difficulty personalised. These tasks enable students to consolidate and revisit material most relevant to their individual progress. Knowledge Organisers are also used weekly to reinforce key vocabulary and support learning across the curriculum.



ENRICHMENT

- Maths challenge activities.
- Maths' relays allowing opportunity for problem solving.

What Next? This year has built on previous knowledge to allow students to solve more complicated multi-step problems. The next year builds on this knowledge whilst time is allowed for retrieval and exam practice.