Y10F ROADMAP - Mathematics

Subject Aim: The aim of the Year 10 Foundation Maths curriculum is to build confidence and fluency in the core topics needed for success at GCSE Foundation level. It focuses on securing essential skills, developing problem-solving strategies, and reinforcing understanding through structured, personalised practice. The curriculum supports students in applying maths to real-life contexts and prepares them effectively for Year 11 exams.

TERM 1

How do I invest my money wisely?

In the first two Foundation units of Year 10, students build on their knowledge of percentages by tackling percentage change, reverse percentages, and repeated percentage problems, particularly in financial contexts. Calculator methods are embedded throughout to support accuracy and efficiency. The second unit focuses on surface area and volume, extending previous learning to include the formulae for pyramids, cones, and spheres. Students apply these skills to real-life problems, reinforcing their understanding of 3D shapes and measurements.

TERM 2

How do I solve simultaneous equations?

This term introduces students to solving simultaneous equations using both graphical and algebraic methods, with elimination taught before substitution. Students then revisit and extend their understanding of rearranging formulae, building on previous work with changing the subject. Trigonometry is introduced in the context of right-angled triangles, with a focus on understanding sine, cosine, and tangent as ratios. The term ends with an introduction to loci, encouraging accuracy and logical thinking through practical applications.

TERM 3

Ratio, Fractions and Number Methods

A key focus this half term is developing fluency in ratio and fractions. Building on Year 7–9 work, students will share in a ratio, link ratios to fractions, and apply all four operations with fractions in increasingly complex contexts. They will also consolidate non-calculator methods, including the four operations with integers and decimals, order of operations, and solving multi-step problems. The emphasis is on accuracy, efficiency, and confident application of core number skills.

TERM 4

Probability, Estimation and Measures

Students will develop their understanding of probability, building on prior work to include sample spaces, relative frequency, and tree diagrams. They will also consolidate rounding and estimation, including significant figures and calculator use. The unit then focuses on perimeter, area, and volume, extending Key Stage 3 knowledge to include compound shapes, circles, and surface area. The emphasis is on applying mathematical skills accurately in a range of contexts.

TERM 5

Data, Graphs and Geometry

This half term focuses on interpreting and representing data. Building on earlier work, students will calculate averages from frequency tables, explore sampling, and interpret scatter graphs. They are introduced to non-linear graphs, including quadratic graphs and estimating solutions graphically. The unit also develops geometric reasoning through angle rules, including angles in polygons and parallel lines, alongside representing data using a range of charts.

TERM 6

Vectors, Number and Trigonometry

Students will develop their understanding of vectors, including notation, translation, and combining vectors. They will revisit number properties, including factors, multiples, primes, and powers, building on prior learning to include indices and roots. The unit concludes with Pythagoras' theorem and an introduction to trigonometry in right-angled triangles. The emphasis is on connecting algebraic, geometric, and numerical reasoning.

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.

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