Y10 ROADMAP - MATHEMATICS

Subject Aim: The aim of Maths for Year 10 is to allow students to become fluent in the fundamentals of mathematics, reason mathematically by conjecturing relationships and solve problems by applying your mathematics to a variety of routine and non-routine problems, encouraging independence and more resilience in their way of working. This year's topics build on previous units whilst allowing students to access the more advanced GCSE topics.

TERM 1 F

Why are scale models an enlargement?

Building on their experience of enlargement and similarity in previous years, this sub-unit extends students' experience and looks more formally at dealing with topics such as similar triangles. Parallel line angle rules are revisited to support establishment of similarity. Higher attaining students will study enlargement using negative scale factors, and also look at establishing that a pair of triangles are congruent through formal proof.

TERM 2

How do I draw a picture of equation?

Students will have covered both equations and inequalities at KS3 and this unit offers the opportunity to revisit and reinforce standard techniques and deepen their understanding. Looking at the difference between equations and inequalities, students will establish the difference between equations and inequalities and establish the difference between a solution and a solution set. They will also explore how number lines and graphs can be used to represent the solutions to inequalities.

TERM 3

Why do planes not crash into one another?

As well as the formal introduction of bearings, this unit provides a great opportunity to revisit other materials and make links across the mathematics curriculum. Accurate drawing and use of scales are covered, as is the use of the parallel line angles rules; all of these have been covered at KS3. Students will also reinforce their understanding of trigonometry and Pythagoras from earlier this year, applying their skills in another context as well as using mathematics to model real life situations.

TERM 4

How do I ensure I get the best deal at the supermarket?

This unit builds on KS3 work on ratio and fractions, highlighting similarities and differences and links to other areas of mathematics including both algebra and geometry. The focus is on reasoning and understanding notation to support the solution of increasingly complex problems that include information presented in a variety of forms. The bar model is a key tool used to support representing and solving these problems.

TERM 5

Is the national lottery worth the money?

This unit on builds on the KS3 study of probability. Tables and Venn diagrams are revisited and understanding, and use of tree diagrams is developed in both tiers, with conditional probability being a key focus for Higher tier students. This unit also provides an opportunity to revisit fraction arithmetic and conversion between fractions, decimals and percentages.

TERM 6

How do I check my answers make sense?

This block revises and builds on KS3 content for calculation. Mental methods and using number sense are encouraged alongside the formal methods for all four operations with integers, decimals and fractions. Where possible this is be covered through problems, particularly multi-step problems in preparation for GSCE. The limits of accuracy and truncation are explored and compared to rounding, and Higher tier students will look at all aspects of irrational numbers including surds.

ASSESSMENT

- Most lessons will test your knowledge using a variety of activities including diagnostic questions, find and fix and GCSE style problems.
- Each and every lesson will be punctuated by various hinge questions, statements and discussion opportunities.
- For each unit, students will be given a short Mini-Assessment assessing their understanding of the key vocabulary, knowledge and concepts.
- More formal assessments will be carried out this year including a full set of GCSE papers for students PPEs in term 5.

INDEPENDENT LEARNING

- Knowledge Organisers are expected to be used weekly to support the learning and recap of key vocabulary as the course progresses.
- There will be various independent learning challenges set each half-term which will allow students to develop their subject specialist skills as well as knowledge and understanding.
- There will be opportunities to practice crucial retrieval and revision skills with various resources and templates provided.
- Sparx Maths will be used as an online resource to aid independent learning.

ENRICHMENT

- Maths challenge activities.
- Maths' relays allowing opportunity for problem solving.
- Bletchley Park trip term 4

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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