Y9 ROADMAP - MATHEMATICS

Subject Aim: The aim of our Year 9 curriculum is to build on the knowledge and skills of all aspects of Mathematics including number, algebra, geometry, proportion and statistics learnt during Year 7 and 8. Students will be expected to be proactive in their learning and take responsibility for practising any skills and concepts which they find more challenging.

TERM 1

How can I graph help me decide which taxi firm to use?

This block builds on Y8 content where students plotted simple straight-line graphs. They now study y=mx+c as the general form of the equation of a straight line, interpreting m and c in abstract and real-life contexts, and reducing to this form in simple cases. This will be explored further in future blocks when students rearrange formulae. Higher attaining students will also consider inverse relationships and perpendicular lines.

TERM 2

What is the volume of the Maths' classroom?

This is the first-time students have studied 3D shapes formally in Key Stage 3. We revisit key vocabulary and enhance concepts from their Key Stage 2 studies. Students will be supported using practical equipment such as cubes, squared and isometric paper. As well as surface area and volume, students will also explore plans and elevations. For higher attaining students there are lessons on investigating volumes of other 3D shapes.

TERM 3

How do we calculate with numbers the size of a galaxy?

Students will develop their knowledge of the number system to include rational and real numbers, with the higher strand also looking at simple surds. The block provides plenty of opportunity for students to revisit and practise their number skills both with and without a calculator as necessary. Standard form and HCF/LCM are also covered.

TERM 4

How do I read a bank statement?

Students practise their numbers skills in various financial contexts in this block. The language of financial mathematics, already introduced in years 7 and 8 is further developed. Simple ideas of tax and wages are introduced, and the percentages studied in the previous blocks are applied in various contexts including both simple and compound interest.

TERM 5

Who could use Pythagoras' Theorem?

Students revise squares and square roots before moving on to investigate the relationship between the sides of a right-angled triangle. Student explore using Pythagoras' theorem in a variety of contexts, including coordinate axes and a higher step is including using 3D shapes. There is an opportunity to revisit this learning in future units when students explore similarity in right angles triangles as an introduction to trigonometry.

TERM 6

What quantity of spice would you need to make a curry for the class?

Building on students' experiences in previous years, here they solve all types of ratio problems and make the links with direct proportion and graphs. Students formally study inverse proportion for the first time, and if following the Higher strand, they also look at graphs of inverse relationships. Students also revisit "best buys" comparing unit pricing from earlier in the year with alternative methods such as using scaling.

ASSESSMENT

- Most lessons will test student knowledge using a variety of activities including diagnostic questions and find and fix.
- 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.
- At least twice a year students will sit more formal style assessments including the end of year assessment 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.
- Maths trip term 6 SPARK! Engineering festival Lincoln

What Next? This year has built on the basic steps for Mathematics. Next year students will build on this to learn some more of the key skills needed for Maths before applying these skills to solve multi-step problems.

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