Y7 ROADMAP - MATHEMATICS

Subject Aim: The aim of our Year 7 curriculum is to allow all students to become fluent in the fundamentals of mathematics, reason mathematically by conjecturing relationships and solve problems by applying their mathematics to a variety of routine and non-routine problems. All aspects of maths are covered, Number, Algebra, Geometry, Statistics and Ratio/Proportion.

TERM 1

How do I draw a graph of a sequence of numbers?

We start year 7 with sequences as the exploration and representation of patterns is a fundamental aspect of mathematics. Students are shown a variety of ways to represent a sequence with the intention of helping them appreciate the interconnected nature of the mathematics. The focus of this term is developing a deep understanding of the basic algebraic forms, with more complex expressions being dealt with later. Function machines are used alongside bar models and letter notation, with time invested in single function machines and the links to inverse operations before moving on to series of two function machines and substitution.

TERM 2

When is equal not equivalent?

In this section students are introduced to forming and solving one step linear equations, building on their study of inverse operations. The equations met will mainly require the use of a calculator, both to develop their skills and to ensure understanding of how to solve equations rather than spotting solutions. This work will be developed when two step equations are met in the next place value unit and throughout the course. The unit finishes with consideration of equivalence and the difference between this and equality, illustrated through collecting like terms.

TERM 3

Can we use fractions to compare test results?

Building on the recent work on decimals, the key focus is for students to gain a deep understanding of the links between fractions, decimals, and percentages so that they can convert fluently between those most commonly seen in real life. Whilst looking at percentages, pie charts will be introduced. In addition, various forms of representation of any fraction will be studied, focusing on equivalence, in an appropriate depth to the current attainment of students; this will be revisited later in the year.

TERM 4

How do I manage my finances?

Formal methods of addition and subtraction students have developed at KS2. Problems are drawn from the contexts of perimeter, money, interpreting bar charts and tables and looking at frequency trees. We then move to the study of multiplication and division, so allowing for the study of forming and solving of two step equations without a calculator. Unit conversions will be the main context as multiplication by 10, 100 and 1000 are explored. We also distinguish between multiples and factors, substitution and simplification are also revised and extended.

TERM 5

Can 110% of a class get this question correct?

This unit focusses on the key concept of working out fractions and percentages of quantities and the links between the two. We then move to directed number. Students will only have had limited experience of directed number at primary school, so this unit is designed to extend and deepen their understanding of this. Multiple representations and contexts will be used to enable students to appreciate the meaning behind operations with negative integers rather than relying on a series of potentially confusing "rules".

TERM 6

Why do fractions sometimes behave in an improper manner?

This unit builds on the Autumn term study of "key" fractions, decimals, and percentages. It will provide more experience of equivalence of fractions with any denominators, and to introduce the addition and subtraction of fractions. We then move to geometric reasoning. This unit covers basic geometric language, names, and properties of types of triangles and quadrilaterals, and the names of other polygons. Angle rules will be introduced and used to form short chains of reasoning.

ASSESSMENT

- Most lessons will test knowledge using a variety of activities including diagnostic questions, exit tickets 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.
- Students will be assessed at the start of the year and at the end of the year through more formal assessments.

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 term which will allow you to develop your 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 platform to support your independent work.

ENRICHMENT

- Maths challenge activities.
- Maths' relays allowing opportunity for problem solving.
- Maths City trip in term 3.

What Next?
Having developed a grounding in key subject specialist skills in Year 7, you will then go on to apply and develop these further in Year 8 building on the knowledge and skills learnt as part of the spiral curriculum offered within Maths. You will start to prove some of your answers using logic and reasoning.

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