

Maths Curriculum Vision

Why should students learn your subject?

Maths provides the foundation and building blocks of many other subjects. It encourages the use of logical thinking skills and reasoning, as well as the ability to spot patterns. It allows students to engage in problem solving and build a sense of resilience and patience whilst doing so. Maths skills are required in order to model most real life situations.

We want our pupils to leave QEGS prepared to utilise the skills they develop in maths to solve seen and unseen problems and apply logical reasoning to make informed decisions. The powerful knowledge that our students gain through their maths lessons is essential for all our pupils. Every one of them must leave us with a confidence and fluency that sets them up to manage their own finances and everyday lives successfully. The problem solving, critical thinking and reasoning skills are also essential in a great number of careers, including many that are not immediately obvious.

What is the core knowledge in your subject that all students should understand?

The maths curriculum is divided into six strands:

The structure of the number system – We want our students to have a deep understanding of our number system and the patterns within it; we know that being able to do so supports their success in every other area of mathematics and in adult life. Understanding of number leads to a better understanding of how we can use algebra to solve problems and generalise.

Operating on Number – Learners need to be able to calculate and estimate accurately and fluently because we know that being able to do so supports their success in everyday life. Building on this, we want learners to be able to apply this knowledge to algebra so they can use it as a tool for solving problems.

Multiplicative Reasoning – We want our pupils to understand how and why multiplicative relationships arise and be able to apply them to practical situations to solve problems. A strong understanding of this strand will also support students studying economics, science, and a wide range of other subjects.

Sequences and graphs – Students need to be able to represent relationships graphically and see the usefulness of doing so. They need to recognise the additional properties and information that can be derived from a graph to help assess real life situations. A good understanding of sequences will also support pupils in spotting patterns and trends and predicting future values.

Statistics and probability – It is important that all pupils are able to represent data and calculate measures that allow them to analyse trends and differences, as this will be a skill needed throughout their lives. They should be aware that some representations of data can be misleading and be able to choose representations that are appropriate for their data and their audience. We want pupils to understand the role probability plays in many careers, allowing us to make predictions and plan appropriately for all possible outcomes. We also

want them to have a sense of the limitations of probability and our knowledge of what will happen next.

Geometry – We want students to be able to use and construct geometrical shapes as well as understand their properties to gain a full picture of a 2D or 3D situation. In addition, we want learners to be able to work with and use perimeter, area and volume calculations to solve real life problems relating to shape. This also sets pupils up for success in a wide range of other subjects from art to physics.

What do students do with their knowledge to demonstrate their understanding?

Our teachers aim to ensure that students have a deep understanding of the topics they cover and are not reliant on quick, procedural tricks. In order to achieve this, students will be set tasks that encourage them to think and apply their deep understanding.

Students will become accustomed to problem solving, be unafraid to make mistakes and have strong resilience when tackling questions. Students are asked stretching questions about concepts and every student is expected to answer in full sentences using clear, accurate, mathematical language. Students are encouraged to take part in maths team and individual competitions and other extracurricular activities such as stick-bridge building to support their enjoyment of maths.

To support pupils in developing links between topics, pupils will practise shared representations to link concrete, pictorial and abstract representations.

