

KS3 Curriculum: Mathematics

Department Vision

The aim of our Key Stage 3 curriculum is to create fluent and independent problem solvers who are resilient in adversity whilst also promoting a love of mathematics.

Intent

1. To produce fluent mathematicians from a young age
2. To provide students with a solid foundation to build upon as they progress through their academy years
3. To prepare students for Key Stage 4 with the skills to reason and solve problems logically

Sequence of Learning

Our curriculum is designed so that strong foundations are in place before moving onto more complex content. A strong focus on interleaving topics ensures that students get the opportunity to see similar content over the course of the academic year and not just within a particular term. This helps to embed content in the long-term memory providing students with a stronger basis to recall prior knowledge from as they move through and beyond Key Stage 3.

Building Citizens of the World

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. Our curriculum aims to provide a foundation for understanding the world, the ability to reason mathematically, and appreciation for the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Implementation

The programme of study for Key Stage 3 is organised into apparently distinct domains, but students studying Mathematics at Q3 Academy Great Barr build on Key Stage 2 and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Students should also apply their mathematical knowledge in science, geography, computing and other subjects. Decisions about progression are based on the security of students' understanding and their readiness to progress to the next stage. Regular pre-tests, low-stakes recall quizzes, progress checks, feedback lessons and assessments provide good evidence for this. Students who grasp concepts rapidly are challenged through being offered rich and sophisticated problems before any acceleration through new content in preparation for Key Stage 4. Teachers of those students/groups who are not sufficiently fluent should consolidate their understanding through additional practice before moving on.

Inclusion

Our curriculum is designed for students of all abilities. Each big picture is designed to ensure students are subject to the required prerequisite knowledge, as well as the next steps required to make progress in each topic.

KS4 Curriculum: Mathematics

Department Vision

The aim of our Key Stage 4 curriculum is to create fluent and independent problem solvers who are resilient in adversity whilst also promoting a love of mathematics.

Intent

1. For students to become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that students develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
2. To develop students who can reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
3. To develop students so they can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Sequence of Learning

Our curriculum is designed so that strong foundations are in place before moving onto more complex content. A strong focus on interleaving topics ensures that students get the opportunity to see similar content over the course of the academic year and not just within a particular term. This helps to embed content in the long-term memory providing students with a stronger basis to recall prior knowledge from as they move through and beyond KS4.

Building Citizens of the World

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. Our curriculum aims to provide a foundation for understanding the world, the ability to reason mathematically, and appreciation for the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Implementation

The programme of study for Key Stage 4 is organised into apparently distinct domains, but students studying Mathematics at Q3 Academy Great Barr build on Key Stage 2, Key Stage 3 and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Students should also apply their mathematical knowledge in science, geography, computing and other subjects. Decisions about progression are based on the security of students' understanding and their readiness to progress to the next stage. Regular low-stakes testing, progress checks, feedback lessons and assessments provide good evidence for this. Students who grasp concepts rapidly are challenged through being offered rich and sophisticated problems before any acceleration through new content in preparation for higher GCSE content. Teachers of those students/groups who are not sufficiently fluent should consolidate their understanding through additional practice before moving on.

Inclusion

Our curriculum is designed for students of all abilities. Each big picture is designed to ensure students are subject to the required prerequisite knowledge, as well as the next steps required to make progress in each topic.