

Maths

Syllabus

AQA GCSE Mathematics (8300).

<https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300>

We also offer AQA Certificate Level 2 Further Mathematics (8365). This is for students achieving the highest grades in GCSE Mathematics. The course contains several topics found in A-level Mathematics and A-level Further Mathematics, and so is a very good precursor to those courses.

<https://www.aqa.org.uk/subjects/mathematics/aqa-certificate/further-mathematics-8365>

What Will I Learn?

Below is our Scheme of Work for each Tier. It must be stressed that this SOW is not set in stone. We try our very best to stick to this schedule as much as possible. But as the school year progresses, pressures on both staff and students can mean change is inevitable.

For more information on each topic on the SOW, please see gClassroom.

Foundation Tier

Higher Tier

How Will I Be Assessed?

Assessment in mathematics is split into four main parts; PPEs, Weekly Exam Papers (Y11 only), Weekly Quizzes, and homework.

PPEs – PPEs are mock exams. A chance to practice a full paper in full exam conditions. PPEs are conducted at the end of Y10, and twice in Y11.

Following a PPE, students will be provided with a percentage, a Current Working Grade (what grade you might expect to get if you sat the exam tomorrow), and a Predicted Grade (what grade we think you will probably get when you sit your actual GCSE if things continue as they have so far.)

Weekly Exam Papers – These are only conducted in Y11. They work on a three-week cycle. We take a full past paper and split it in half. Week 1, students sit the first half. Week 2, the second half. Week 3, we give students back both halves, marked, and spend time giving feedback.

This allows students to regularly practice exam papers, and exam-style questions.

Weekly Quizzes – After each topic, students sit a Quiz on that topic. Each quiz has ten multiple choice questions which assess the different elements of that topic.

After completing a Weekly Quiz, the teacher will mark it, provide feedback in class, and a task will be assigned on Hegarty Maths for students to complete at home. The task assigned on Hegarty is unique to each student, and is designed to help them improve.

Homework – Homework is set on Hegarty Maths each Monday, due the following Monday. Students should not be just completing the task. Students should first watch the video, take notes, and work through the examples, before attempting the task. Once a student has completed the task, a score is reported back to both the student, and the teacher.

Following completion of homework, the teacher will provide feedback on Hegarty, and suggest to the student which task they should look at next to further extend their understanding of the topic.

How Will This Prepare Me for My Next Steps?

GCSE Mathematics is a pre-requisite for a large number of jobs and courses post-16. Students hoping to study most A-level subjects will require a minimum of a grade 4/5 in GCSE Mathematics.

In addition to this, GCSE Mathematics offers the opportunity to develop a variety of skills that are applicable to a vast multitude of different areas of study such as:

- critical reasoning and analytical skills, including the capacity for solving problems and thinking creatively
- develops numeracy skills which are applicable to all walks of life
- develops spatial awareness through the study of Geometry
- develops understanding of the use of statistics, and gives students the ability to criticise statistics

Contribution to UTC & Studio Aims

The Studio:

“Our purpose is to prepare you for success in a fast-moving digital world and, in particular, help create opportunities to work or launch businesses in the creative and digital industries. We’ve created an environment to inspire creativity and critical thinking, fed by the industry knowledge of our partners, that lead the sector across the region.”

Life Sciences UTC:

“Our ethos is simple: we’re committed to providing the highest standards of teaching and learning, combined with real life industry experience which opens doors for our students. Our offer is unique, and we’re proud to work with some of the world-leaders in science and healthcare, giving our students the ability to build a strong and enviable portfolio of experience, so they can hit the ground running once they graduate from our UTC.”

Mathematics is the fundamental language of science and technology. Scientists, and people working in technology, are able to make much greater contributions to their disciplines when their understanding of mathematics is greater. The first calculators and computers were built by mathematicians such as Ada Lovelace and Alan Turing. Sir Isaac Newton and Albert Einstein were able to describe the Laws of Motion and the Theory of General Relativity through mathematics.

As can be seen from our schools’ ethos, students will have the opportunity to work with leaders in science, healthcare and technology. Businesses in these sectors are looking for employees with good mathematical understanding. Employees in these sectors are required to be able to think critically, and solve quite complex problems. Mathematicians are often the best problem-solvers and critical thinkers.

Career Planning

Students completing mathematics-based degrees often go on to work in the following sectors:

- Finance – banking, accounting, investments, financial fraud
- Data analyst/scientist

- Technology – software engineer, game design, machine learning engineer
- Engineer
- Education

While these are the main sectors, employees with mathematics-based degrees work in every sector. A mathematics-based degree is highly regarded in the working world, as employees with these degrees tend to have exceptional problem-solving skills.