



Subject: Mathematics Department

CURRICULUM INTENT

The Mathematics Department aims to provide an engaging, challenging curriculum where students, regardless of age, background, gender or ability develop an enthusiasm for and deep theoretical understanding of Mathematics and its relevance to the world around them. Our goal is to provide breadth, stretch and depth in the curriculum to encourage students to become independent thinkers as well as creative and strategic problem solvers, with the skills required to be financially and numerically literate to make sound mathematical decisions in their personal life and the ever-changing world of work.

In particular, we endeavour to nurture a sense of curiosity and abstract thinking, as well as an aptitude for forming logical conclusions and problem solving. We want students to experience the mathematics that is all around them and see the beauty of mathematics.

Within our department, we foster a growth mindset with resilient learners who understand the importance of making and learning from incorrect answers. Through this, we challenge students to explain their reasoning and methods to draw out misconceptions, embed understanding and achieve greater success.



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Students are encouraged to explore and tackle real-life problems using a variety of approaches within a safe and supportive environment. Our primary goal is to ensure all of our students achieve their personal best academically, through the knowledge and understanding they gain, and personally, have high aspirations and gain the transferable skills to enable them to have a successful future. They are our future generation and we strive for them to provide them with the best possible chances for a happy and enriched future.



CURRICULUM IMPLEMENTATION

Our Mathematics curriculum is designed to enable students to master the key skills in the 6 themes of mathematics: Number, Algebra, Geometry, Ratio & Proportion, Statistics and Probability. Students' mathematical learning journey builds confidence in Mathematics over the duration of both Key Stage 3 and Key Stage 4 by regularly reviewing prior learning and revisiting key topics in every year of study. Students build on prior learning each year to develop a more thorough understanding of different areas of mathematics and numeracy. Interleaving is also used to form links between sequences of lessons in order that students are able to identify how each topic relates to other areas of Mathematics but also how it links to other areas of the curriculum and the wider world.

Students are in very loosely streamed classes in year 7 before being set by current attainment from Year 8 onwards. At KS3, all students are taught the same themes at the same time, allowing each student the opportunity to access all areas of the curriculum and develop their mathematical fundamentals and understanding, whilst more-able students are challenged to delve deeper into each topic. Throughout each level of KS3, mathematical projects are embedded into the curriculum to further promote a love of mathematics and aspirations.

At Key Stage 4, students study the AQA exam board syllabus at GCSE level, where more-able students have the opportunity to study the higher tier GCSE Mathematics. The most-able are also given the opportunity to study an additional Mathematics qualification "OCR Level 3 in Additional Mathematics (FSMQ)". A bespoke programme including Functional Skills Maths is delivered via the C1 team for any student unable to access the GCSE curriculum.



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The department offers additional enrichment opportunities to each year group such as the UMKT Junior and Intermediate Maths Challenges and weekly enhancement sessions through our link with Exeter Maths School.

Each member of the department is a mathematical specialist and has a unique pedagogy, so teaching does not follow a uniform approach. However most lessons will feature an explanation of a concept, modelling of a correct approach, having a class discussion and activities provided for students to tackle. All lessons have a clear starter activity which develops prior mathematics learning and the objective of the lesson is shared with students.

During class discussions, teachers provide the necessary scaffolding to build understanding and draw out misconceptions. Students are encouraged to justify their answers and an emphasis is placed on methods and working. Questioning and prompts often encourage higher order thinking skills, requiring students to think outside the constraints of the problem in front of them; “is this true in every situation?”, “when could it be different/when would this give a different outcome?”, “what could we change to enable this statement to be true?”.

Fortnightly homework tasks are set using MyMaths at KS3. Students receive instant feedback to homework tasks and are able to reattempt them with slight variations of the same questions. Teachers are able to see students' scores and provide support where required. For KS4, students use a range of online resources for homework (GCSEpod) and mixed question, topic and exam standard homeworks. The GCSEpod tasks give instant feedback, the “paper” version (set electronically) feedback is provided in class.



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Assessment points throughout the year are written papers which are teacher marked, students fill in self-assessment sheets to identify their own strengths and areas for development but are also provided with whole class feedback from the teacher informed by their analysis of the marks. Assessment allows early intervention to happen but also to stretch the more able.

Consolidation lessons are built into the curriculum to allow for further differentiated tailored teaching to review areas of challenge in prior learning or explore topics in further depth. The curriculum map throughout years 7-11 supports students to build on prior skills as well as reviewing their key skills throughout the year to increase their numeracy skills.

We promote cultural capital and equality and diversity by exposing students to current affairs around the world through statistics and our projects, and by sharing the history and future of mathematics around the world. Students learn to become curious, inquisitive learners through gaining the knowledge, skills and understanding to be ready for their next steps after school.



IMPACT

The impact will be:

All students study Mathematics in Key Stage 3 and Key Stage 4, who are taught by passionate teachers who have the knowledge and understanding to demonstrate a love of their subject; this we aim to foster in our students. Impact of improved learning is evidenced concretely through assessment and tracking data, which at departmental level to ensure every child becomes the best they can be.

Students will be able to understand the importance of sequencing, both in lessons and subjects taught; they will be able to think and plan logically, questioning and challenging when they are unsure.

High expectations drive up academic achievement and enable students to become more aspirational, confident and self-assured in their mathematical thinking. The knowledge and understanding that students gain from well-taught challenging lessons enables them to gain the confidence and skills to question, challenge and pursue on tasks and problems that they face. This will enable them to achieve the results and progress both within school and beyond. Students become rounded, well-grounded individuals and work both individually and within a team. Team work and independence are key to students confidence building within our subject. Students understand the value of mathematical concepts and their importance within the school, beyond school and life. We encourage students to associate mathematics to the wider world, become aspirational and understand its value in the society in which we live.