

Curriculum Intent – Mathematics

The Mathematics curriculum at Horizon Community College is designed to develop numerate students who are capable problem solvers, appreciate the value of working systematically and can extrapolate from incomplete sets of information.

The Mathematics curriculum has been written in partnership with feeder primaries within the trust and in collaboration with staff from the local Maths HUB, to ensure that all students are challenged and given the opportunity to excel throughout their time at Horizon. Problem solving is embedded through the curriculum, with investigations included as part of every topic at Key Stage 3 and bespoke tasks designed to connect together various aspects of maths in Key Stage 4. We believe this emphasis on problem solving and acquiring new skills will help our students as they prepare for being work ready and life ready in a rapidly evolving world.

Our curriculum is designed to go beyond the scope of the Key Stage 3 National Curriculum. Extra topics include time (to ensure no students leave without this fundamental skill) and 3D coordinates to stretch our most able. The curriculum is built on a spiral model, so each strand of Mathematics is interleaved throughout the curriculum. All topics are taught for understanding, with an emphasis on consistent methods across the department and no 'tricks' or Mathematical shortcuts.

The Key Stage 4 curriculum is designed to give full course coverage, with every student given the opportunity to tackle the entire Higher or Foundation curriculum. The amount of time given over to each strand of Mathematics is informed by the weighting of each strand in the GCSE specifications, as well as our collective experience of teaching Mathematics. We study for the AQA exams at both Higher and Foundation tier, as well as offering the AQA Further Maths certificate for our more able students in order to further support those who are considering extending their study of Mathematics to Key Stage 5 and beyond.

Mathematics supports the wider curriculum at Horizon, with students using calculations from Mathematics in a range of subjects including Science, Business and Engineering. Students also learn how to interpret and represent data, supporting work in subjects such as Humanities. We are committed to offering students opportunities to partake in extracurricular activities to develop their love of Mathematics and their problem-solving skills. These include the UKMT junior and intermediate challenges, our own and local programme solving competitions and enrichment activities in partnership with local Universities.

The Mathematics scheme of learning and curriculum is underpinned by high quality differentiated resources being provided for every learning episode at every tier. These resources are quality assured and informed by educational research around variation theory and non-standard questions. All teachers provide students with retrieval practice around key skills every lesson through their starters. These are planned to be responsive to weaknesses identified in progress checks and summative assessments, as well as providing an opportunity to assess prior learning for upcoming topics.

Each topic is monitored and assessed via low stakes, in class progress checks. These are written bespoke for each topic using past exam questions from the AQA exam board, and students are permitted to use their notes and classwork to support them. Students are then expected to take responsibility for improving their work via EBI lessons, where they self-assess and upskill their work. Students also complete 3 full summative assessment points every year. In Key Stage 3 these assessments are written bespoke to the content covered in our curriculum. In Key Stage 4 pupils move towards completing full GCSE papers (with unseen content removed until Year 11). These progress checks and assessments allow us to monitor the effectiveness with which this curriculum is being delivered and identify best practice which can be shared.

The delivery of the Mathematics curriculum is informed by a range of educational research, including work on metacognition via EBI lessons, variation theory in task design and observation as an effective AFL technique.

This is in line with our stated vision to become a leading department for teaching and learning, and to continue to improve and develop in order to provide the best opportunities for our students.