Richmond School & Sixth Form College
Being the best we can be

Year 11 Maths (Higher / Foundation)

Curriculum Intent

We believe mathematical intelligence is expandable, and that every child can learn mathematics, given the appropriate learning expectations and experiences within and beyond the classroom. Our curriculum map reflects our high expectations for every child. Every student is entitled to have the opportunity to master the key mathematical content for their age, by receiving the support and challenge they specifically need.

The principles underpinning our curriculum planning can be mapped to the six school values:

Excellence

We encourage a deep understanding of the mathematical concepts expected at each stage. We achieve this by allowing the pupils to represent concepts in a variety of different ways and by revisiting topics via retrieval tasks and by revisiting topics at successively deeper levels. Although the department's priorities are wide, a key focus is promoting excellent exam results for each individual student so their options are broad for when they leave school.

Resilience

We encourage resilience in students so that their work is consistent throughout each year. Some revision for key assessments is given on-line and most students will always have a 'next task' available to stretch them further and encourage greater progress. We strive always to provide a pathway to success for every student at every stage. We encourage resilience through an increased focus on problem solving in most areas of the curriculum.

Independence

We encourage students to be independent by providing individual expectations for the work that should be completed and the concepts that should be mastered. We encourage good mathematical communication for each individual student, especially in their written communication.

Teamwork

We encourage students to work in teams both in classroom discussions and some classroom activities as well as special-event activities.

Respect

We encourage students to have a clear understanding of what their school and maths lessons hope to achieve in terms of learning and progress. We expect students to respect beauty of maths, the work done by many previous generations, the usefulness of maths to themselves, and the usefulness of maths to the society they live in. We expect students to respect their learning environment both for their own sake and for those around them. We expect students to respect their own potential by giving them high targets and clear expectations.

Creativity

We encourage students to sense the artistry in mathematical concepts and in the work of mathematics from previous generations. We encourage students to appreciate and develop an elegance both in argument and communication. We encourage imagination as the curriculum moves between concepts and as students encounter problem solving tasks.

What we do: We deliver a Year 11 curriculum that forms the third and final year of the three year GCSE course. It's order closely mirrors that given in the specification for the AQA Mathematics GCSE. Each topic ends in a topic review and every term has a larger Aiming High assessment covering multiple topics. Students are taught in ability sets throughout their GCSE course. Based on the results of the larger Aiming Higher assessments there are occasional movement of students between sets.

Why we do it: We place students in ability sets as the gulf between the most able and the weakest in maths is already large when students started at Richmond School in Year 7. The most able students are stretched further in Higher sets whereas the weakest students are offered more support in the Foundation sets that have the fewest number of students. We order the topics in such a way as to cover the full curriculum whilst striving for variety by alternating between the different topic strands of Number, Algebra, Shape & Space, Ratio & Proportion, and Data Handling & Probability.

Throughout KS4 each student's progress is monitored to ensure that they end up sitting the appropriate tier in their Y11 GCSE. The Higher tier offers grades 4 to 9 but is very challenging. The Foundation tier offers grades 1 to 5.

Methods of deepening and securing knowledge:	
Spaced practice	Nearly all topics are visited on multiple occasions throughout the five years of maths provision. This is sometimes to re-visit topics in preparation for assessments. On other occasions it is to prepare for the learning of deeper and more challenging learning within the same concept area.
Retrieval practice	Most lessons have a task at the start or during the lesson that involves a re-visiting of topics and concepts that have taught previously.
Interleaving	Most topics are visited on multiple occasions throughout the five years of maths provision as they linked to new areas of learning and other concepts that are brought together in larger assessments. There are also concepts that occur in different subjects across the school that link the maths curriculum with the curriculum of other subjects across the school.
Concrete examples	There are many abstract concepts taught throughout the maths curriculum. In the teaching of many of these concrete examples are used either to make them more accessible or because of the requirements of assessments.
Dual coding	Students will encounter many examples of graphical or diagrammatic representations of numbers and mathematical concepts.

	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
Topic(s) HIGHER	Topic 29 - Transformations of Functions Topic 30 - Pre Calculus and Area Under a Curve	PPE Preperation Topic 31 - Equation of a Circle Topic 32 - Iterations	PPE 2 Prep Finishing any gaps in teaching of topics	Retrieval Past Papers	Retrieval Past Papers Exams	Exam preparation
FOUNDATION	Topic 29 - Transformations of Functions Topic 30 - Pre Calculus and Area Under a Curve	Topic 31 - Equation of a Circle Topic 32 - Iterations	PPE 2 Prep Finishing any gaps in teaching of topics	Retrieval Past Papers	Retrieval Past Papers Exams	Exam preparation
Assessment	Topic Reviews	Topic Reviews PPE 1	Topic Reviews PPE 2	Topic Reviews Past Papers	Topic Reviews Past Papers GCSE exams	Topic Reviews Past Papers GCSE exams
Knowledge organiser						

(hyperlinks when available)						
CEIAG *(where appropriate to link to)*	The plans each individual student has for their further education and career is linked to their progress in GCSE Mathematics in several specific ways above-and-beyond the need to gain 'the best possible grade': Students failing to gain a Grade 4 or above by the end of Year 11 are required to continue studying Maths. Students working at the Foundation tier will do so based on the previous nine years of assessments. Whilst the primary aim is to attain a Grade 4 ('a pass') there are many courses and careers that strongly prefer a Grade 5 ('a good pass'). This grade is available at Foundation but not grades 6 or above. Students working at the Higher tier will do so based on the previous nine years of assessments. Some further education courses require a Grade 6 or above and this is available on the Higher tier. Students falling below Grade 4 on the Higher tier face being unclassified and this has obvious implications for further education and career paths. Students wishing take A-Level Maths should be targeting Grade 7 or above. Students wishing to take A-Level Further Mathematics should be targeting Grade 8 or above. Most STEM degrees require A-Level Maths and those at the most prestigious universities desire a good grade at A-Level Further Mathematics. Throughout KS4 students are advised about their progress and the most appropriate tier based on their progress and attainment to date. Good mathematical qualifications have some of the broadest range of options in terms of further education and this, in turn, can lead to some of the broadest range of career options. Students gaining good mathematical qualifications through further education have, amongst others, the following options: actuarial analyst, actuary, chartered accountant, chartered certified accountant, data analyst, investment analyst, research scientist (maths), secondary school teacher, statistician, systems developer, civil Service fast streamer, financial manager, financial trader, insurance underwriter, meteorologist, operational researcher, quantity surveyor, and software tester.					

Homework:
Students will typically receive homework on a weekly basis. One platform for this homework is the mathswatch website for which students have a unique password. It gives access to a large bank of questions and explanatory videos. The mathswatch website is also used in preparation for the larger Aiming High assessment.

Parental support:
Students will typically receive homework on a weekly basis. Parents are requested to check and sign the student's planner. Students have a unique login for the mathswatch website and parents can ask students, on a regular basis, to login and show the progress that they are making. Students have a list of equipment required for school listed in their planners. Parents can check on a regular basis that students have this equipment and nothing has been broken or lost. It is important, in Maths, that students have a scientific calculator and these are available in the on-line school shop (on a not-for-profit basis). We recommend that the name of the student is written in permanent pen on both the calculator and its lid.