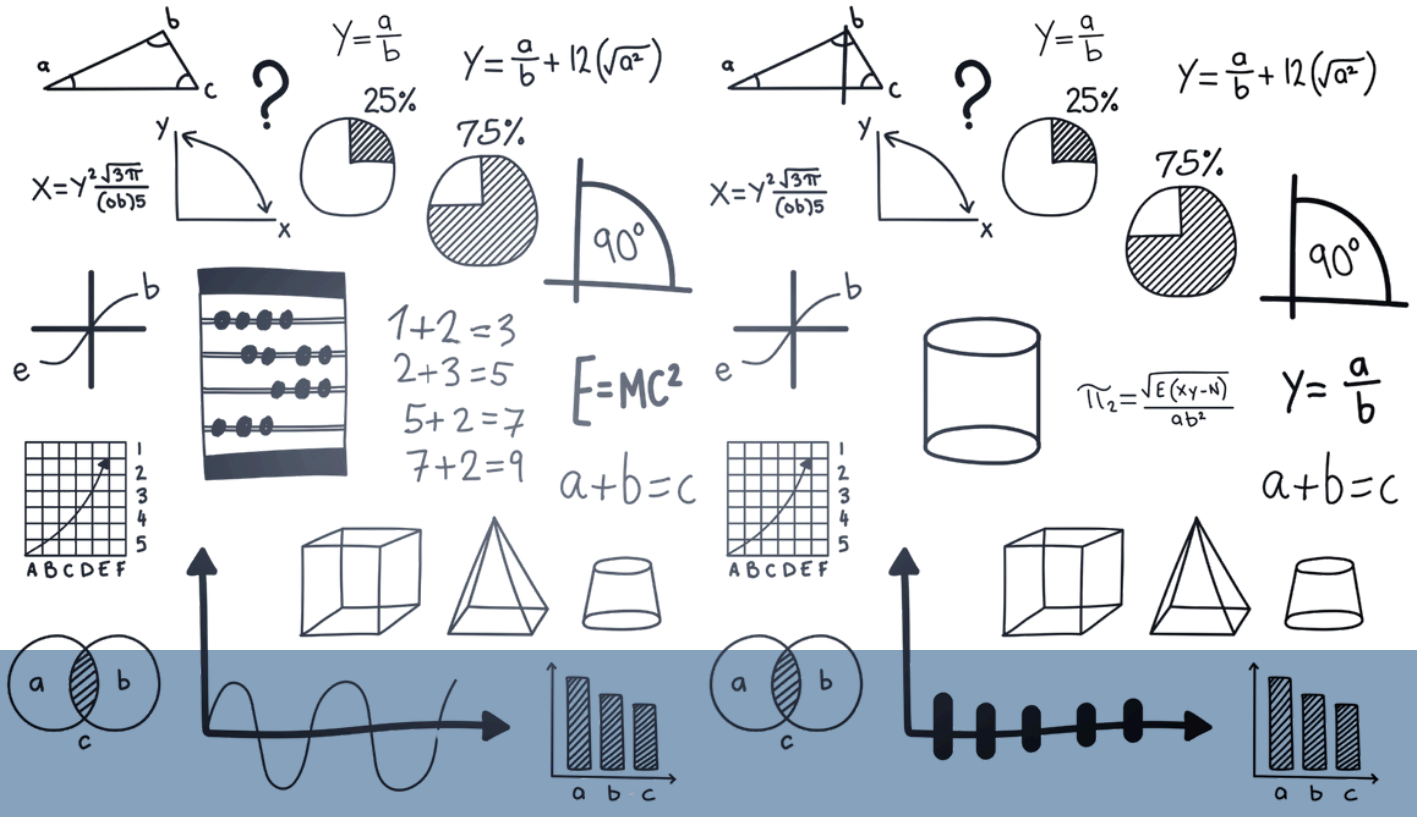
RGS
NEWCASTLE

INTRODUCTION TO

MATHEMATICS

at RGS



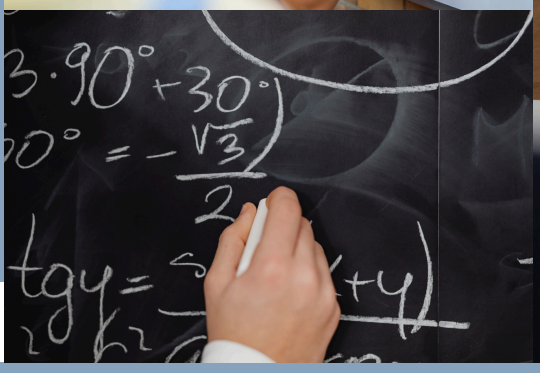












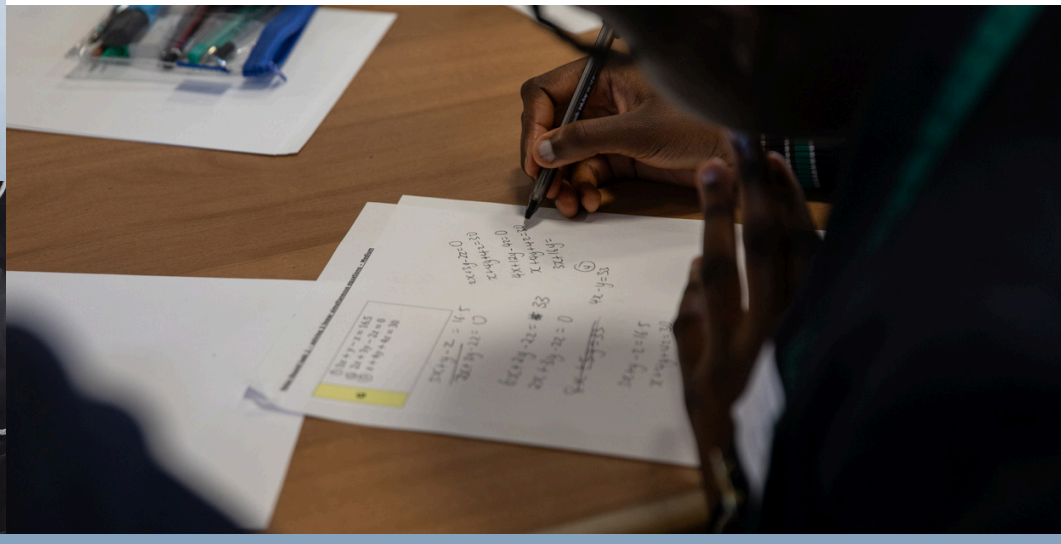
Mathematics at RGS is a dynamic and intellectually stimulating subject that develops logical reasoning, analytical thinking and confident problem-solving.

Through a carefully sequenced curriculum, students learn to approach complex challenges with resilience, creativity and precision, building skills that are valuable not only in mathematics but across a wide range of disciplines and future careers.

The department aims to foster a genuine appreciation of mathematics as both a practical tool and an elegant academic discipline. Students are encouraged to ask questions, explore different methods and develop a deep understanding of mathematical concepts rather than simply applying procedures.

Lessons are designed to challenge and inspire, helping every student to achieve their potential while developing confidence in their own mathematical abilities.

Mathematics is one of the most popular and successful subjects at RGS. Supported by a team of 18 specialist teachers, students benefit from expert guidance, a rich programme of enrichment opportunities and a culture that celebrates curiosity, ambition and academic excellence.



YEARS 7-9

During the first three years of Senior School, students develop a secure foundation across all areas of mathematics while strengthening their confidence as independent learners and problem-solvers.

The curriculum is broad and ambitious, encompassing number, algebra, geometry, ratio and proportion, probability and statistics.

As students progress through Years 7 to 9, they move beyond routine calculations to explore increasingly sophisticated mathematical ideas, developing the ability to reason logically, identify patterns and communicate mathematical arguments clearly.

Problem-solving lies at the heart of the curriculum. Students are encouraged to tackle unfamiliar questions, explain their thinking and explore multiple approaches to finding solutions. This emphasis on mathematical reasoning helps pupils build resilience and adaptability, preparing them for success in later years.

Throughout Key Stage 3, mathematical concepts are connected to practical and real-world applications, enabling students to appreciate the relevance of mathematics in science, technology, engineering, finance and everyday life.



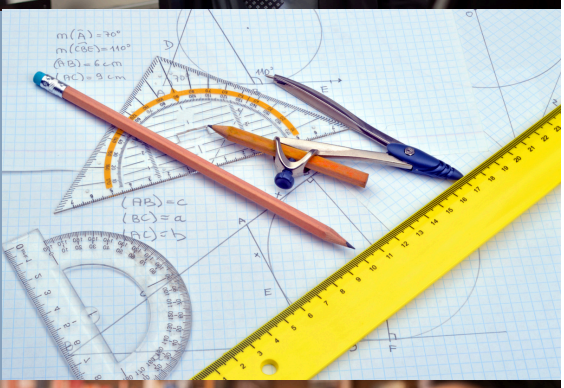




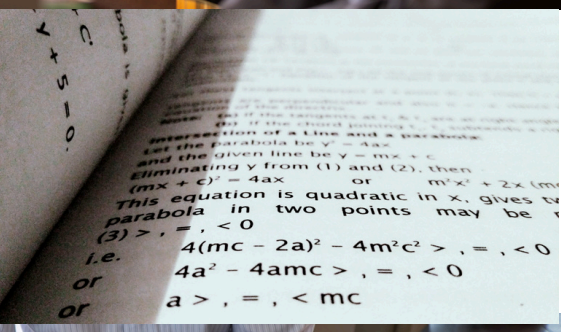














YEAR 10 & 11

All students prepare for the Edexcel IGCSE 9–1 Mathematics Higher Paper. There are usually seven sets arranged by ability.

At GCSE level, students follow a rigorous course that develops both fluency and deep conceptual understanding.

Building on the foundations established in Years 7-9, students refine their knowledge of algebra, geometry, trigonometry, probability, statistics and numerical methods while developing confidence in tackling increasingly complex problems. The course places a strong emphasis on analytical thinking, mathematical communication and the application of mathematics to unfamiliar situations.

Students are encouraged to develop independence in their learning and are regularly challenged to apply techniques in sophisticated and demanding contexts. The department's strong academic support ensures that every pupil is equipped to achieve their full potential.

For the most able mathematicians, opportunities exist to engage with more demanding material and to extend their mathematical thinking beyond the requirements of the examination specification.

Students continue with their Year 10 teacher where possible, ahead of their Maths IGCSE exams.

In addition, students will still have the option to elect to study an additional GCSE AQA Level 2 Certificate) in Further Maths. All students in Maths bands 1 and 2 are taught this content during class time, other students may attend Further Maths preparation sessions during lunchtimes, in Year 11.



A-LEVEL MATHS & FURTHER MATHS

Mathematics is one of the most popular A-Level subjects at RGS and attracts students who enjoy intellectual challenge, logical reasoning and exploring complex ideas. The subject complements a wide range of other disciplines and is highly valued by universities and employers alike.

Students study the Pearson Edexcel A-Level Mathematics specification, which combines Pure Mathematics with applications in Statistics and Mechanics. Through Pure Mathematics, students develop advanced algebraic techniques and a deeper understanding of mathematical structures and proof. Statistics enables students to analyse and interpret data, while Mechanics explores the mathematics of motion and physical systems.

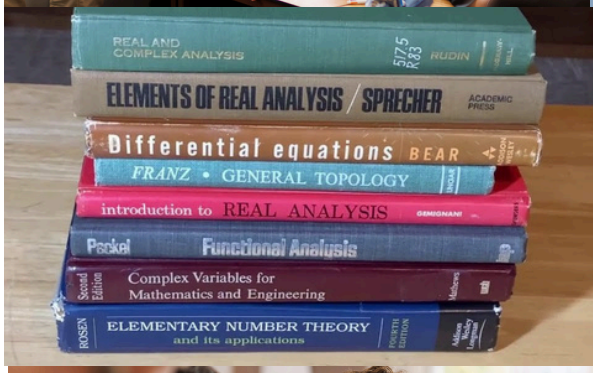
A-Level Mathematics develops sophisticated problem-solving skills, mathematical communication and the ability to construct rigorous logical arguments. Students learn to apply mathematics in a variety of contexts, developing the confidence and intellectual flexibility required for higher education and beyond.

For students with particular aptitude and enthusiasm for the subject, Further Mathematics provides an additional A-Level qualification that significantly extends understanding and mathematical sophistication. The course introduces students to more advanced areas of Pure Mathematics alongside further study of Statistics and Mechanics, encouraging engagement with abstract concepts and complex mathematical structures.

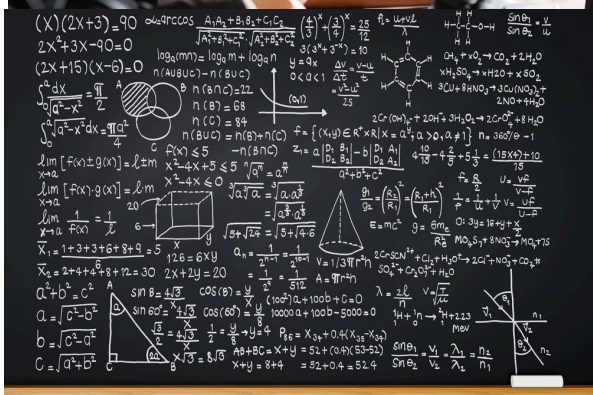
Further Mathematics is highly regarded by leading universities and provides excellent preparation for degree courses in Mathematics, Engineering, Physics, Computer Science, Economics and related disciplines.

The department also supports students preparing for competitive university admissions, including specialist provision for STEP and Advanced Extension Award (AEA) Mathematics, helping aspiring mathematicians develop the advanced problem-solving skills required by the most selective institutions.









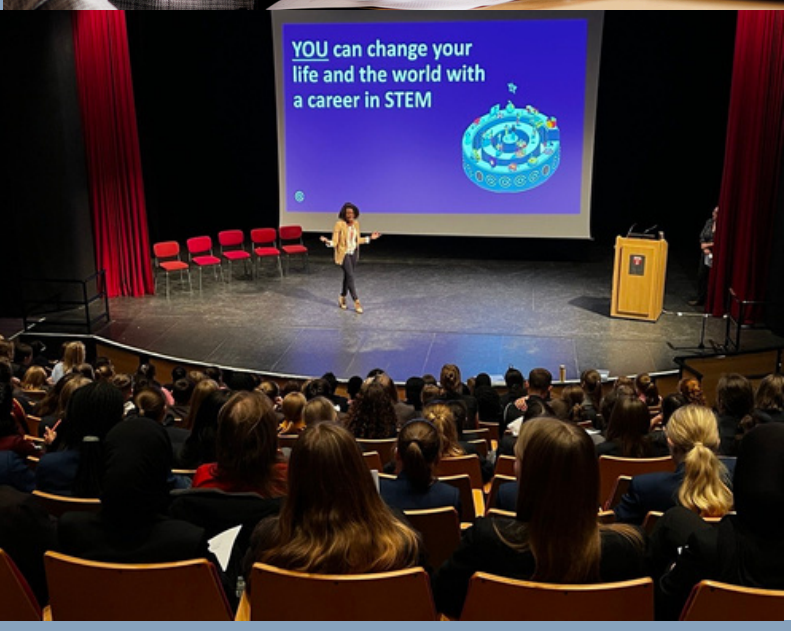












SUPPORT & STRETCH

Mathematics thrives in an environment where students feel confident to ask questions, seek support and embrace challenge. Our daily Maths Clinic runs every lunchtime, staffed by at least two teachers and supported by Year 13 Maths Prefects. Students can drop in for help with homework or problem-solving.

Additional opportunities include:

- Further Maths lunchtime sessions for Year 11
- Maths Society run by Sixth Form students
- Preparation for university entrance assessments

Beyond the classroom, students have numerous opportunities to deepen their appreciation of mathematics and explore the subject in greater depth. Students are stretched through national competitions:

- Junior Maths Challenge (Years 7–8)
- Intermediate Maths Challenge (Years 9–11)
- Senior Maths Challenge (Sixth Form)

Our results are consistently excellent, with many students achieving Gold certificates and progressing to Olympiad rounds. The Sixth Form Maths Team regularly competes at regional level and consistently represents the North East at national finals in London.

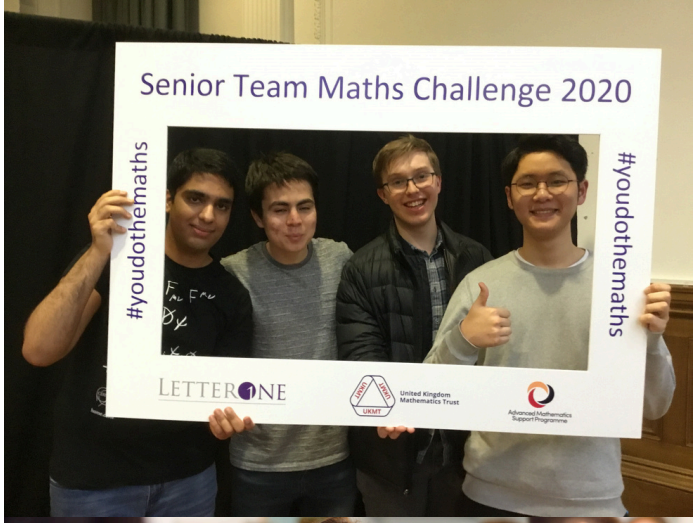
MATHEMATICS FOR LIFE

At RGS we believe that maths underpins many of the world's most important advances and plays a central role in countless professions. The subject develops analytical reasoning, logical thinking, creativity, resilience and precision, all of which are highly sought-after skills in modern society.

Students who study mathematics at RGS often progress to university courses in Mathematics, Engineering, Computer Science, Economics, Physics, Data Science, Finance, Medicine and many other disciplines. The ability to analyse information, solve problems and think critically equips students for success across an exceptionally broad range of future pathways. Students leave RGS with the confidence and capability to apply mathematical thinking in ambitious and meaningful ways.

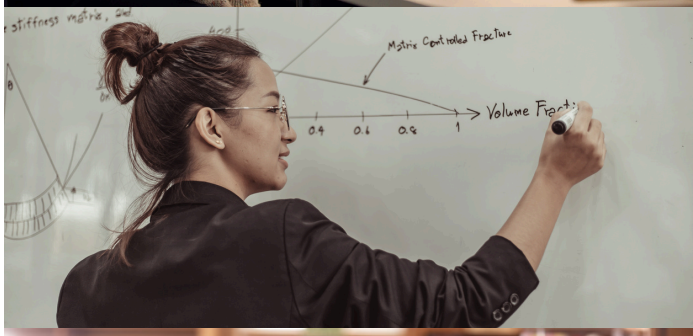
Mathematics at RGS is about far more than examination success. It is about developing intellectual curiosity, confidence in problem-solving and the ability to think clearly in an increasingly complex world.

Through a combination of academic rigour, expert teaching, enrichment opportunities and personalised support, the department seeks to inspire every student to enjoy mathematics, embrace challenge and fulfil their potential. Whether studying the subject to GCSE, pursuing Mathematics or Further Mathematics at A-Level, or continuing to undergraduate study, students are encouraged to become thoughtful, resilient and accomplished mathematicians prepared for the opportunities and challenges that lie ahead.













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We aim to make Mathematics enjoyable and rewarding for all, providing support when needed and challenge when required. We look forward to helping every student achieve their potential and discover the opportunities that mathematical thinking can unlock.

If you would like further information about Maths at RGS please contact Mr Nick Hamilton, Head of Maths via n.hamilton@rgs.newcastle.sch.uk

