KING JAMES'S SCHOOL
KNARESBOROUGH

CURRICULUM OVERVIEW
MATHEMATICS
2021/22

At King James's we want to equip all our students with the numeracy and mathematical skills they need for life. We want students to develop secure knowledge of how to use their Mathematics effectively alongside understanding why methods work. We also aim to use our subject time to develop transferable skills such as logical thinking, problem solving and constructing a valid and robust argument. As a team we are firm advocates that Mathematics is about enjoying the process, however difficult it may feel at the time, along with the eureka moment of reaching a solution. Developing resilient learners is one of our key aims. We inspire pupils to develop a love and inquisitiveness of Mathematics, forming strong links between different topics areas leading to deep understanding and solid foundations to progress onto further Mathematical study or their career. Pupils will be taught the etymology of key words and key moments of maths history.

As a department we challenge pupils to both think and speak like a mathematician; placing a heavy emphasis on correct use of key words in their explanations, as well as encouraging them to lay out their written work in a logical and coherent manner. We have high expectations of pupils to act upon the feedback from their teachers in order to improve their understanding, signposting effective websites and resources for them to do this as independent study.

Throughout their time at King James's pupils will be challenged to push themselves further through completing additional challenge problems both in and out of lessons. Our most able Mathematicians will be invited to take part in the UK Mathematical Trusts annual challenge papers. We work closely with Mathematical organisations and individuals such as Maths Inspiration, the National Maths Hubs and Dr Simon Singh who offer additional opportunities to inspire pupils with their Mathematics.

Our curriculum is carefully sequenced and follows a mastery format at Key Stage 3; taking smaller steps in learning but at a deeper level. This helps pupils form secure understanding before developing that topic area later in a unit or in the following year of study. Throughout the programme of study there is a strong emphasis upon pupils being able to justify their reasoning of when and why methods work. Lessons include frequent retrieval practice exercises where pupils are asked to recall prior learning; research shows that this act of regular retrieval helps prevent pupils forgetting previous learning. Pupils will also be expected to interleave previously learnt skills into their current topic eg the use of algebra within geometry questions.

Pupils will study the five key areas of Mathematics; number, algebra, geometry, ratio and statistics throughout Key Stage 3 and 4. This forms a spiral curriculum, each year returning to a topic area and building upon the prior year's learning, developing and extending their understanding into more complex topics at each revisit. As an example, in Year 7 pupils will learn about correct geometrical notation and basic angle facts, in Year 8 this knowledge is developed to the geometry of angles formed within parallel lines and polygons, in Year 9 this progresses to accurate geometrical constructions, at GCSE pupils will develop their understanding of angles further looking at branches of Mathematics such as trigonometry.

In Key Stage 4 and 5, pupils will go on to study the AQA specifications which we feel best match our department aims of creating mathematicians who can select appropriate methods, problem solve effectively and combine their knowledge of different areas of Mathematics in order to reach a solution.