

Intention of Mathematics

Our curriculum intends for our students to become highly skilled, enthusiastic and empowered mathematicians!

We see the development of mathematical knowledge as hierarchical – a continuation of the narrative, which students embarked upon in primary school, through key stages 3 and 4 and developed up to GCSE level. Many of the ideas and areas of mathematics encountered thus far will be developed further - Algebra, Geometry and Trigonometry etc. And other areas of mathematics such as Calculus and Logarithms are introduced. Applications of all of these are examined and the students will become adept at problem solving by drawing upon their knowledge of these concepts and confidently selecting appropriate techniques in order to tackle a given problem in a skilful and satisfying way.

Alongside Pure Mathematics, Statistics and Mechanics will be studied, enabling students to model and draw conclusions about real-world scenarios. The large data set concerning weather patterns is scrutinised in statistics, which leads to questions about climate change. In mechanics, mathematics is used extensively to model physical phenomena, referencing the insights of Newton. In Pure mathematics, exponential functions are examined, which have a particular resonance currently for us to understand the growth of the Covid-19 pandemic. Differential equations will also be used to model many such phenomena. Students are therefore encouraged to explore physical, social and economic impacts of such events from a mathematical perspective, moving beyond the requirements of the exam specifications. They will also learn about, and take inspiration from the endeavours of some renowned mathematicians – Descartes, Gauss, Euler to name a few.

We have an ambitious focus on developing in our students, excellent mathematical fluency, powerful reasoning skills and the ability to confidently apply their knowledge to become adept problem solvers. Furthermore, for our students to appreciate the interconnectedness of mathematical knowledge, the beauty of mathematical structures and elegance of mathematical proof. In turn, they will readily reflect upon their learning and make autonomous, confident and creative decisions and to persevere with resilience in order to reach a solution. Their web of knowledge is routinely reinforced and challenged through carefully considered investigations, the conclusion of which, we intend to lead to that sense of satisfaction enjoyed by mathematicians, budding and experienced alike. This programme, we anticipate will facilitate a transformative experience for the students as they begin to perceive Mathematics as a body of knowledge to be cherished for its own sake; not as simply transactional and a provider of a “useful” set of skills.

We are committed to ensuring that Melton Vale Mathematicians are well prepared to use their skills successfully as they embark on further undergraduate study and rewarding careers within the Sciences, Engineering and Finance. Some of our students choose to further their education beyond undergraduate level, with the ambition of themselves adding to the body of mathematical knowledge! We intend for all of our students to take enjoyment from the experience of learning the “Queen of the Sciences”

attributed to Gauss