



STANGROUND ACADEMY

MATHEMATICS - INTENT

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology, and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

As such, we believe mathematical intelligence is expandable, and that every student can learn mathematics. Our curriculum map reflects our high expectations for every child and allows students to develop fluency, reasoning, and problem-solving skills. Our aim is to create the conditions for students to learn through interleaving knowledge and to learn to solve problems to develop lifelong transferable skills that can be taken to the next stage of their learning journey or workplace. In addition, we aim to ensure our students gain confidence and an appreciation for all the mathematics around them and will exhibit a thirst for mathematical knowledge and learning.

Our curriculum has three key principles

1. Deep Understanding

Our practice embeds the importance of underpinning knowledge, enabling students to build on this to achieve a deeper understanding. We believe that we must interleave knowledge to achieve this deeper understanding. Students will become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

2. Mathematical thinking

We believe that it is essential for students to develop mathematical thinking in and out of the classroom to fully master mathematical concepts. We want students to think like mathematicians, not just DO the maths. We believe that during the learning students should experience a blend of knowledge, skills, and opportunities. They should reason mathematically by following a line of enquiry, conjecturing relationships, and generalisations, and developing an argument, justification or proof using mathematical language. We aim to produce young people that can solve problems by applying their mathematics to a variety of

routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and perseverance and resilience in seeking solutions.

3. Mathematical Language

We believe that students should be encouraged to use accurate mathematical language throughout the school and to deepen their understanding of concepts. Student's acquisition and command of vocabulary are key to their learning and progress across the whole curriculum.

The way students speak and write about mathematics has been shown to have an impact on their success in mathematics. We therefore introduce, use, and reinforce mathematical vocabulary aiming to increase student's store of words in general; simultaneously, we will make links between known and new vocabulary and discuss the meaning in similar words. In addition, we encourage comprehension in order that they understand the meanings of words they meet that have alternative meanings across other subjects. We will do this throughout maths lessons, so students can work with word problems from the beginning of their learning. Working alongside this we support their mathematical language by providing challenging vocabulary lists, definitions and quizzing.

Further Opportunities and Numeracy

Further opportunities to practice numeracy comes during tutor time where there is a weekly countdown house competition by form. Confidence in numeracy and other mathematical skills is a precondition of success in subjects other than mathematics. Students are challenged to take part in special mathematical days, such as pi day and house competitions.

We offer additional academic success through our offering of GCSE Statistics. Students are introduced to the skills of statistical enquiry, and practise the underpinning statistical calculations and interpretation using real world data and authentic contexts. This qualification develops skills for progression to a range of subjects and develops an awareness of statistics beyond the classroom. We compete in UKMT maths challenges to enrich student's experience of maths and stretch the most able learners with the aspiration to compete in the maths kangaroo. We also compete in the team challenges to build team working skills, confidence, enjoyment, and social skills.