



Maths Curriculum Intent



Why is Maths important?	To demonstrate to our students that mathematics is a creative, interconnected, imaginative and inspiring world that can make life orderly and limit chaos.
What is Math's value within the curriculum and in everyday life?	<p>Mathematics has answers to natural wonders such as the unlikelihood of finding a four-leaf clover and the reason only regular polygons with 3, 4 or 6 sides tessellate. It also delivers manmade solutions for desired systems such as the Hindu-Arabic number system, which has helped our way of life progress.</p> <p>Students will use mathematics in everyday problems such as through personal finance, ensuring the best price is selected or even purchasing the correct amount of material for a project. However, maths inspires students to be critical thinkers and problem solvers, which are skills that can enhance career prospects and make everyday problems easier.</p>
How does Maths reinforce the Alsop values of Knowledge Respect and Opportunity?	<p>Knowledge – We deliver a knowledge-based rich and academically rigorous curriculum that has the highest ambition for all. Our curriculum is designed to be progressive from Year 7 to Year 11. It focuses on fluency and retention of knowledge, skills and understanding over time.</p> <p>Respect: At Alsop we respect that every student has the ability to succeed in maths, given the necessary amount of time and practice needed to learn new concepts. Mathematics is learnt in a hierarchical way; new knowledge is added on to previous learning. This means that students cannot learn new knowledge without having the correct foundations in place and jumping ahead can lower a student's confidence in their own ability. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.</p> <p>Opportunity: The curriculum is designed with a 'no ceilings' approach to learning. All students have the opportunity to progress further with no limit placed on what new knowledge can be learnt. If a student is ready to move on, they will but only once current learning delivers secure knowledge. A key part of our curriculum is the opportunities to see maths in a wider context than set out in the statutory framework of the national curriculum. Opportunities include exploring the golden ratio, looking at maths in architecture, finding links between maths other areas such as science, engineering and architecture, code breaking and number bases.</p>
How does Maths build on the foundations laid at KS2?	<p>Through mastery, we build on students substantive knowledge taught in KS2 to further problem solve and combine structures. Students will be extended through depth of knowledge rather than moving on too soon.</p> <p>The process for learning a new concept in maths at Alsop is:</p> <ul style="list-style-type: none">• Learn the new knowledge in small steps.• Practice lots to become fluent in using the knowledge.• Reason to understand what connections can be made to other mathematical concepts, develop an argument and communicate it using mathematical language.



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	<ul style="list-style-type: none"> Use reasoning and your knowledge to solve multi-layered problems.
How your does Maths support reading?	<p>Mathematical problems require a specific reading skill that requires a balance between knowledge and reasoning. Students will be expected to pick out key parts of information needed to answer a problem but the knowledge needed is often not given in the expected order. Therefore, students will have to read a problem thoroughly, select in order the important bits of information and then calculate. We aim to teach this level of reading in every lesson through problem solving and communication questioning.</p> <p>In maths we also have key vocabulary which we focus upon through our program of study every lesson. This is important for the learning of new content as definitions in maths very often have different definitions across other curriculums. For example, the words 'prime' and 'corresponding' have multiple meanings.</p>
How does Maths challenge all learners?	<p>Our mastery curriculum suggests every student can learn and do maths. Students who have lower prior attainment are specifically planned for using concrete and pictorial techniques. Students with higher prior attainment are extended through a range of problem solving and reasoning structures for further their development and allow better links to be made.</p>
How is Maths inclusive for all learners?	<p>All students have access to all lessons and resources. Where our students have secured enough knowledge and are ready to be extended, our teachers will push them on to progress to more complex concepts.</p> <p>SEND: Class Profile Sheets used by every teacher so they can successfully identify and implement support strategies for our SEND and disadvantaged pupils. Where necessary, students may receive extra scaffolding to support their understanding. Scaffolding will be removed as students practice their knowledge in order to avoid reliance on extra written structures.</p>
What role does assessment play in Maths?	<p>Students are formatively assessed in class to ensure all misconceptions are identified before practice through a range of hinge questioning and reasoning questions designed to make students think about how concepts are connected and how they are not. Students have a summative assessment after each small unit of two to three weeks to help track progress and identify and fill in gaps at the earliest possible opportunity. This avoids pre-requisites being missed.</p>
How are British values interwoven into the Maths curriculum?	<p>Democracy: ethical issues e.g. business and economics. How data can be manipulated through its presentation possibly liking to elections. Students may be asked if data spoken of is relevant?</p> <p>The rule of Law: Through mathematical investigations students are encouraged to develop their own rules and to give examples that follow the rule and exceptions to the rule. Through the study of mathematicians, students may learn of the rule of law and how it affected their lives. E.g. Alan Turing's contribution to ending WW2 and how the rule of law at that time affected him.</p> <p>Individual Liberty: Opportunities to discuss and deliver different ways and approaches to problem solving.</p> <p>Respect: others right to learn and teachers right to teach.</p> <p>Tolerance: Acceptance of positive criticism. Allowing mistakes and building on these. Trying different methods and showing resilience.</p> <p>SMSC</p>
How is SMSC interwoven into the Maths curriculum?	<p>Spiritual development in Maths through deep thinking and questioning into their understanding of Maths and how it relates to the world around them Examples of the</p>



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	<p>spiritual development in mathematics include: Investigating Rangoli patterns and Islamic art and the uses of symmetry</p> <p>Moral Development in Maths: We promote discussion about mathematical understanding and challenge assumptions, supporting students to question information and data that they are presented with. We recognise how logical reasoning can be used to make decisions and choices that help them to learn in mathematics.</p> <p>Social Development in Mathematics: Fundamental to Mathematics is problem solving skills and teamwork, through creative thinking, discussion, explaining and presenting ideas. Students are encouraged to develop their Mathematical reasoning skills, communicating with others and explaining concepts to each other.</p> <p>Examples of the social development in mathematics include: UKMT Team Maths challenges</p> <p>Cultural Development in Maths: Mathematics is a universal language with a multitude of cultural inputs throughout the ages. The ability to use exchange rates for foreign travel are also important life skills students will learn. The skills of data analysis are taught to enable students to make sense of vast amounts of data available in the modern world around them. Sixth Form students are able to extend this knowledge through the study of Statistics and modelling.</p>
<p>How is cultural capital interwoven into the Maths curriculum?</p>	<p>Cultural Capital : We aim to embed cultural capital which is essential knowledge that pupils need to be educated citizens – studying the best that has been thought and said and helping to engender an appreciation of human creativity and achievement through Maths. This includes using maths in a wider context such as architecture, politics, finance and understanding its role in the media.</p>