Curriculum Principles

Our curriculum has been carefully thought through, and to ensure that all students develop holistically, we have designed and planned our curriculum according to the following principles:

Our curriculum is **ambitious**, offering all students access to the most powerful knowledge of each subject

For example:

The maths department has taken time to design our curriculum as we believe maths is an entitlement for all pupils regardless of their starting point. For this very reason we devised a high ceiling approach with seamless transitions between key stages to enable all students to reach their full potential. Here a examples of our ambitious approach through two areas;

One of the topics is factorisation, here is an example of how it threads through the years and key stages with specific topic knowledge being built upon over time. In order to factorise an expression, students must be able to find the highest common factor of a pair of numbers, completed in Year 7. These methods are ambitiously extended in Year 8 to include linear factorisation. Here, students are challenged with worded questions interweaving area and factorisation. In Year 9, this area is revisited to develop fluency and then extended to factorise a quadratic including expressions with a coefficient of x^2 greater than one. This practice leads to GCSE questions which include solving quadratics and roots of their graphical representations, along with simplification of algebraic fractions.

Our curriculum is designed to be very number heavy at KS3 and reiterates KS2 knowledge, one area of focus is fractions, whilst also challenging students with worded questions and problems interweaved with other mathematical branches. Our KS4 curriculum introduces students to algebraic fractions involving the four operations and simplification involving the aforementioned topic above of factorising. It systematically builds on prior knowledge to develop understanding and revisit topics leading to coherent understanding of the key threads of mathematics.

Our curriculum is **taught to be remembered**, not merely encountered, through curriculum content that is **well sequenced** and vertically integrated

For example:

We ensure that mathematical fluency is developed over time and studies have shown that a well sequenced curriculum with spaced retrieval of prior knowledge is a successful way to deliver a mathematical curriculum that will be remembered. For

this reason we have sequenced topics to ensure that each small step is built upon using prior knowledge and scaffolding ensuring that no future step is taught without this knowledge being assessed and secured. Reasoning and problem solving are integral throughout with increasing difficulty, allowing students to strengthen both procedural and conditional methods of understanding, thus resulting in a well sequenced, revisited curriculum and mathematical potential and fluency for all.

Our curriculum embodies our **vision and ethos** through educating for knowledge, wisdom and skills, educating for hope and aspiration, educating for community and living well together, and educating for dignity and respect

For example:

Our curriculum allows for mathematical reasoning, following a line of enquiry, conjecturing relationships and generalisations, developing an argument and justification or proof using mathematical language all, of which, support our students developing the wisdom and skills needed for living and working positively within the community. Paired and group work further emphasises our ethos and vision by enthusing dignity and respect in the classroom through communication and developing the necessary skills to think logically and solve problems by breaking them down into smaller, less complex problems. Numerical discussion allows for the expansion of mathematical oracy and helps students to understand one such problem may have several routes to a solution, finding these solutions helps students to develop their character and resilience.

promotes the **spiritual development** of all students

For example:

Our whole curriculum embodies the belief that maths is a universal language, a fundamental tool for understanding the physical world around us. It incorporates both of these mechanisms but within it includes a level of spiritual mathematics. Spiritual mathematics involves the use of geometry, numerology, (the branch of maths that deals with the occult significance of number in the world around us), and other mathematical techniques to explore concepts such as the interconnectedness of all things, the nature of consciousness and the relationship between the material and spiritual realms. Our curriculum supports the potential for deeper understanding for the nature around us. Whilst there are many examples of spirituality within our curriculum two noteworthy considerations would be the development of patterns such as Fibonacci sequences within nature and tessellations, symmetry and constructions through our many community cultures.

The awe and wonder of mathematics is visible in every child's face when they achieve even the smallest numerical success. All of this embodies our school vision and the ethos of our academy, transforming the lives of all our students.

develops students' **21st century learning skills**, and is underpinned by a **literacy strategy** that supports increased vocabulary acquisition and reading fluency

For example:

Our curriculum aids in the competence of ensuring our students can live within and positively contribute to the 21st century. It consists of mathematical reasoning, argumentation, communication, modelling, problem posing and solving, representations, symbolisation, supporting diversity, equality and technology. These skills are essential in today's fast-paced, data-driven world and are integral in supporting the sustainability of 21st century skills in both the community and workplace. We aim to provide our students with the mathematical knowledge to be financially savvy and have the learning skills to support their future life choices, be it educational, career directed or otherwise.

To support our students with all these skills our curriculum incorporates such areas as percentages, proportionality, statistical analysis, money problems, growth and decay alongside problem solving and the development of critical thinkers.