



Mathematics

Intent

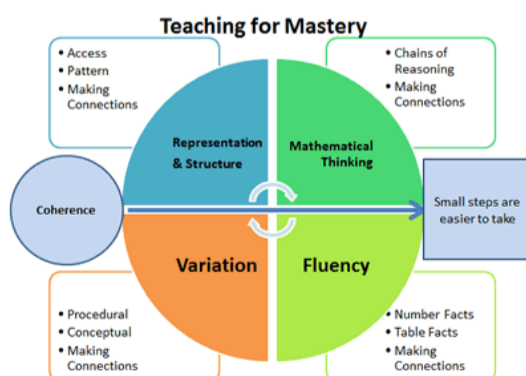
Our Mathematics curriculum reflects the fact that Maths is a creative and highly inter-connected discipline which is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. Our high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically and a curiosity about the subject.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. Our curriculum is organised into **apparently distinct domains**, but pupils will make **rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems**. They will also apply their mathematical knowledge to Science, Technology and other subjects. Confidence in mathematical skills is a precondition of success across the curriculum. Our Maths **curriculum is organised and sequenced to provide continuity and progression so that key knowledge and skills are remembered** and not merely encountered. It is designed to ensure that pupils **consolidate and develop knowledge and skills year upon year**. Skills and knowledge are learned and then revisited in later years in order to consolidate, develop, deepen and experience in new contexts.

The expectation is that the majority of **pupils will move through** the programmes of study at **broadly the same pace**. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. **Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems** before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their understanding, including through additional practice, before moving on.

Implementation

Our teaching of Mathematics is based on the principles and practices of Mastery. Mastering Maths means pupils **acquiring a deep, long-term, secure and adaptable knowledge and understanding of the subject**. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. **Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material**. The mastery approach encompasses many meta-cognitive strategies including activating prior knowledge, modelling strategies and oracy, guided and independent practice and structured reflections.



Underpinning teaching for mastery in Maths are the Five Big Ideas, drawn from research evidence. This is the diagram used to help bind these ideas together:

Coherence

Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.

Representation and Structure

Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation - CPA

Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others

Fluency

Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics

Variation

Variation is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure.

As well as the key skills and content in Maths, our curriculum will focus on nurturing overarching, cross curricular skills which will be applied in other subjects across the curriculum. For example, skills of reasoning and explaining, proving and justifying an opinion with reference to evidence are skills used as much in Reading and Science as they are in Maths.

Furthermore, whilst the children are learning curriculum knowledge and practising and refining a range of skills, they will also be developing their character education through the explicit teaching of a range of learning dispositions, including the 6Rs. We aim to deliver, through meta-cognitive strategies, our Maths curriculum via activities which are successful incubators of these essential life skills, such as being self-directed, resilient and reflective.

Impact

The curriculum will ensure that **all pupils 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**. It will also ensure that pupils are able to **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. They will be able to **solve problems by applying their mathematics to a variety of problems** with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.