

A Mastery Approach to the teaching of Mathematics

At Alston Lane, we passionately believe in following a Maths Mastery Curriculum. This allows our children to achieve a sustained, deep, conceptual understanding of mathematics. We aim, through high quality creative and inclusive lessons, to create a sense of excitement and curiosity around mathematics. Children are encouraged to make links between what they are learning and the world around them.

Through this approach, they:

- Become FLUENT in their mental and written calculation skills.
- REASON and EXPLAIN mathematically the maths that they are learning.
- Can SOLVE PROBLEMS using and applying their mathematical knowledge in a range of contexts.

Mathematics teaching for mastery assumes everyone can learn and enjoy mathematics. Behaviours are developed such that pupils focus and engage fully as learners who reason and seek to make connections. Teachers continually develop their specialist knowledge for teaching mathematics, working collaboratively to refine and improve their teaching. Curriculum design ensures a coherent and detailed sequence of essential content to support sustained progression over time.

Behind the teaching for Mastery, there are Five Big Ideas.

Coherence

Following the White Rose Maths Scheme, which is adapted for each class, our maths lessons are broken down into small, connected steps that gradually unfold the concept, providing access for all children. This allows all pupils to develop a deep and connected understanding of mathematics that they can apply to a range of contexts.

Representation and Structure

Teachers carefully select representations of mathematics to expose mathematical structure. The intention is to support pupils in ‘seeing’ the mathematics, rather than using the representation as a tool to ‘do’ the mathematics. These representations become mental images that students can use to think about mathematics, supporting them to achieve a deep understanding of mathematical structures and connections. Throughout the school, children can choose to use concrete representations of number such as Numicon, Rekenreks and Dienes blocks; these are also presented visually. Eventually, within any given topic, the children will be able to work with just the abstract representation.

Mathematical Thinking

Mathematical thinking is central to how pupils learn mathematics and includes looking for patterns and relationships, making connections, conjecturing, reasoning, and generalising. Pupils should actively engage in mathematical thinking in all lessons, communicating their ideas using precise mathematical language. If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the child: thought about, reasoned with and discussed with others. At Alston Lane, children work in pairs or groups in every lesson.

Fluency

Efficient, accurate recall of key number facts and procedures is essential for fluency, freeing pupils' minds to think deeply about concepts and problems, but fluency demands more than this. It requires pupils to have the flexibility to move between different contexts and representations of mathematics, to recognise relationships and make connections, and to choose appropriate methods and strategies to solve problems.

Variation

Variation is about how our teachers represent the concept being taught, often in more than one way, to develop deep understanding. The purpose of variation is to draw closer attention to a key feature of a mathematical concept or structure through varying some elements while keeping others constant. It is the importance and interconnectedness of these ideas that leads to successful mathematicians.