

Mathematics at Welton Primary School

A Mastery Approach to Mathematics

At Welton, we believe that a deep understanding of maths is achieved through covering fewer topics in greater depth. In maths, we are moving towards an approach where pupils will master key concepts in maths. They explore these concepts through objects, pictures and conversations, as well as written symbols and numbers.



At the centre of the mastery approach to the teaching of mathematics is the belief that all children can succeed. They should have access to the same curriculum content and, rather than being extended with new learning, they should deepen their conceptual understanding by tackling challenging and varied problems.

In essence, a mathematical concept or skill has been mastered when, through exploration, clarification, practise and application over time, a person can represent it in multiple ways, has the mathematical language to be able to communicate related ideas, and can think mathematically with the concept, so that they can independently apply it to a totally new problem in an unfamiliar situation.

With this in mind, pupils throughout school spend a lot of time exploring, clarifying, practising and applying mathematical concepts across a range of situations and using a variety of objects and manipulatives. The focus is always on achieving depth in learning, rather than rushing on to new content or calculations involving bigger numbers.

There are a number of key principles that guide our teaching of a mastery maths curriculum at Welton:

- **The importance of a rich mathematics education.**
- **High expectations, a growth mind-set and a belief that - with effort - everyone can achieve highly in mathematics.**
- **No labels: A crucial aspect of a mastery approach to maths is not having preconceived ideas about which pupils have more or less potential. At Welton we use ongoing daily assessment information to ensure that differentiation and classroom grouping is flexible and responsive to the children's needs and their next steps.**

- **Challenging and supporting pupils through depth rather than coverage. This is made possible by placing an emphasis on conceptual understanding, problem solving, mathematical thinking, and language and communication**
- **Structured use of manipulatives such as Numicon shapes and the importance of being able to represent mathematical ideas in different ways.**
- **Clear, shared expectations around the teaching, planning and assessment of mathematics at Welton, and high quality opportunities for teachers to learn and train. Teacher at Welton use the guidance from the Numicon programme in their planning and teaching of mathematics.**

The National Curriculum

The new National Curriculum in England (introduced in 2014) was developed with many of these key concepts and ideas in mind, drawing, as it does, from the latest educational research, and upon approaches to the teaching of maths in the world's highest performing countries.

Numicon

At Welton, we use Numicon as our main resource in the planning and teaching of mathematics. We feel that having Numicon as a core resource, we can ensure consistency and clarity throughout school. The Numicon approach to the teaching of mathematics is a proven approach to teaching maths for the Primary National Curriculum 2014 and beyond. Numicon places problem-solving, reasoning and conversation at its heart, and supports a curriculum in which depth and the mastery of core concepts are the key aims.

- Develops **fluency** by using a visual, practical base to develop conceptual understanding and fluent recall.
- Helps children to **reason mathematically** through the use of concrete objects and **spoken language** to explain and justify.
- Develops children into confident **problem-solvers**.

