



Context

“Mathematics equips children with a uniquely powerful set of tools to understand and change the world.”¹

At St. Ebbe’s we want **all**² children to have the opportunity to become confident and competent mathematicians through a Mastery approach to the teaching of mathematics.

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is **essential** to everyday life, critical to science, technology and engineering, and **necessary** for financial literacy and most forms of employment. A high-quality mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, **an appreciation for the beauty and power of mathematics, and sense of enjoyment and curiosity about the subject.**³

We define Mastery in mathematics as enabling children to develop a deep structural knowledge of mathematics and the ability to make connections between concepts and procedures. Making connections in mathematics deepens knowledge and ensures what is learnt is sustained over time and can be built upon.⁴

A child has mastered a mathematical concept if he or she can: describe it in their own words; represent it in a variety of ways (e.g. draw it, use symbols, model with equipment); connect it to other facts or ideas; see it in new contexts and apply it to other situations.

We believe children learn by making mistakes and exploring and discussing these openly. The fear of making mistakes can be one of the key things which holds children back from reaching their mathematical potential.

Policy

- We will have high expectations of all children in their mathematics learning.
- We will create a *Growth Mindset* culture towards mathematics by empowering children to take risks in their learning, ask questions, explore their ideas and collaborate with one another.
- Children will be taught in mixed ability groups and move through the curriculum content at broadly the same pace.
- Where children grasp concepts quickly, they will be challenged through rich and sophisticated problems and opportunities to deepen their understanding.
- Where children are having difficulty grasping concepts, teachers will provide additional scaffolds and opportunities to consolidate their understanding.
- Teachers will develop a ‘safe’ environment in their classrooms where children can explore and learn from their mistakes.
- Children will have opportunities to problem-solve in mathematics. Through problem-solving children can experience the power and beauty of mathematics and understanding that children have reached themselves is better retained.

¹ [Mathematics Matters](#)

² [Jo Boaler Stanford University Professor of Mathematics](#)

³ [National Curriculum 2014](#)

⁴ [National Centre for Excellence in the Teaching of Mathematics](#)



- Teachers will plan maths using the **5 key principles of Mastery** (NCETM) and resources that support this approach, so that children have a coherent and consistent experience and are more likely to retain their knowledge and understanding of mathematical concepts.
 - Teachers will plan small steps in learning that build on children's prior knowledge and understanding. **Coherence**
 - Teachers will select manipulatives (e.g. Numicon, Dienes) and representations that best support children's understanding of new concepts. **Representation and Structure**
 - Teachers will expose mathematical structures and support children to build and strengthen connections through maths talk and journaling.⁵ **Mathematical thinking**
 - Teachers will plan regular opportunities for children to rehearse and apply their knowledge of number facts including the times tables so that they can be accurate, efficient and build future learning on firm foundations. **Fluency**
 - Teachers will represent the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. **Variation**

How will we know it's working?

- Learning walks will show consistency of approach
- Monitoring of progress shows good progress from starting points
- Mathematics displays and working walls support the principles above
- Staff are clear on our approach to mathematics teaching
- Children say they are confident in maths and enjoy their maths learning

For more information ...

NCETM – National Centre for Excellence in Mathematics Teaching

White Rose Maths

Maths No Problem

Calculation Policy Guidance

Further reading

Jo Boaler: The Elephant in the Classroom, Mathematical Mindsets, What's maths got to do it?

Visible Maths: Peter Mattock

Individual Differences in Arithmetic: Ann Dowker

⁵ [A mathematical idea, fact or procedure is understood thoroughly if it is linked to existing understanding. \(Hiebert and Carpenter 1992\)](#)