

Maths at Gladstone Road School

Mastery Curriculum

Teachers are of the belief that all pupils are capable of achieving high standards and challenge is part of everyday maths for all pupils.

A Mastery Curriculum incorporates the 5 big ideas;

Fluency
Mathematical Thinking
Use of Representation and Structure
Procedural and Conceptual Variation
Coherence into every maths lesson.



Mastery teaching addresses the needs of all pupils on a daily basis; support is provided through same day intervention for those who did not grasp concepts and challenge is provided through depth of both planned activities and higher order questioning for those for whom concepts were well understood.

Planning for Mastery is well understood across the whole school. Leaders support staff across the whole school with the planning and resourcing of mathematics. A variety of resources are used to facilitate the delivery of maths lessons including the use of Maths No Problem's on line tools and textbooks.

Lesson Design

Lessons begin with a discussion and exploration of a problem, when children record their thought in their journals. Children share and explain their mathematical thinking through explanations, concrete and visual presentations and mixed ability paired discussion. Staff elicit children's understanding and gather misconceptions, using carefully chosen questions. Where needed, some tasks may be adapted to support the slower learners.

Based on assessments of the children's understanding, staff present the main teaching points for the lesson. This may be done through use of the textbook and involve some mathematical reading. Further use of manipulatives and discussion will form the later stages of the lesson, where children begin to grasp new concepts.

Children then practise this new understanding using the 'Guided Practice' and staff are able to check children's understanding using this assessment point. This might be recorded in journals or checked through discussion. At this point in the lesson, children might be regrouped to better support them in the final parts of the session.

Finally, when children are secure in their understanding, they may progress to independently use the workbook. Further challenges for both breadth and depth may be used to challenge children further, which is then recorded in their journals. Where children are not secure in their learning, additional activities may be adapted or included to meet their needs.

Fluency

We aim to ensure that all pupils become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time. Oral arithmetic is a feature of every day learning to ensure pupils develop the ability to retrieve number facts rapidly.

Through the Mastery approach, we provide all children with the opportunity to develop procedural and conceptual fluency. Children are required to reason and make connections between calculations. The connections made improve their fluency.

For example: Don't count, calculate

Young children benefit from being helped at an early stage to start calculating, rather than relying on 'counting on' as a way of calculating. For example, with a sum such as:

$$4 + 7 =$$

Rather than starting at 4 and counting on 7, children could use their knowledge and bridge to 10 to deduce that because $4 + 6 = 10$, so $4 + 7$ must equal 11.

Reasoning

Reasoning is strong in all year groups. All children are expected to respond using mathematical vocabulary. Through reasoning, children are able to extend their understanding beyond arithmetic.

Children are encouraged to:

Describe – saying what happened.

Explain – beginning to offer reasons for what was done.

Convince – confident that the chain of reasoning is right.

Justify – a correct logical argument which has a complete chain of reasoning to it.

Prove – a watertight argument that is mathematically sound.

Problem Solving

Planning ensures that problems are designed to deepen children's understanding of essential concepts through 'intelligent practice' or 'variation'. Children are given opportunity to apply their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

