



Mathematics at Oldfield Primary School

Intent

Here at Oldfield Primary School, we embrace a Mastery Curriculum approach to our mathematics teaching. This means spending greater time going into depth in particular areas/concepts as opposed to quickly moving through the curriculum and the year group objectives.

We have high expectations that all children will achieve and to do this, we believe that all children should be given the opportunity to explore, pattern find, become fluent, reason and problem solve and that there should be carefully crafted questions and activities and a wide range of manipulatives at hand for each child to accomplish this.

We strive to ensure that the whole class moves through content at the same pace and when we differentiate, it is through depth rather than acceleration; everyone is given time to think deeply about the maths and we strive to develop a positive attitude in order to build self-confidence, resilience and a sense of achievement.

Implementation

In EYFS, Y1 and Y2, we ensure that maths is part of their daily diet through Mastering Number and give the children a wide range of experiences and opportunities to apply their mathematical skills. In order for the mastery approach to become successful in KS1 and KS2, we use a specific maths lesson structure, incorporating the Maths No Problem scheme.

The way we structure our lessons ensures a more consistent approach to teaching maths; a greater emphasis on the sequence of learning; a better use of open-ended investigational type questions and the continued development of mathematical pedagogy.

Explore

Reflect

Practise

The mastery approach at Oldfield has also ensures that there is a greater expectation on all children; little chance for passive learning as there is a greater emphasis on talking maths, collaborating, exploring and investigating; the use of equipment is encouraged and there are always planned opportunities for children to make connections between subjects. Children are constantly pushed to the limits of what they are learning.

Oldfield Maths Mastery Definition

When taught to master maths, children develop their mathematical fluency without resorting to rote learning and can solve non-routine maths problems without having to memorise procedures. Evidence shows that children need to be able to understand a concept, apply it in a range of situations and then be creative to really understand it. This means spending greater time going into depth about a subject as

opposed to quickly moving through the curriculum and moving children onto learning in the next year group. The Five Big Ideas about teaching for mastery underpins all that we do: coherence, representation and structure, mathematical thinking, fluency, and variation.

Impact

At Oldfield, there is a consistent approach to the teaching of maths mastery across the school. Children will make good or better progress from their own personal starting points. By the end of KS2 they will be able to fluently recall their times tables up to 12x; they will have a great understanding of place value; secure with the four operations; understand the relationship between fractions, decimals and percentages; use measurements effectively and accurately; understand how ratio and proportion can be used; solve algebraic problems; have a good understanding of geometry and be able to analyse statistics.

In Lessons we:

- Structure our lessons into four parts (exploration, structured learning, practice and apply and extension/deepening of understanding)
- Spend longer on one concept/idea
- Teach all children in class, together, most of the time
- When we do differentiate, it is through depth rather than acceleration
- We use the Concrete, Pictorial, Abstract (CPA) approach to support learning
- Give verbal feedback during lessons, shortened comments in books and more ticking of correct concepts. (Misconceptions and incorrect concepts are addressed in the children's responses to feedback and marking and in subsequent lessons)
- Build in problem solving/ deep thinking questions into each session to encourage mathematical reasoning skills
- Complete Daily/weekly/unit mini reviews with a few formal tests over the year
- Allow the children opportunities to explore, discuss (talking maths using rich, sophisticated language) and challenge each other
- Put in place immediate intervention to keep all children on track
- Give children who need it, additional support over shorter, more intense periods, like a day or week

Maths - No Problem!

In order to further develop our maths mastery curriculum, we use the Maths No Problem scheme right the way through our school from Year one to Year six. It follows the Singapore approach to teaching mastery maths. It helps pupils develop a deep, long-term and adaptable understanding of maths.

Parent Videos

We have added some videos below to help you understand the fundamental idea behind the scheme and the methods we use to teach number bonds, subtraction, mental calculations, multiplication, long division and bar modelling (this is used to represent numbers in a problem).

The videos are presented by Dr. Yeap a specialist in the Singapore Maths Approach.

Click on the image to access the Parent Videos



Fundamental Idea

Dr. Yeap talks about one of the fundamental ideas in mathematics: that items can only be counted, added and subtracted if they have the same nouns. Using simple objects like chocolates and glue sticks, Dr. Yeap illustrates the point and then shows how it relates to column and fraction additions.

Number Bonds

Number bonds represent how numbers can be split up into their component parts. In this video, Dr. Yeap explains how young children can use counters, blocks or other simple materials to make various number bonds.

Subtraction

By using children's knowledge of number bonds, Dr. Yeap explains how standard column subtraction can be easily taught. Once children understand how numbers can be split into their component parts, they can adapt this knowledge to understanding the conventional column subtraction method.

Mental Calculations

Dr. Yeap discusses how children can develop an ability to calculate the four operations — addition, subtraction, multiplication and division — in their heads without the use of paper and pencil or calculators.

Multiplication

By using visualisation and other simple strategies, children can easily learn their times tables. Watch as Dr. Yeap explains.

Long Division

Dr. Yeap discusses how children can first learn to do long division by breaking numbers up into simpler combinations. Then they can explore how this concept can be used to learn the long division algorithm.

Bar Model 1

Watch as Dr. Yeap shows how to solve word problems by using rectangles to represent unknown quantities. This method of visualising is known as the bar model.

Bar Model 2

Dr. Yeap gives another example of the bar model by showing how rectangles can represent quantities, both known and unknown, to help solve word problems.