A Guide to

Maths Mastery in the Early Years
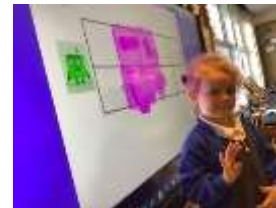

Elburton Primary School

Horizon MAT

Table of contents

What is Teaching for Mastery?

Our definition

At Elburton Primary School, we see teaching for Mastery in Maths as allowing pupils to gain a deep understanding of maths, allowing them to acquire a secure and long term understanding of the concepts. Allowing them to make continual progress to them more onto more complex topics.

We believe that Maths is everywhere and that all children have the right to become successful mathematicians and enjoy a love of number and pattern spotting.

Teaching for Mastery

We choose to teach objective by breaking them down into the smallest steps.

We ensure that every child is secure in every new concept before moving on. We focus on teaching for fluency, reasoning and problem solving.

Early Learning Goals for Foundation

There are two Early Learning Goals for Maths under the EYFS Statutory Framework 2021. This is what most children in Reception are expected to do by the end of their first year in school.

Children at the expected level of development will:

ELG: Number

Have a deep understanding of number to 10, including the composition of each number

Subitise (recognise quantities without counting) up to 5

Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG: Numerical Patterns

Count beyond 20, recognising the pattern of the counting system

Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity

Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

How do we teach for Mastery in Foundation?

Fluency

In Foundation, we teach so that children have a deep understanding of number.

We want to be able to develop children's number sense so that they understand the number rather than just recognising the numeral. Children need to understand that numbers can be represented in many ways, not just as a written numeral. We use many different objects and pictures to show that numbers can be represented in lots of different ways.

Some ways to represent five
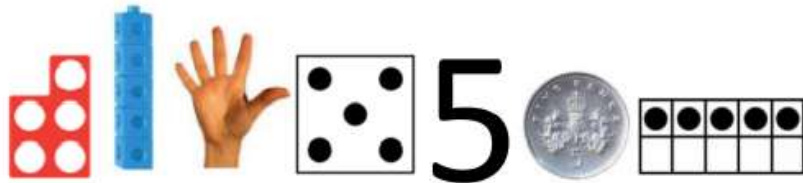
Children sometimes need lots of practise to recognise numbers in different forms.

Counting

The cardinal value of a number refers to the quantity of things it represents, e.g. the numerosity, 'howmanyness', or 'threeness' of three.

When children understand the cardinality of numbers, they know what the numbers mean in terms of knowing how many things they refer to. Counting is one way of establishing how many things are in a group, because the last number you say tells you how many there are. Children enjoy learning the sequence of counting numbers long before they understand the cardinal values of the numbers.

Recognising amounts

Subitising is another way of recognising how many there are, without counting.

Initially this should be by using concrete objects such as the ones shown previously but as children progress, allowing them to see groups of dots in many different arrangements helps them to mentally 'see' how many objects there are without the need for counting.

This is a very important skill when children begin to add and subtract. Using dice is a good way to practise this skill before moving onto objects in different arrangements.
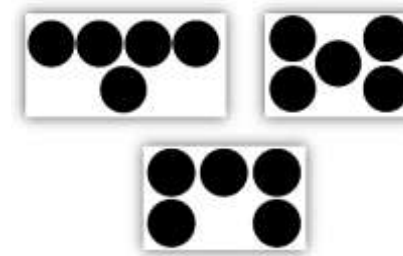
Understanding that the total stays the same even when the objects move

When children first start to use numbers, they often do not understand that when we move them into another arrangement the total stays the same. We practise this with many different objects but a useful tool is a tens frame.
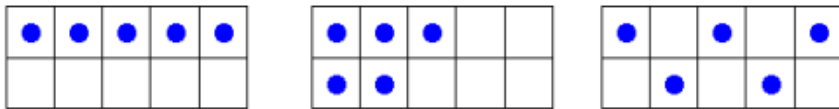
To the person without number sense, arithmetic is a bewildering territory in which any deviation from the known path may rapidly lead to being totally lost. Dowker (1992)

Reasoning

Reasoning in Maths helps children to be able to explain their thinking, therefore making it easier for them to understand what is happening in the Maths they are doing. It helps them to think about how to solve a problem, explain how they solved it and to think about what they could do differently.

In Foundation, some examples of reasoning are:

• true and false statements e.g. adding one to a number always makes it smaller

• spotting incorrect Maths e.g. 1, 2, 3, 4, 6, 5, 7, 8, 9, 10

• explaining how we know something or how we worked it out.

Problem Solving

Problem Solving in Maths allows children to use their Maths skills in lots of contexts and in situations that are new to them. It allows them to seek solutions, spot patterns and think about the best way to do things rather than blindly following Maths procedures.

In Reception, problem solving might include:

• spotting, following and creating patterns

• estimating amounts of objects

• predicting how many times they can do something in a minute

• sharing objects between different groups – particularly when the amount of groups change and the amount of objects stays the same

• finding different ways to split numbers e.g. 5 could be 5+0, 4+1, 3+2 etc

How can I help at home?

• Count - steps up the stairs, money into a money box etc

• Ask children to say how many without counting (5 or fewer)

• Play games using a dice and encourage child to say how many spots without counting

• Ask children to set the table with enough knives, forks and plates for everyone

• Spot numbers in the environment – on phones, microwaves, clocks, car registration plates, doors.

• Ask children to think of their own representations for numbers e.g. one of them, two hands, three bears, four wheels on a car, five toes, six sides on a dice, seven dwarves, eight legs on an octopus etc

• Deliberately make mistakes. Children need to understand mistakes are normal and everyone makes them e.g. get mixed up when counting, muddle two numbers when ordering them

• Hide numbers around the house or garden for children to find.

• Play outdoor Maths games like hopscotch and skittles. Even better, let children make up their own games and decide how to score points

• Read books with Maths concepts e.g. The Very Hungry Caterpillar, One is a snail, ten is a crab, What's the time, Mr Wolf?

• Draw attention to more and less

• Ask questions such as "How many more?", "How many altogether?", "How many would I have if…"

Online Resources

Watch Numberblocks on CBeebies. This programme is written by Maths specialists to model Maths concepts and represents number brilliantly.

Also, Numberjacks is excellent for solving problems.

If you have any questions, as always please do not hesitate to contact us.

The Foundation Team