A Guide to Maths Mastery in Reception

St Clare's RC Primary School

What is Teaching for Mastery?

Our Definition

At St Clare's we see teaching for mastery in Maths as allowing the pupils to gain a deep understanding of Maths, allowing them to acquire a secure and long-term understanding of Maths that allows them to make continual progress to move onto more complex topics.

Our Ethos

We believe that everyone can do Maths and there's no such thing as a Maths person. Maths is a subject that everyone can and should be able to perform confidently and competently.

Teaching for Mastery

We choose to teach by breaking down Maths objectives into the smallest steps, so that every pupil is secure in every new concept before moving on. We focus upon teaching for fluency, reasoning and problem solving.

Early Learning Goals in Reception

There are two Early Learning Goals for Maths. This is what children in Reception are expected to be able to do by the end of the year.

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.

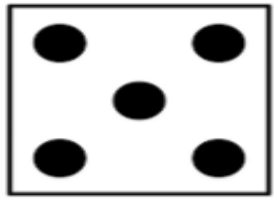
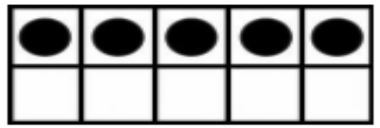
Numerical Patterns:

- Verbally 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 Reception?

Fluency
In Reception, we aim to teach so that children have a deep understanding of number.

Representing Numbers
We want 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 ways.
Some ways to represent five:

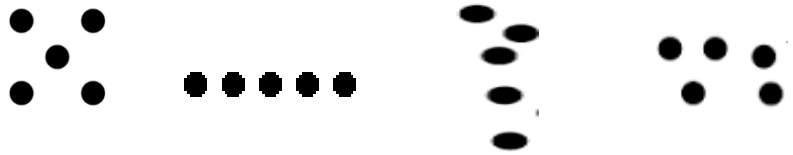
5      

Children sometimes need lots of practise to recognise numbers in different forms. We play matching games and encourage children to recognise and make different amounts in our indoor and outdoor areas.

Counting
When counting, children need to understand that:
- We need to say one number for each object counted (touch counting).
- The final number we say is how many altogether. Some children continue to count after they have reached the final object as they don't connect the numbers they are saying to the objects in front of them.
- We can count objects in any order and the total stays the same.

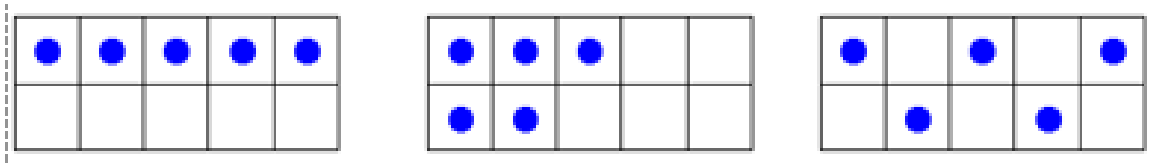
Recognising amounts

Another skill that is very important is recognising small amounts without the need to count them. This is known as subitising. Initially this should be by using concrete objects such as those shown above but as children progress, allowing them to see groups of dots in different arrangements helps them to mentally 'see' how many objects are there without needing to count. 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 if we move objects into another arrangement the total stays the same. We practise this with many different types of objects but a useful tool is using a tens frame to be able to move counters around.



By becoming fluent in maths facts, it allows our brain to concentrate on higher level skills.

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 Reception, some examples of reasoning are:

- true and false statements eg adding one to a number always makes it smaller
- spotting incorrect maths eg 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 eg 5 could be 5+0, 4+1, 3+2 etc