

EYFS Mathematics

Warstones Primary



New Early Year Curriculum

Mathematics Early Learning Goals

By the end of Reception to achieve the Early Learning Goal in Mathematics children need to be able to do the following independently:

Number

- Have a deep understanding of numbers 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 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.

Mathematics in Reception

We follow White Rose Maths from Reception to Year 6. This is the Maths planning overview in Reception:

Autumn Term	
Unit	Focus
Just like Me	Matching, sorting and comparing amounts Comparing size mass and capacity Exploring and describing pattern
It's Me 1,2,3	Counting Representing and comparing 1,2 & 3 Composition of numbers 1,2, & 3 Investigating describing and identifying circles and triangles Using and understanding positional language
Light and Dark	Representing numbers to 5 Exploring and recalling one more and one less
Spring Term	
Unit	Focus
Alive in 5	Introducing zero Comparing numbers to 5 Composition of 4 and 5 Comparing mass (2) Comparing capacity (2)
Growing 6,7,8	Represent and compare 6,7,8 Composition of 6,7,8 Making pairs and counting in 2s Combining 2 groups to find a total Exploring measuring – length and height Exploring time – measuring time and sequencing events/days
Building 9 and 10	Represent and comparing 9 and 10 Composition of 9 and 10 Comparing numbers within 10 Ordering numbers to 10 Number bonds to 10 3D shape Pattern (2)

Mathematics in Reception

We follow White Rose Maths from Reception to Year 6

Summer Term	
Unit	Focus
To 20 and Beyond	Building numbers beyond 10 Counting patterns beyond 10 Spatial reasoning Shape – Match, Rotate, Manipulate
First, Then, Now	Addition Subtraction Spatial reasoning Shape – Compose and decompose
Find my Pattern	Doubling Sharing and grouping Even and Odd Spatial reasoning Shape – visualise and build
On the Move	Deepening understanding of numerical concepts Numerical patterns and relationships Spatial reasoning Mapping

How we teach and support children's mathematical learning at Warstones Primary



- By having a mathematical rich environment
- Whole class teacher directed learning.
- Small group work activities.
- Enhanced provision in response to needs and interests of the children to encourage the exploration of mathematical concepts.

Maths



Mastery of Maths

An important part of developing children's mathematical ability is to develop mastery of skills and knowledge.

Mastery is encouraged through careful questioning and encouraging children to apply their knowledge and problem solve. We also encourage children to use language to demonstrate their understanding of concepts and to discuss what they find when problem solving.

The reasoning for focussing on mastery of numbers up to 10 in Reception is because:

- Significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. The structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be sustained.
- Key facts such as addition within 10 are learnt to avoid cognitive overload in the working memory and enable pupils to focus on new concepts as they begin to work with bigger numbers.

Maths



Nursery

- There is a focus on numbers to 5.
- This includes:
 - recognition of up to 3 objects
 - reciting numbers to 5
 - saying numbers in order to 5
 - matching numeral to amount
 - Experiment with their own symbols and marks
 - solving mathematical problems
 - Comparing quantities

In Nursery children also talk about and explore 2D and 3D shapes, position, comparison between objects eg size, length, weight and capacity.

Why is maths so important?



- Maths is everywhere in the world around them.
- They will need to be able to use maths in everyday life.
- Maths enables children to think logically and become good problem solvers.

Therefore:

- It is vital to lay secure foundations in early mathematics.
- We want children to engage with all areas of mathematics.
- We must give children the tools to help them to develop a better understanding of the mathematical world in which they live.

Good practice in the teaching and learning of Mathematics



- Children are given clear purposes and context for mathematics that are real in life and in play.
- First hand experiences both indoors and outdoors.
- Adults modelling how to be a mathematician
- Sustained shared mathematical thinking between adult and child is essential.

How we teach mathematical learning at Warstones Primary

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.

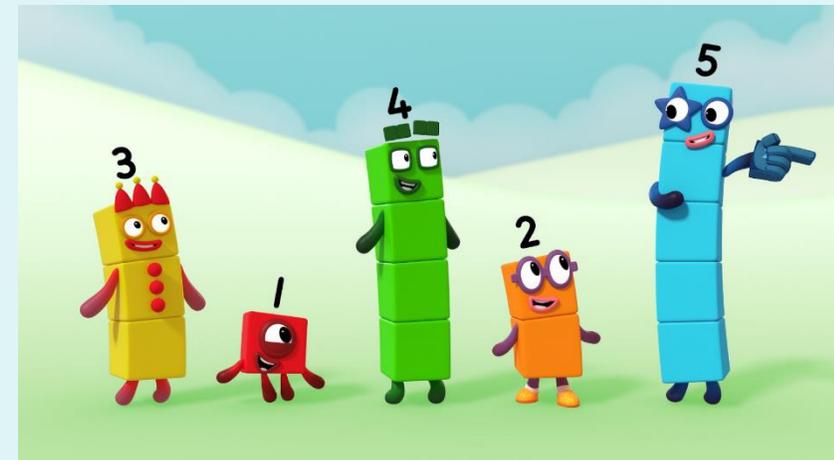
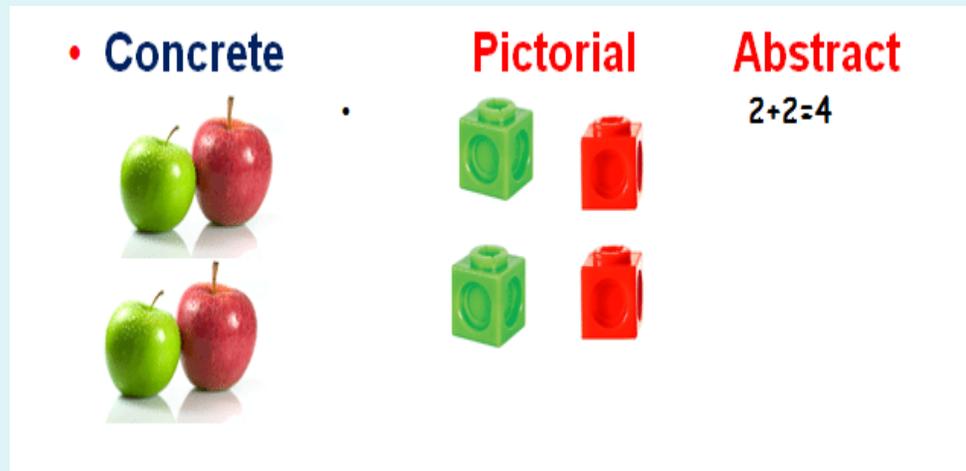
- That we can count objects in any order and the total stays the same

The CPA Approach (Concrete, Pictorial, Abstract)

Concrete is the 'doing' stage, using concrete objects to solve problems.

Pictorial is the 'seeing' stage, using representations of the objects involved in mathematical problems.

Abstract is the 'symbolic' stage, where children are able to use abstract symbols to model and solve mathematical problems.



Reasoning

Reasoning helps children to be able to explain their thinking, therefore making it easier for them to understand what is happening.

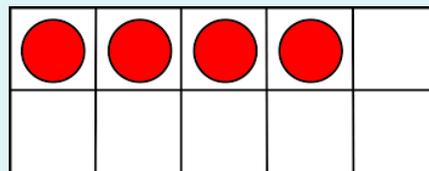
It helps them to think about how to solve a problem, explain how they solved it and to think about what they could do differently.

In Reception and Nursery, some examples of reasoning are:

- true and false statements e.g. adding one to a number always makes it smaller
- spotting incorrect number order e.g. 1, 2, 3, 4, 6, 5, 7, 8, 9, 10
- explaining how we know something or how we worked it out.

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 practice this with many different types of objects but a useful tool is using a tens frame to be able to move counters around.



How we teach children's mathematical learning at Warstones Primary

Problem Solving

Problem solving allows children to use their mathematical 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.

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 partition numbers e.g. 5 could be $5+0$, $4+1$, $3+2$ etc.

Recognising amounts

Another skill that is very important is recognising small amounts without the need to count them.

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.

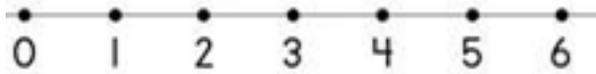
Using dice is a good way to practice this skill before moving onto objects in different arrangements.



Number Recognition

Number fans and digit cards

Number lines

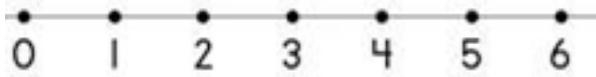


Numicon

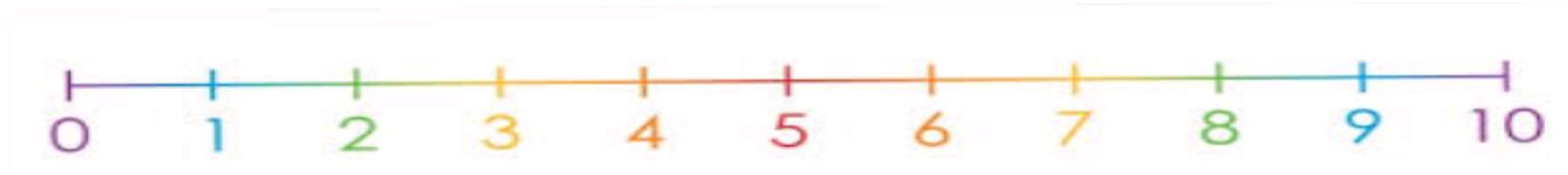
Numbers - calculating



The children use a variety of resources to solve addition and subtraction problems.



Using the number line

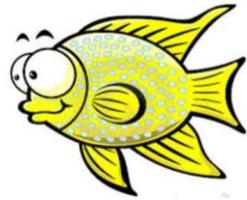
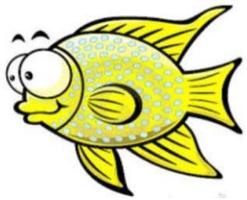
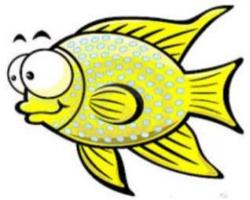


- Counting up and down the line.
- Addition problems activity.
- Subtraction problems activity.

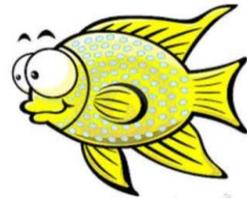
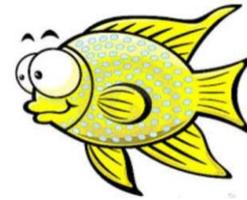
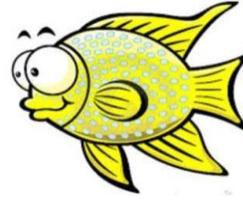


How can I help at home?

- 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 dice/dominoes 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, 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.
- Watch Numberblocks on CBeebies. This programme is written by specialists to model mathematical concepts and represents number brilliantly. Also, Numberjacks is excellent for solving problems.
- Hide numbers around the house or garden for children to find.
- Play outdoor games like hopscotch and skittles. Even better, let children make up their own games and decide how to score points.
- Read books with mathematical concepts e.g. The Very Hungry Caterpillar, One is a snail, ten is a crab, What's the time, Mr Wolf? The doorbell rang.
- Draw attention to more and less.



Counting



Questions to do with this activity:

- *How many are there?*
- *How many would we have if we had one more?*
- *How many would we have if we had one less?*
- *How many would we have if we had double?*
- *How many would we have if we had half?*