Parents as partners
Mastery maths in the early years
November 2023

Aims

To explain what mastery maths is in the early years and why it is important.

To share how we teach mastery maths in Ducklings class.

To give you some ideas of how you can help your child at home with their maths.

Our ethos

Our belief is that maths is for everyone. Maths is a subject that all children can and should be able to do confidently and competently.

New Early Learning Goals (2021)

Number ELG

Children at the expected level of development will:

- 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 ELG

Children at the expected level of development will:

- 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.

Teaching for mastery

In maths **mastery** the focus is on teaching for:

Fluency

Reasoning

Problem-solving.

What do we mean by number fluency in the EYFS?

Children need to understand the **five main counting principles** and develop a really **strong sense of numbers to 10.**

The Counting Principles

To be fluent in number, we teach the children the 5 main counting principles. These are:

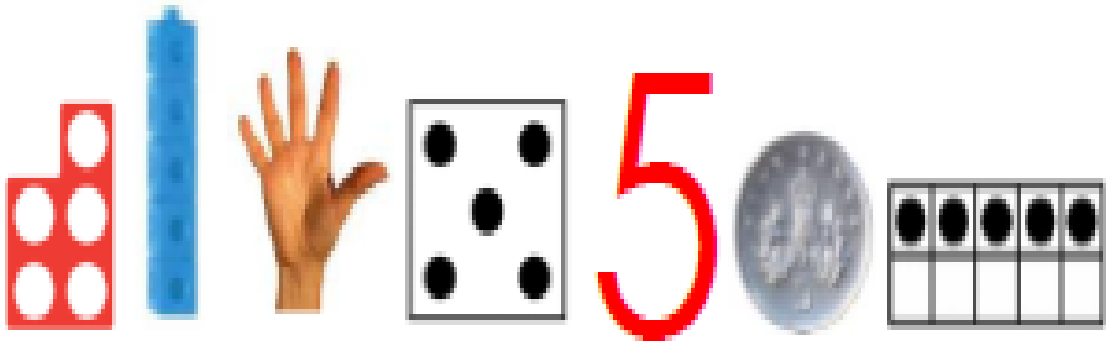
1. **One to one principle.** This involves children assigning one number name to each object.
2. **Stable order principle**. Children understand when counting, the numbers have be said in a certain order.
3. **Cardinal principle.** Children understand that the number name assigned to the final object in a group is the total number of objects in that group.
4. **Abstraction principle.** Children understand that anything can be counted including sounds and movement (jumps etc)
5. **Order-irrelevance principle.** This involves children understanding that the order we count a group of objects is irrelevant. There will still be the same number unless an object is added or taken away.

Number sense to 10

- Understanding the link between numbers and quantity (representing numbers in different ways).
- Investigating how numbers are composed of smaller parts.
- Knowing how the numbers relate to one and another and being able to compare and order them.
- Exploring how quantities change when you add more objects or take objects away.

Representations

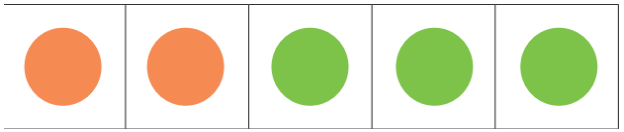
Children are exposed to a range of different representations of the number.

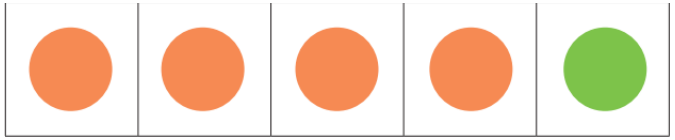


How we teach number fluency

Composition

The children investigate how quantities are composed of smaller parts. For example 5 can be made up of 2 and 3 or 4 and 1 or 5 and 0.



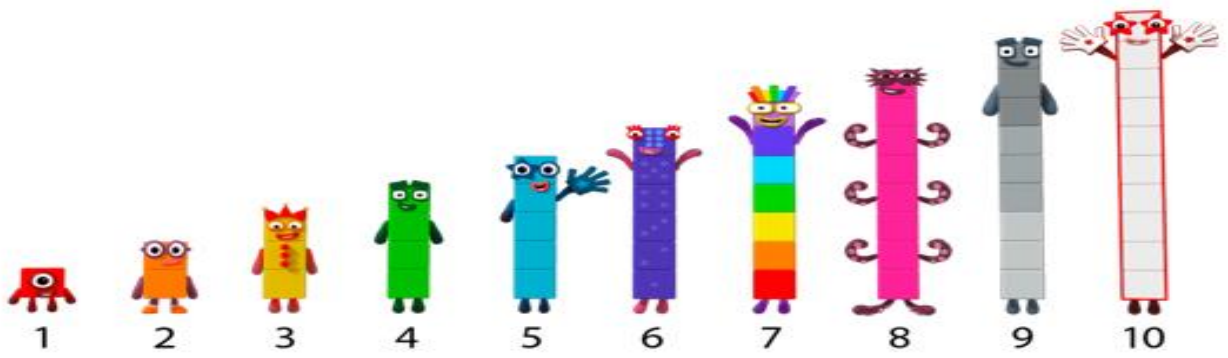


Play spill the beans game.

How we teach number fluency

Comparison of numbers

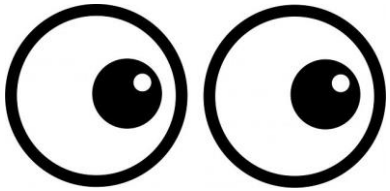
Understanding the relationship between numbers



Comparing numbers to 3. WRM

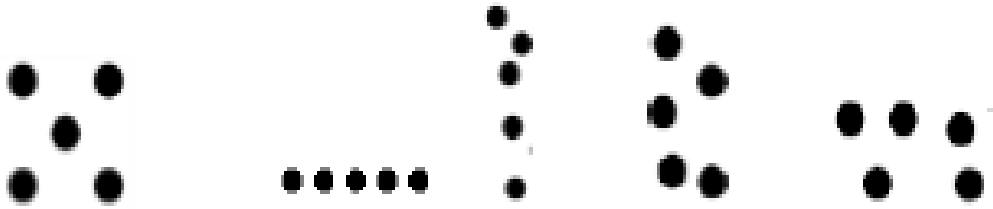
Subitising

Use your eyes to subitise!



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

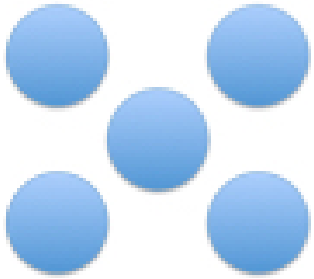
We call this subitising. A great way to develop this is playing number games with dice.



Play subitising games

Subitising

Subitising can help children to build images for numbers, to visualise and to learn number facts.

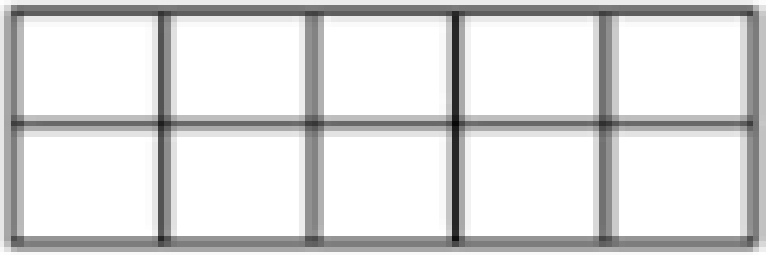


It helps children to see numbers inside numbers, for instance seeing 4 and 1 within 5.

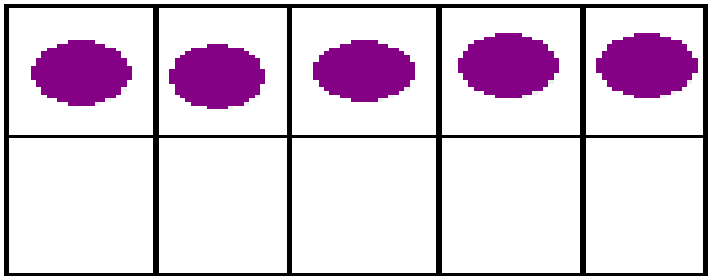
Play subitising game – how do you see the dots?

10 frames

We use 10 frames to help the children develop a sense of 5 and then 10.



Counters are placed in the frame to show numbers less than or equal to 10.



I can see 5 counters and 5 spaces.

Reasoning and Problem-solving

Reasoning in maths asks children to explain their thinking. This makes it easier for them to understand what is happening in the maths they are doing.

Play kangaroo game

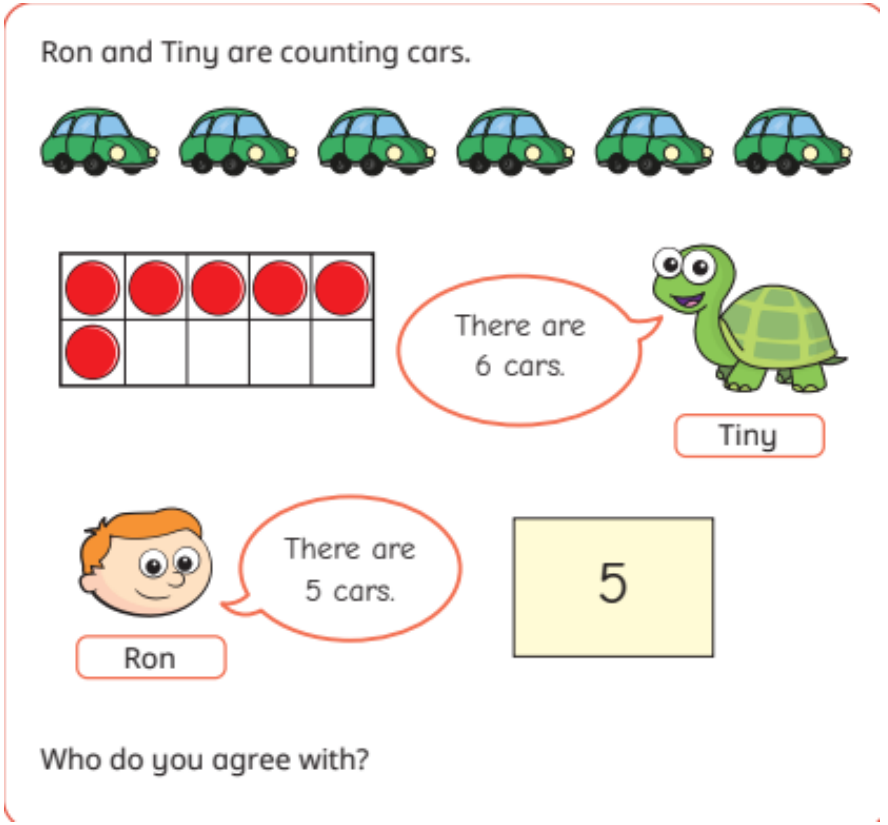
Problem solving in Maths allows children to use their maths skills in lots of contexts and in situations that are new to them. It allows them to seek solutions, spot patterns and think about the best way to do things rather than just following Maths procedures.

Examples of Problem-solving in EYFS

Teddy rolls the number that is 1 more than the dice below.

He says that he rolls 2

Explain his mistake.



White Rose and NCETM

We follow a whole school mastery approach based on research and training by the National Centre for Excellence in the Teaching of Maths (NCETM) and using White Rose as our scheme of work.

https://www.ncetm.org.uk/in-the-classroom/early-years/

https://assets.whiterosemaths.com/resources-2022/early-years/autumn-block-1-getting-to-know-you/Reception-Scheme-Guidance-for-Teachers-and-FAQs-Autumn-2021-

Maths in Ducklings

Four sessions of whole class active maths lessons a week which last approximately 15 minutes.

In these lessons children recap previous learning and practice maths which is related to that week's learning objective.

Mastering Number sessions - NCETM
In addition to this the children take part in four sessions of maths fluency per week from the NCETM EYFS Mastering Number programme.

They also participate in one teacher-led small group activity linked to that week's learning objective at the end of the week to consolidate their learning.

The children have opportunities to practice what they have learnt throughout our continuous provision and routines, for example our fruit shop.

How you can help your child at home?

Count - steps up the stairs, money into a money box, lampposts in the road etc

Talk about the number of things in everyday conversation - can you pick up the two pens? Can you get three apples?

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, registration plates, doors.

Watch Number blocks on CBeebies. This programme is written by maths specialists to model maths concepts and represents number brilliantly.

Hide numbers around the house or garden for children to find and then order.

Play outdoor maths games like hopscotch and skittles.

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?

Useful websites

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http://www.oxfordowl.co.uk/maths-owl/maths

Numbots https://play.numbots.com/#/intro

https://nrich.maths.org/early-years

https://www.ncetm.org.uk/classroom-resources/ey-numberblocks-at-home/

https://www.bbc.co.uk/cbeebies/joinin/numberblocks-help-your-child-with-maths

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