Almondsbury
Church of England Primary School
Creating our Pathways

Welcome to …

Early Mathematics

in Reception

Early Learning Goals

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.

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.

Early Learning Goals

ELG: 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.

Shape, Space and Measure is now not assessed at the end of Reception, but is still taught.

Teaching Maths in Reception

- Our objective in the Early Years is to ensure that all children develop **firm mathematical foundations** in a way that is **engaging**, and **appropriate** for their age.

- Early Years provides a **platform** for everything children will encounter as they progress through their maths learning at primary school, and beyond.

- We believe that **everyone** can do Maths. Maths is a subject that everyone can and should be able to perform confidently and competently.

- 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.**

Maths Mastery

- Teaching for mastery in Maths allows children 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.

- The focus is on **depth** – not acceleration – so all children have a chance to embed learning.

- Mastery resembles an **adaptable understanding** of mathematics. This means that children can understand mathematical concepts beyond rote or 'paper' based approaches and are able to select appropriate mathematical skills and knowledge to solve problems.

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

White Rose Maths

Recognising amounts - Subitising

- The **most important skill** your child can learn in Early Mathematics is **'subitising'.**

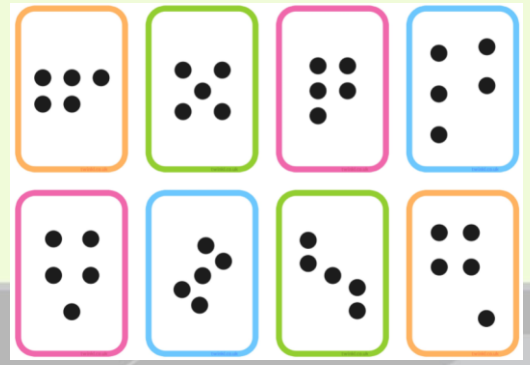
- Subitising is recognising small amounts without counting them. It comes before counting.

- Subitising helps children to **build visual images for numbers**, which in turn helps them to learn number facts.

- Initially children should learn to subitise through using concrete objects 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.

- Subitising is an essential skill when children begin to add and subtract. It is often associated with dice patterns but it is so much more than this.

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



Subitising: What do you notice?

Use your eyes to subitise!

Don't count, see the amount!

Here is a useful link to explain Maths in the Early Years...
Early Years Maths Video

Cardinality and counting

The cardinal value of a number refers to the quantity of things it represents.

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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.

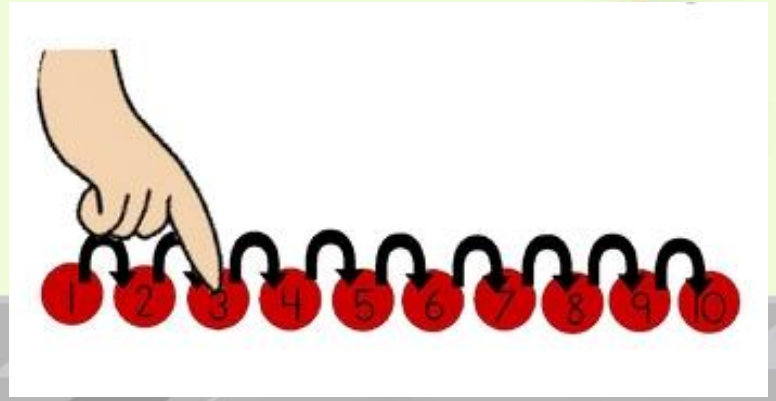
When counting, children need to understand...

- We need to say one number for each object counted (touch counting). We encourage them to line up objects and touch each one as they count saying one number name per object.

- The final number we say is how many there are altogether. Some children continue to count after they have reached the final object as they are not connecting the numbers they are saying to the objects in front of them.

- Anything can be counted including things that cannot be touched (sounds, movements).

- We can count objects in any order and the total stays the same.



Counting Corners...

Counting Containers – pots, boxes, counting frames for the children to put things in to count. Counting wands to aid with touch counting. Boards to record their counting/exploring.

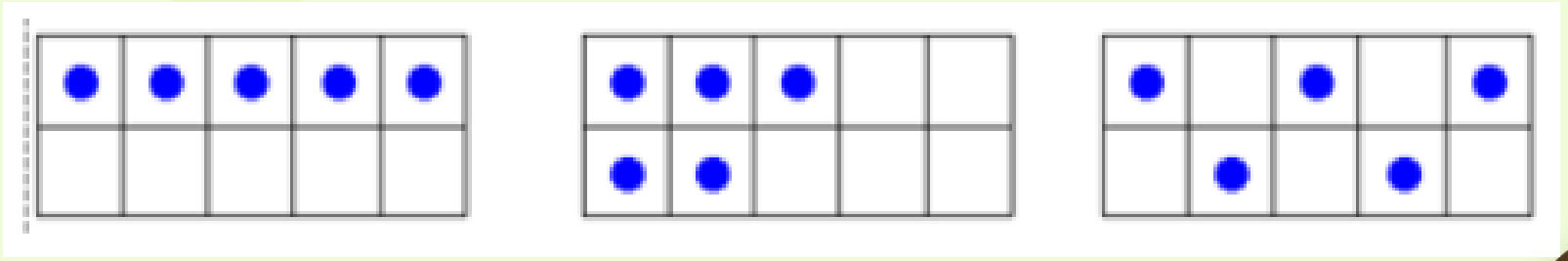
Counting Collections – variety of different items, which change throughout the year, for the children to use to count.

Estimation Station – 'A good guess!' - items in jars, which change throughout the year, for the children to guess how many are inside, make guesses on post-it notes then we tip them out and count them to see who was the closest.

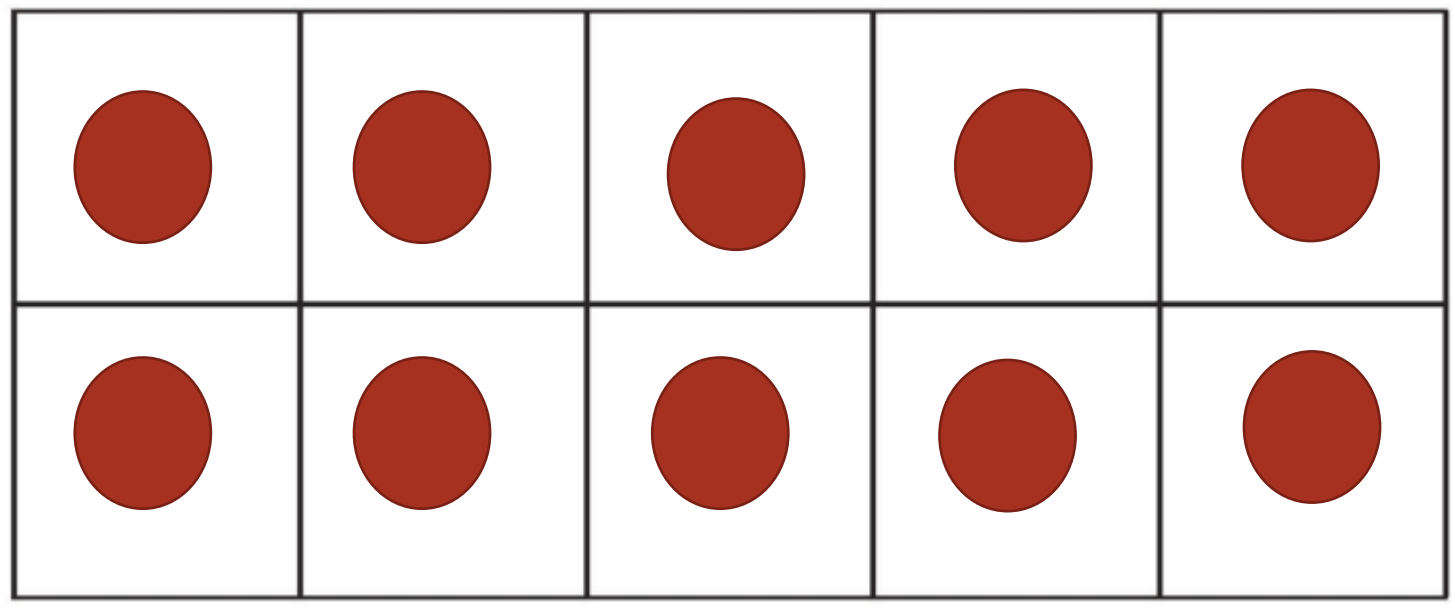
Understanding that the total stays the same, even when the objects move

- 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.

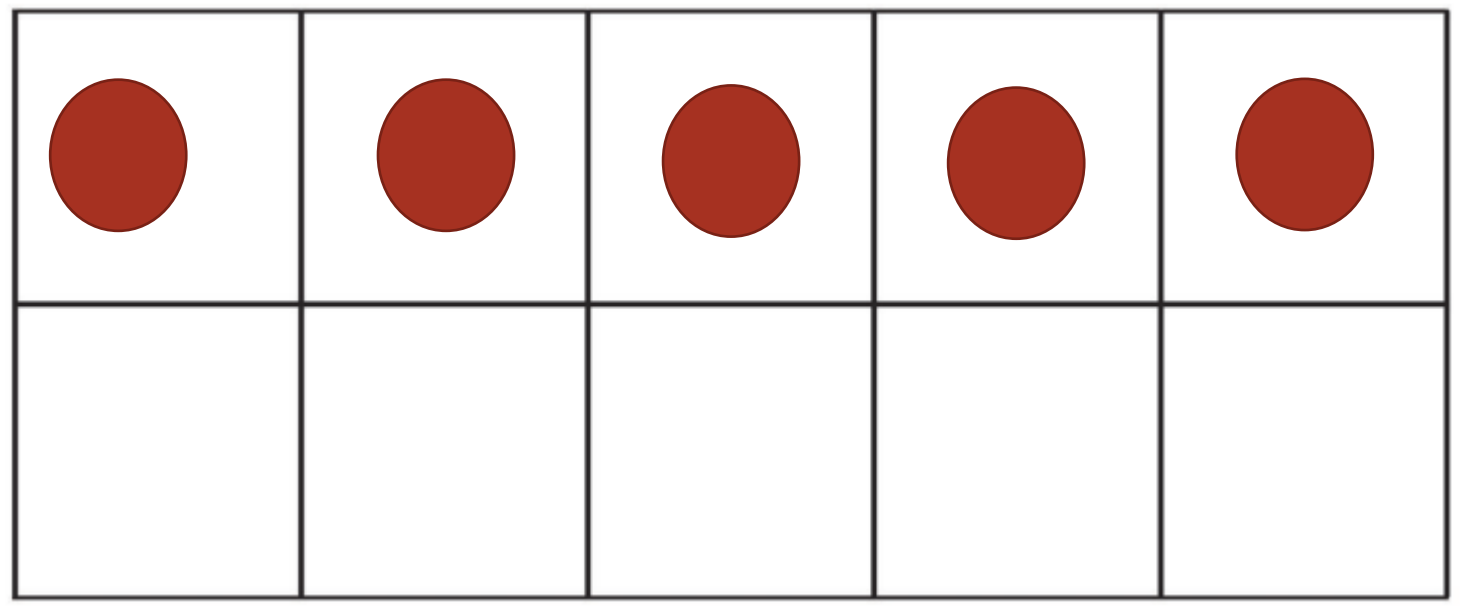


Tens frame



We encourage the children to subitise, rather than count when using a ten frame. They will learn that if the ten frame is full, it is 10.

Tens frame



If one row is full it is 5. They will soon start to notice if there is 1 fewer it is 4, if there is 1 more, it is 6.

Counting frames in the classroom

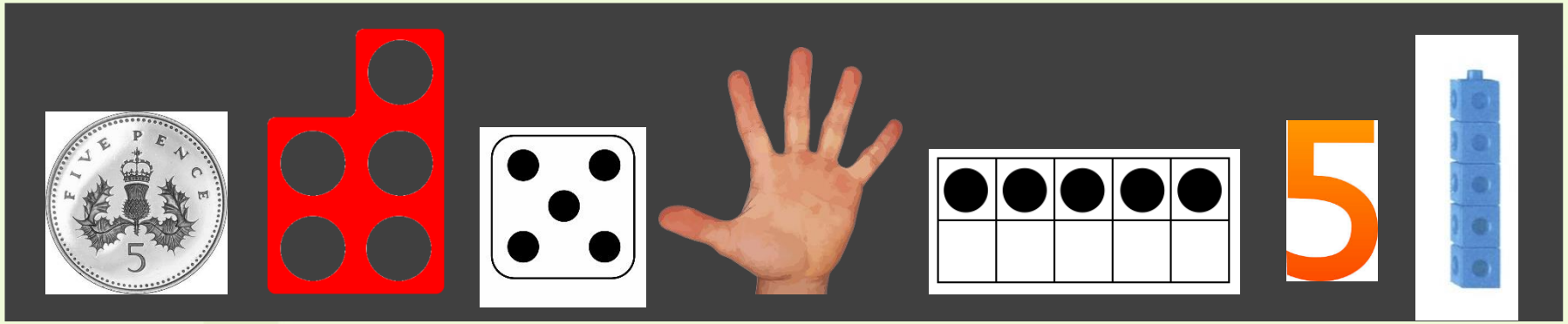
There's 10 and 10 and 3, that's 23 children here today

There's 3 empty spaces next to my water bottle

We use counting frames during our daily routine to encourage more maths language and talk.

Representing numbers

We want to develop children's **number sense** so that they 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.

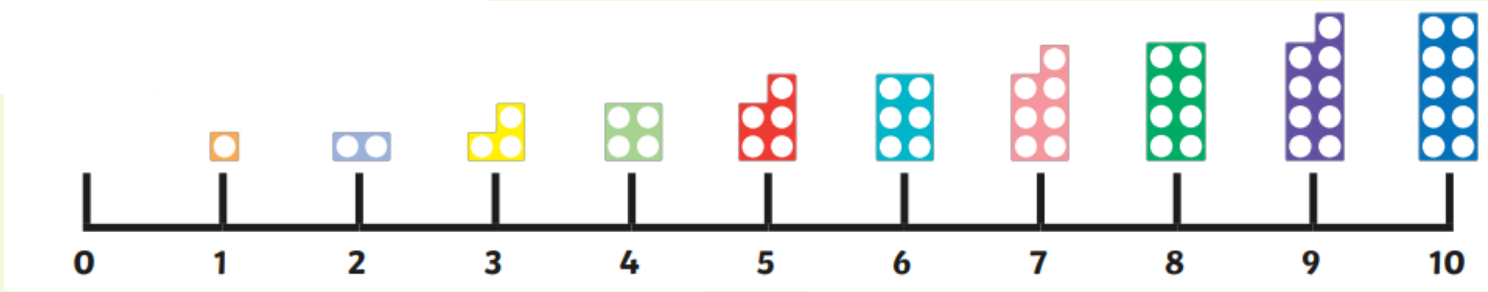


Children sometimes need lots of practise to recognise numbers in different forms. We play matching games and encourage children to recognise and make different amounts in our indoor and outdoor areas.

Comparison

Comparing numbers involves knowing which numbers are worth more or less than each other.

This understanding underpins the mental number line which children will develop later, which represents the relative value of numbers, i.e. how much bigger or smaller they are than each other.

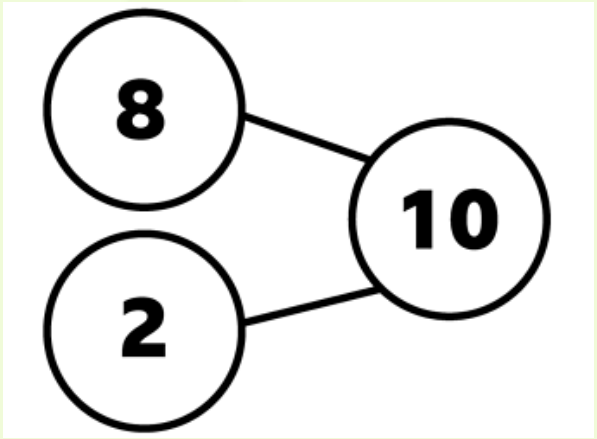


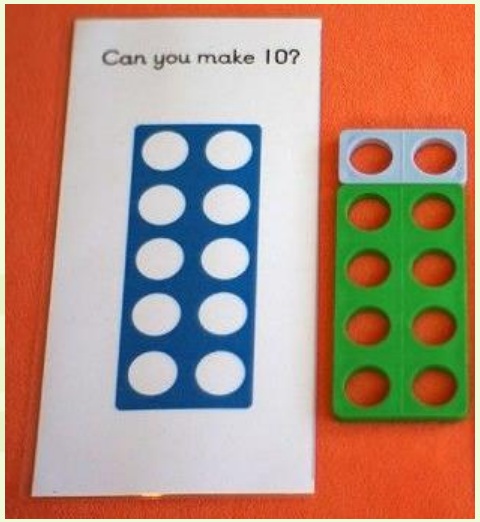
Composition

Knowing numbers are made up of two or more other smaller numbers involves **'part–whole' understanding**.

Learning to **'see'** a whole number and its parts at the same time is a key development in children's number understanding.

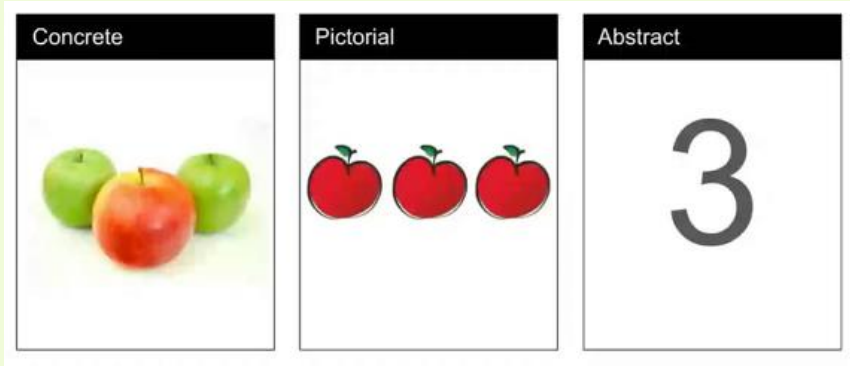
Partitioning numbers into other numbers and putting them back together again underpins understanding of addition and subtraction as inverse operations.

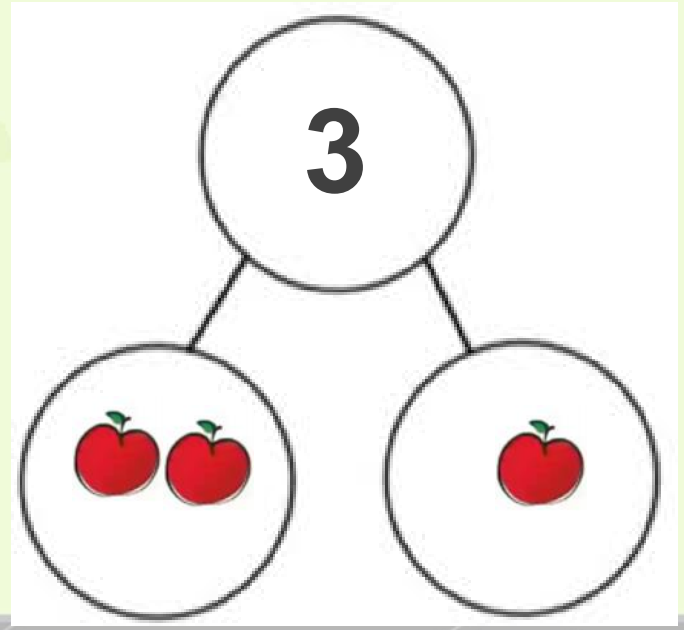


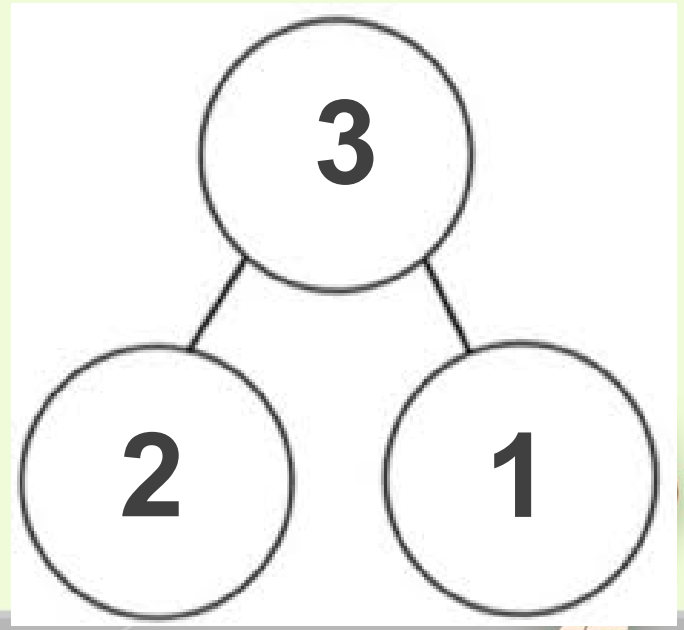


Part whole

We begin with using real objects for partitioning, to enable the children to move things around. We then use pictures and eventually numbers.







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:

- Explaining what they notice e.g. I know there is 4 because 2 and 2 is 4.
- 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

Making Mistakes

- Making mistakes is part of learning.

- Don't tell them they're wrong – let them make the mistake then help them see what went right and where it went wrong.

- Normalise mistake making by doing it yourself! By deliberately making mistakes, children will begin to understand that mistakes are normal and everyone makes them e.g. get mixed up when counting, muddle two numbers when ordering them.

Numberblocks

- We will be introducing the children to early number work through the use of Numberblocks.

- Each episode is used as a launch pad to bring numbers and ideas to life in the world around them.

- The snappy animation and loveable characters combine with engaging storylines to gently introduce concepts of number to support early mathematical understanding.

Magic Maths Afternoon

Every Thursday we have our 'Magic Maths Afternoon'! During this time, the children engage in maths-based provision both inside and outside, linked to our maths learning of the week.

This helps to consolidate our learning in a fun and meaningful way.

Playing Games

We have a game of the week each week in Reception that the children will play with an adult and their friends. We will be learning how to play lots of different games. Rolling a dice, moving the correct number of spaces, following the rules, taking turns, waiting, cheering our friends, winning and losing, are all important skills.

I got a 4, there's 2 dots and 2 dots

I need 3 more to win

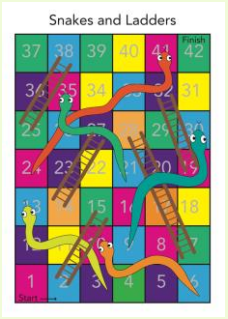
You came first, I was second

How can you help at home?

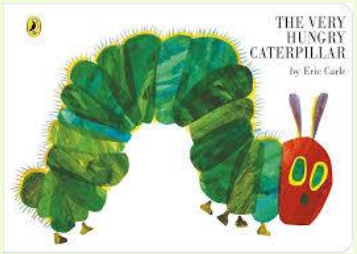
Sing number songs

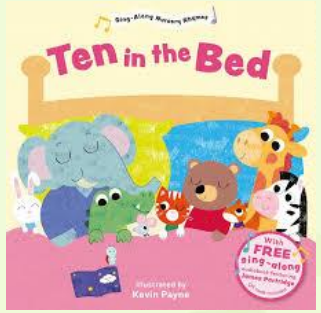
Watch Numberblocks & talk about the episode

Spot numbers or shapes in the environment



Play games – snakes & ladders, bingo, pairs, snap, anything with a dice! Orchard Toys are also great!





Read stories with mathematical concepts e.g. The Hungry Caterpillar, How Many Legs?, Ten in a Bed

Play games outside – hopscotch, skittles. Let them make up their own games and decide how to score points

Cooking – weighing ingredients, counting how many eggs, how many scoops of flour etc

Thank you for coming

Are there any questions?