

How we teach Maths and Enquiry in Reception





The EYFS framework says:

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.

A developmental journey from birth to the end of Reception...

EYFS Development Matters 2020 Statements and ELGs Mathematics

Birth to Three

- Combine objects like stacking blocks and cups. Put objects inside others and take them out again.
- Take part in finger rhymes with numbers.
- React to changes of amount in a group of up to three items.
- Compare amounts, saying 'lots', 'more' or 'same'.
- Develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.
- Count in everyday contexts, sometimes skipping numbers - '1-2-3-5'.
- Climb and squeeze themselves into different types of spaces.
- Build with a range of resources.
- Complete inset puzzles.
- Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'.
- Notice patterns and arrange things in patterns.

Three and Four-Year-Olds

- Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').
- Recite numbers past 5.
- Say one number for each item in order: 1,2,3,4,5.
- Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').
- Show 'finger numbers' up to 5.
- Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.
- Experiment with their own symbols and marks as well as numerals.
- Solve real world mathematical problems with numbers up to 5.
- Compare quantities using language: 'more than', 'fewer than'.
- Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'.
- Understand position through words alone – for example, "The bag is under the table," – with no pointing.
- Describe a familiar route.
- Discuss routes and locations, using words like 'in front of' and 'behind'.
- Make comparisons between objects relating to size, length, weight and capacity.
- Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.
- Combine shapes to make new ones – an arch, a bigger triangle, etc.
- Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc.
- Extend and create ABAB patterns – stick, leaf, stick, leaf.
- Notice and correct an error in a repeating pattern.
- Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'

Children in Reception

- Count objects, actions and sounds.
- Subitise.
- Link the number symbol (numeral) with its cardinal number value.
- Count beyond ten.
- Compare numbers.
- Understand the 'one more than/one less than' relationship between consecutive numbers.
- Explore the composition of numbers to 10.
- Automatically recall number bonds for numbers 0–5 and some to 10.
- Select, rotate and manipulate shapes in order to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Continue, copy and create repeating patterns.
- Compare length, weight and capacity.

Early Learning Goals

Number

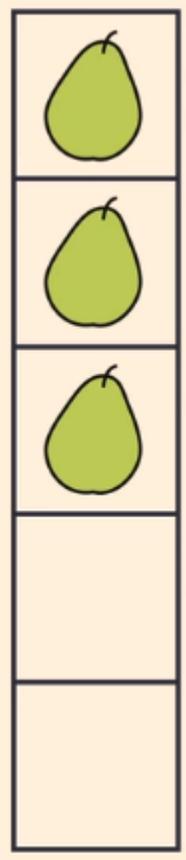
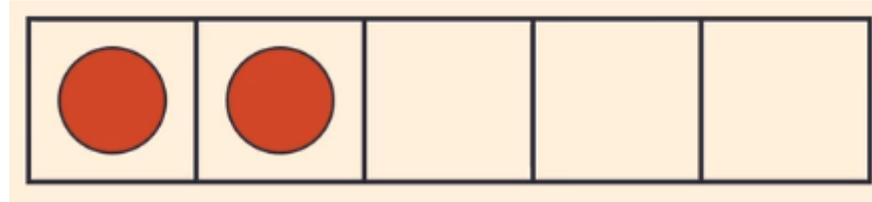
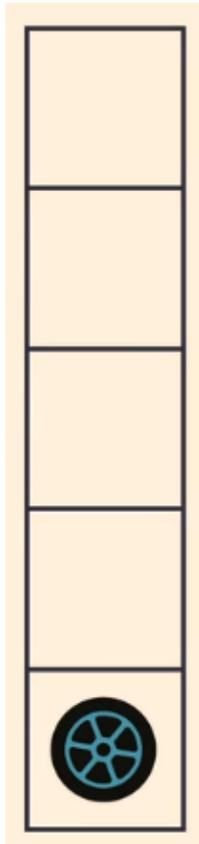
- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, 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.

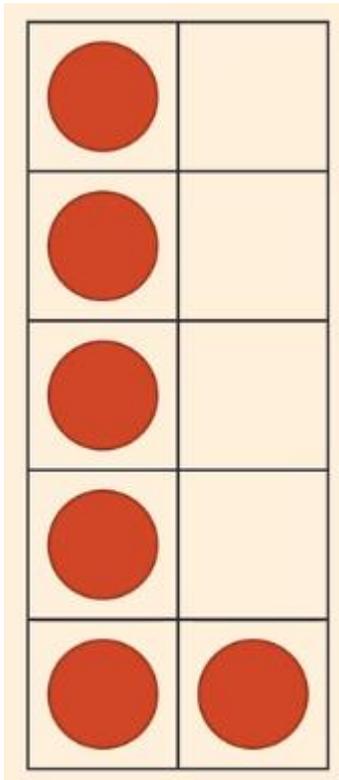
How do we help the children to gain a deep understanding of quantities and numbers to 10?

Five frames

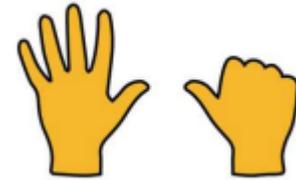


The five frame highlights number combinations to five and helps students in visualising numbers to develop number sense.

Ten frames



- 2 five frames
- Five-and-a bit numbers
- 5 and 1 more



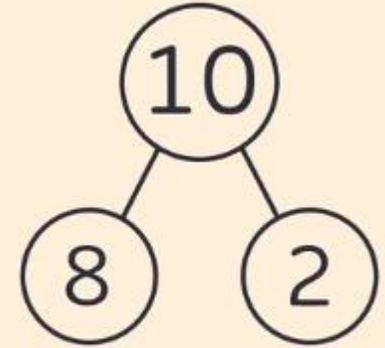
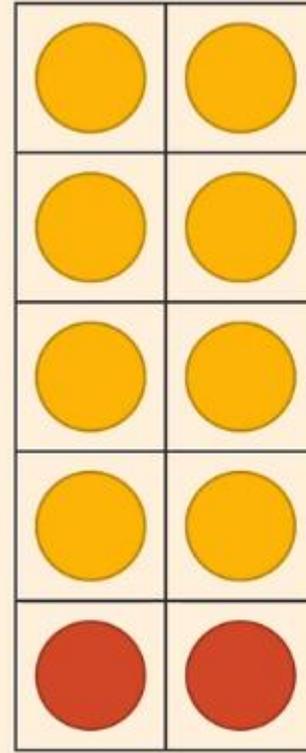
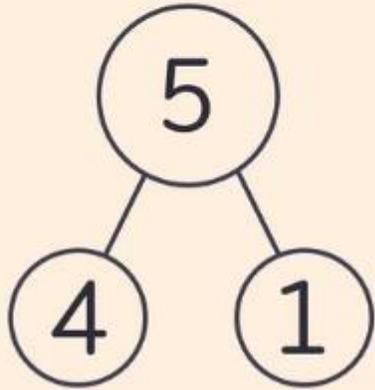
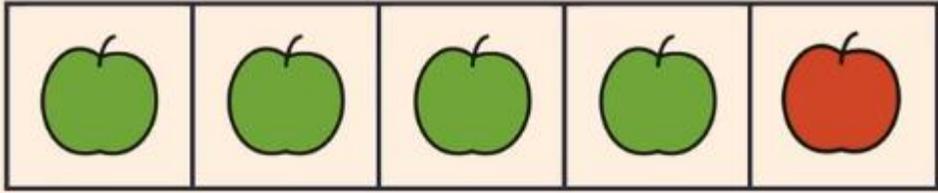
- Number bonds to 10 (**6** spots and **4** gaps)

Ten frames

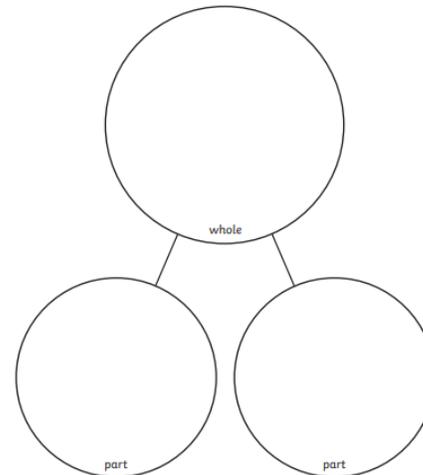
Odd and even numbers (odd tops/ flat tops)

Twos wise										
	1	2	3	4	5	6	7	8	9	10
Fives wise										

Five-and-a-bit numbers

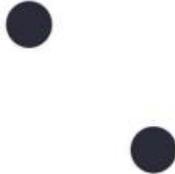
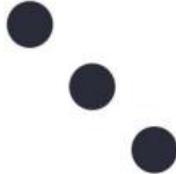
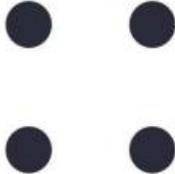
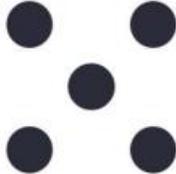


Part whole model



Subitising

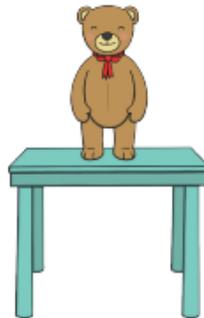
Subitising is when you are able to look at a group of objects and realise how many there are without counting. This only works with small groups of numbers, as we can only subitise up to 5 things. It was first introduced by a Swiss psychologist called Piaget.

				
One - I know it is one because I can snap it with one hand.	Two - I know it is two because I can snap them with two hands.	Three - I know it is three because I can move them to make a triangle.	Four - I know it is four because I can move them to make a square.	Five - I know it is five because I can make a square with one more.

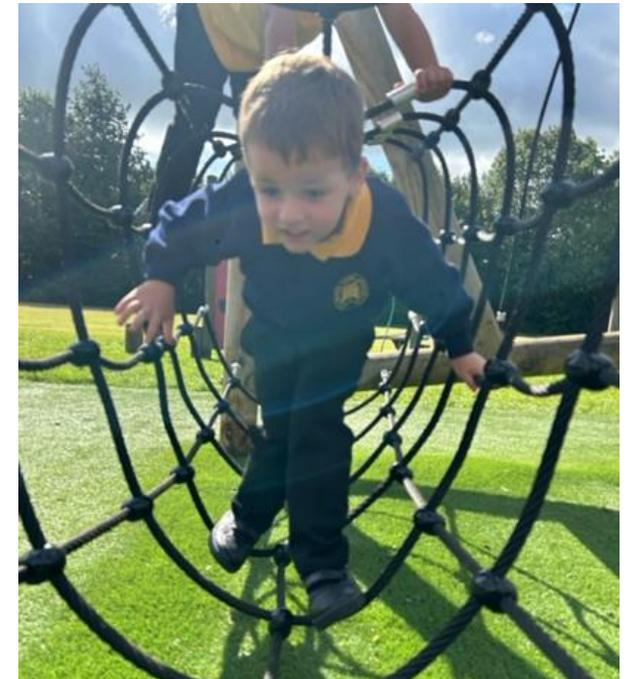
Shape, spatial reasoning, positional language...



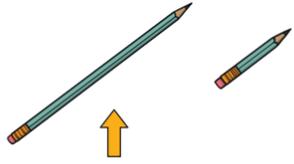
Teddy is on the table.



Teddy is under the table.

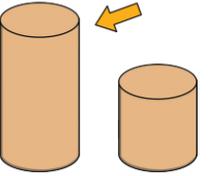


long



Measures

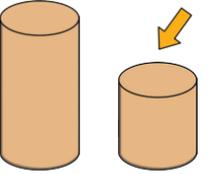
taller



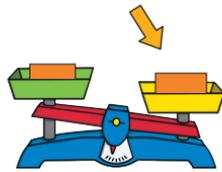
short



shorter



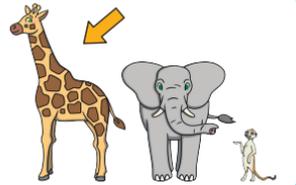
heavy



full



tallest



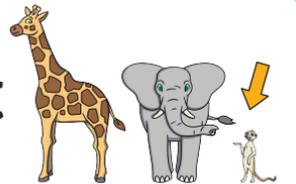
light



empty

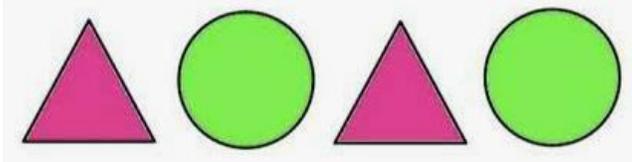


shortest



Lots of hands on exploratory activities with a big emphasis on **vocabulary**

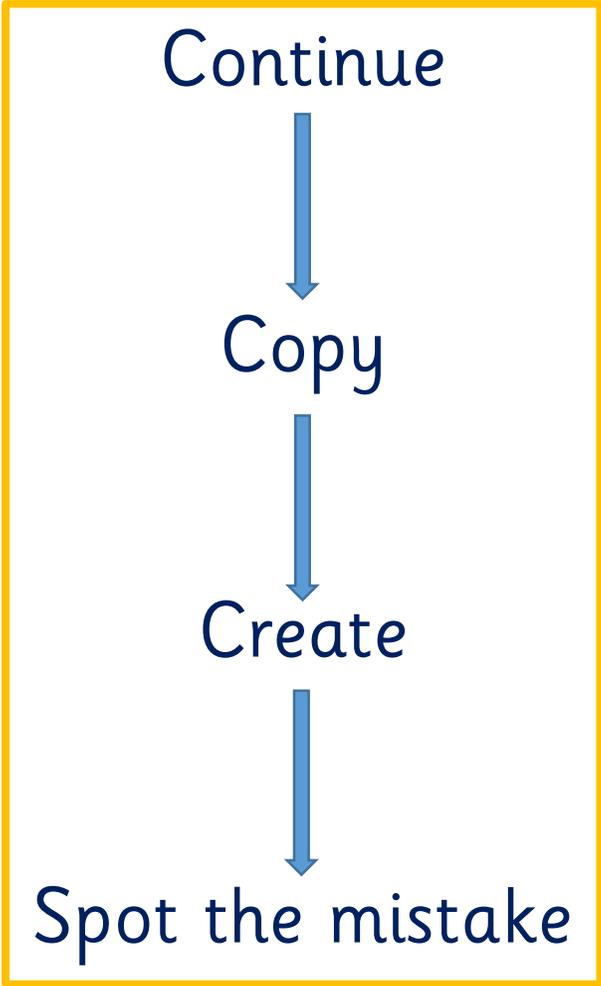
Repeating patterns



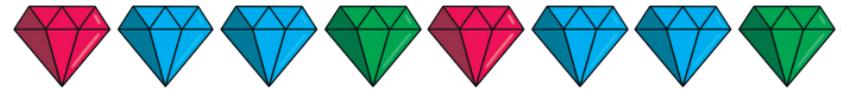
AB pattern



ABB pattern

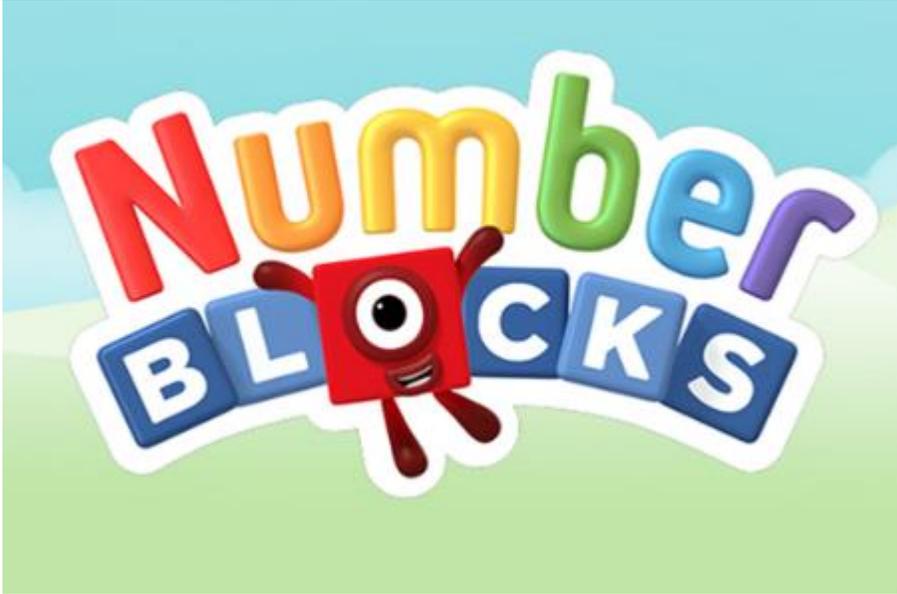


ABC pattern



ABBC pattern

Numberblocks



The Numberblocks episodes are carefully planned to be progressive and build up children's awareness and knowledge. We watch every episode, in the order they were written to help provide a progressive journey through mathematics. The episodes we watch correspond to the learning focus in lessons.

Our aim is for all Reception children to meet the Early Learning Goal in Number and Numerical Patterns at the end of the year.

	NUMBER	NUMERICAL PATTERNS
ELG	<ul style="list-style-type: none">• 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.	<ul style="list-style-type: none">• 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

Maths at home

- Further up the school, children have a Times Table Rock Stars log in.
- **Reception have Numbots.**
- There is a Numbots 'Getting started' guide in handout pack
- Numbots gives opportunities to improve fluency and basic mental maths. It covers subitising, number bonds, and addition and subtraction of double-digit numbers.
- **Story mode** – for understanding
- **Challenge mode** – for recall
- Little and often! (3 minutes at a time is recommended)





Enquiries in Reception

Each term, we ask the children at least one big question that is too big to answer in one go but not too big that they don't understand.

We guide learners through 'being' something to answer the big question...

The states of being



artist



athlete



author



philosopher



geographer



historian



mathematician



musician



philosopher



reader



scientist

Enquiries

Term 1 – Who are we?

What is darkness?

Term 2 – What stories do we know?

Term 3 – What is a celebration?

Term 4 – What is growing?

Term 5 – How do we care for pets?

Term 6 – Who helps us?

Look out for enquiry webs on our website and attached to emails. We are always keen to hear from parents/carers who might be able to come in and contribute to our enquiry learning!

Enquiries

Each enquiry starts with an 'engage' activity which may include asking for something from home 😊

Each enquiry ends with a 'challenge'. We will invite you to join us for the challenges where possible.

Keep an eye of Facebook for photos!