

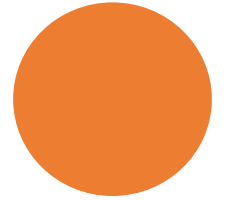
“Children are born ready, able and eager to learn. They actively reach out to interact with other people, and in the world around them. Development is not an automatic process, however. It depends on each unique child having opportunities to interact in positive relationships and enabling environments.”

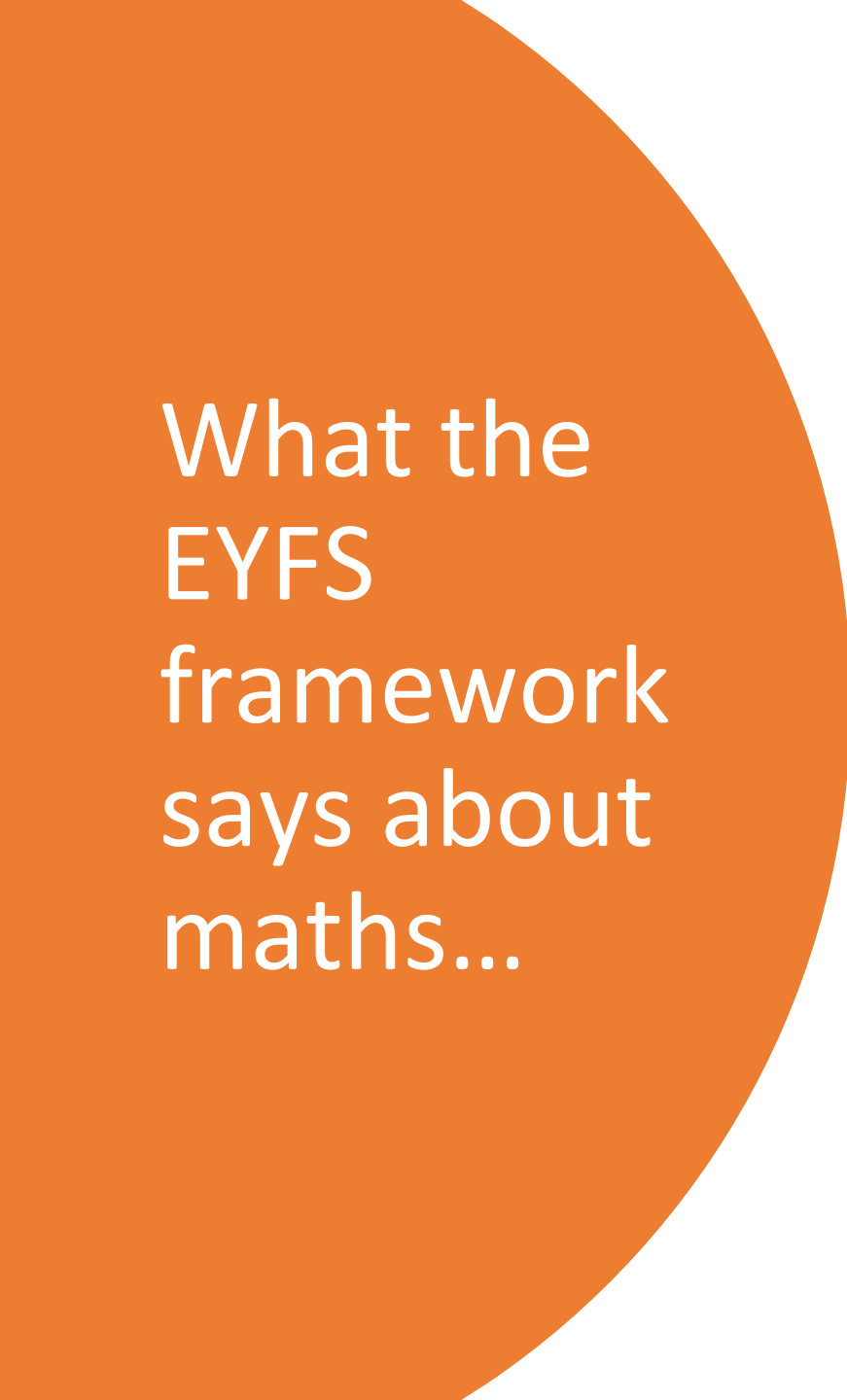
Development Matters, 2012

Welcome!

This Maths Workshop is designed to.....

- Find out what the expectations are in Maths for your child by the end of their first school year
- Give parents/carers an insight into 'Mathematical Development' for EYFS children
- Clarify use of mathematical language and concepts
- Lay the foundations of effective home support in Maths



A large orange circle is positioned on the left side of the slide, partially cut off by the edge.

What the
EYFS
framework
says about
maths...

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

A series of four yellow dashed line segments are arranged in a curved, upward-sloping path in the bottom right corner of the slide.

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.

ELG: Numerical Patterns

Verbally count beyond 20, recognising the pattern of the counting system.

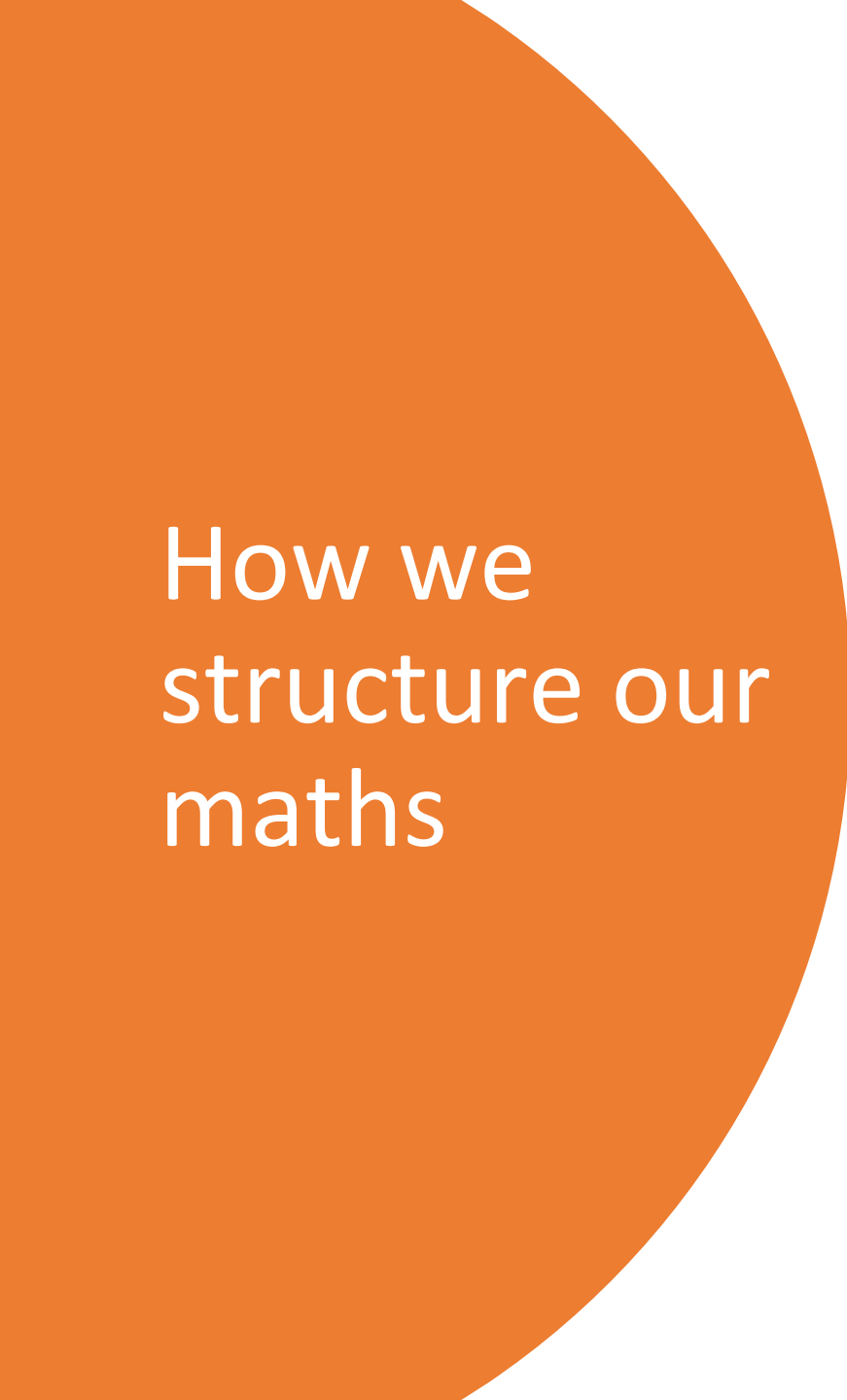
Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Key vocabulary from the ELGs:

- **Deep understanding** - being able to recognise a number in different ways and make connections between numbers and concepts
- **Composition** – Understanding that one number can be made up from (composed from) two or more smaller numbers. Knowing numbers are made up of two or more other smaller numbers involves 'part-whole' understanding.
- **Subitise** - the ability to look at a small set of objects and instantly know how many there are without counting them.
- **Number bonds** - Number bonds are pairs of numbers that can be added together to make another number e.g. $4 + 6 = 10$. They are some of the most basic and most important parts of maths for children to learn.



A large orange circle on the left side of the slide, partially cut off by the edge.

How we structure our maths

- 4 inputs a day after break
 - Cross-curricular outdoor learning opportunities
 - Lots of talking
 - Self-discovery
 - Using concrete objects
 - Asking questions
 - Real-life learning
 - Practical and engaging lessons
- 
- A series of yellow dashed lines in the bottom right corner, forming a curved shape.

The 5 Counting Principles

One-One Principle - Children count each object only one and say one number name for each object.

Stable Order Principle - When children count, they say the number names in order and know that this order will not change.

Cardinal Principle - Children know that when they count a group of objects, the last number that they say tells them the total for the group.

Abstraction Principle - Children understand that they can count anything, even things that cannot be touched or seen, such as a sound or a thought.

Order-Irrelevance Principle - Children understand that a group of objects can be counted in any order and the total will stay the same.







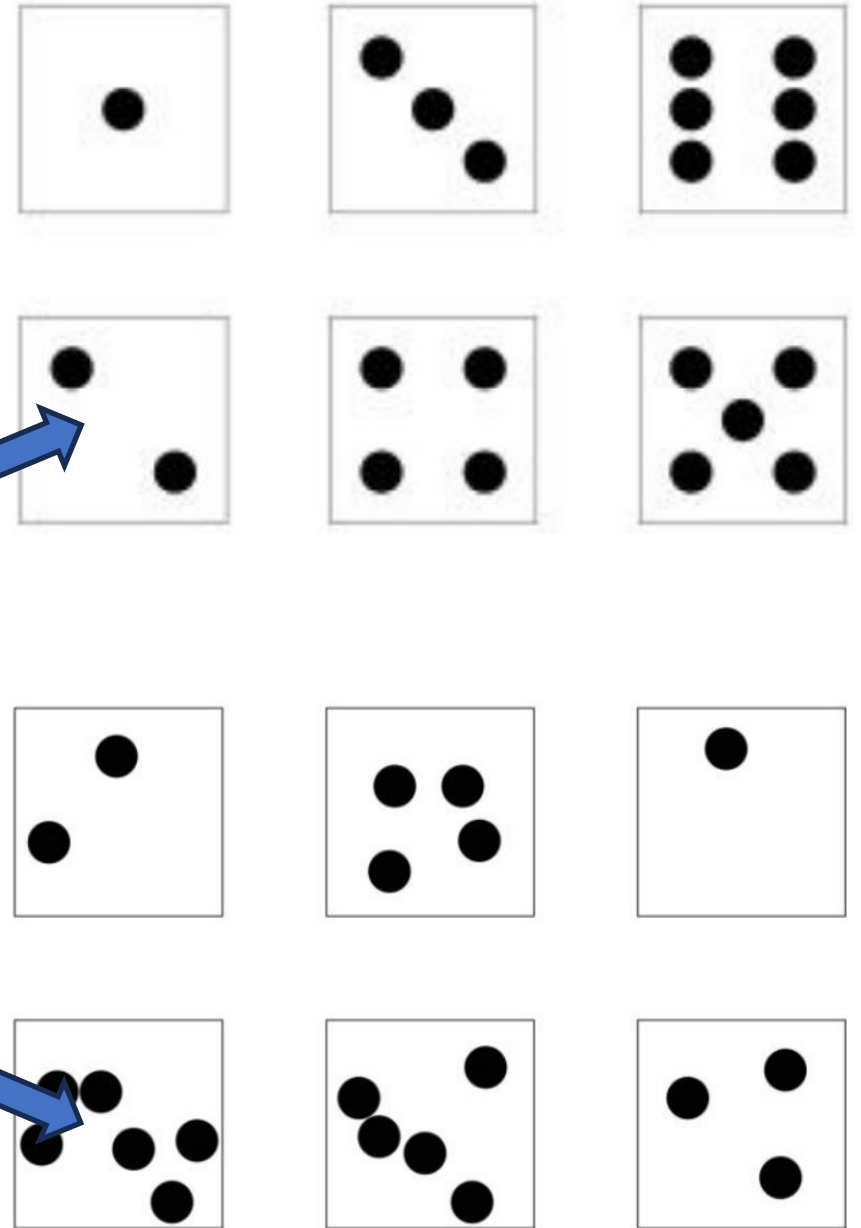
How can you support your child with counting?

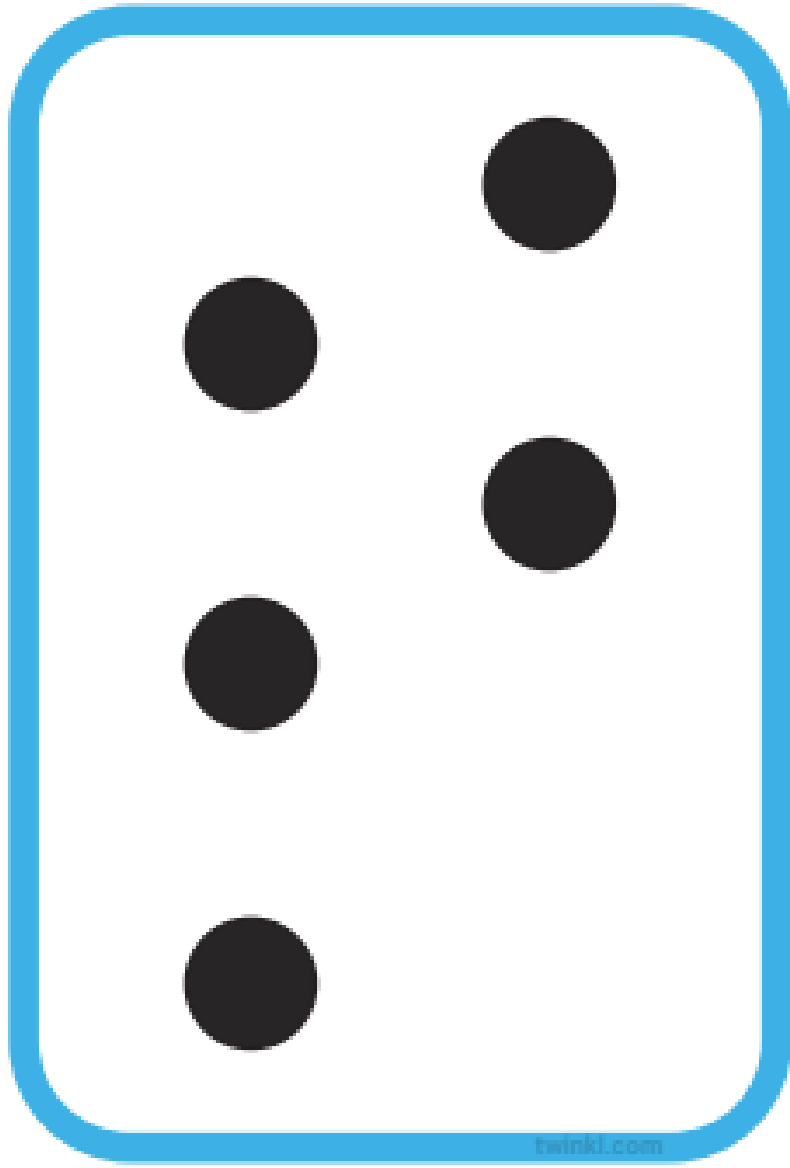
- Have a range of small objects for them to count
- Build towers
- Listen to counting songs and rhymes
- Count actions/sounds/body movements/ball bounces
- Encourage them to line up objects and touch each as they count them
- Count objects incorrectly and see if your child can spot what you've done wrong
- Ask your child, 'How many are there?'

Subitising

Subitising is recognising how many things are in a group without having to count them one by one. Children need opportunities to see regular arrangements of small quantities, e.g. a dice face, structured manipulatives, etc., and be encouraged to say the quantity represented.

Children also need opportunities to recognise small amounts (up to five) when they are not in the 'regular' arrangement, e.g. small handfuls of objects.





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**What number can you see here?
How do you know it's this
number?
What numbers can you see
hidden?**

 and *make 5*

Mastering Number

Reception Session

Clip 1:
Subitising 6 or not 6

Mastering Number 2021/22



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How can you support your child with subitising?



using dot cards, dominoes and dice as part of a game, including irregularly arranged dots (e.g. stuck on)



playing hidden objects games where objects are revealed for a few seconds, for example, small toys hidden under a bowl – shuffle them, lift the bowl briefly and ask how many there were

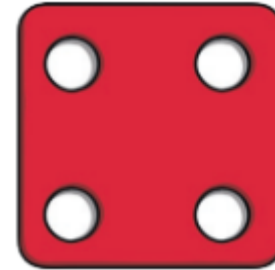
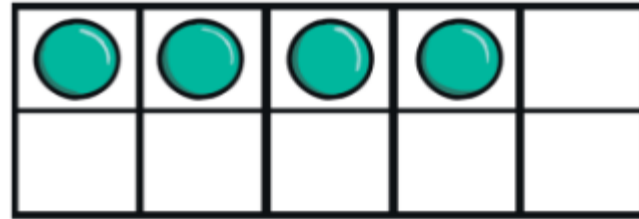


'all at once fingers' – e.g. show me four fingers. Show me 4 fingers a different way... and another...and another

Representing Numbers

It is important that children understand that numbers can be represented in different ways.

4



1, 2 and 3 Maths Sorting Activity

Can you sort 1, 2 and 3?

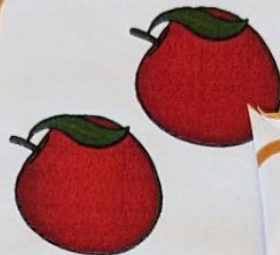
1

one



2

two



two



3

three



A worksheet for a math activity, featuring a number line at the top and a grid below it. The number line is marked from 0 to 24. The grid consists of 10 columns and 2 rows of squares.

The activity involves counting objects and writing the corresponding numbers. Two circles are shown, each containing objects (small bears).

The first circle contains 4 objects: 1 yellow, 1 green, 1 blue, and 1 red bear. Below this circle is a square box containing the number 4.

The second circle contains 2 objects: 1 red and 1 green bear. Below this circle is a square box containing the number 2.

A plus sign (+) is placed between the two circles, and another plus sign (+) is placed between the two square boxes. An equals sign (=) is placed to the right of the second circle, and another equals sign (=) is placed to the right of the second square box.

A large empty circle is drawn to the right of the second circle, and a large empty square box is drawn below it, intended for the final result of the addition.

An Edding 363 board marker is visible on the right side of the worksheet.

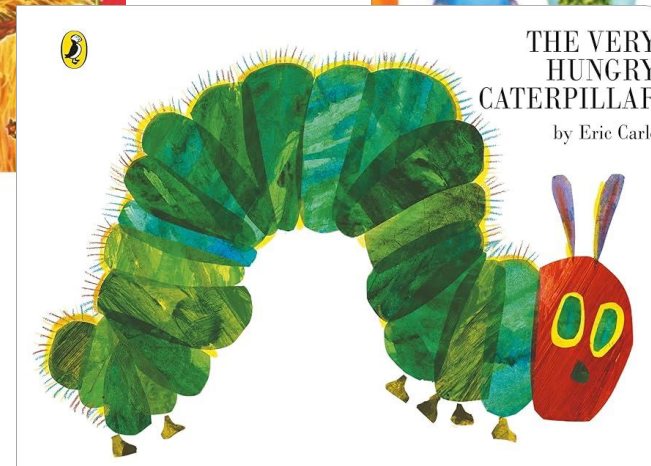
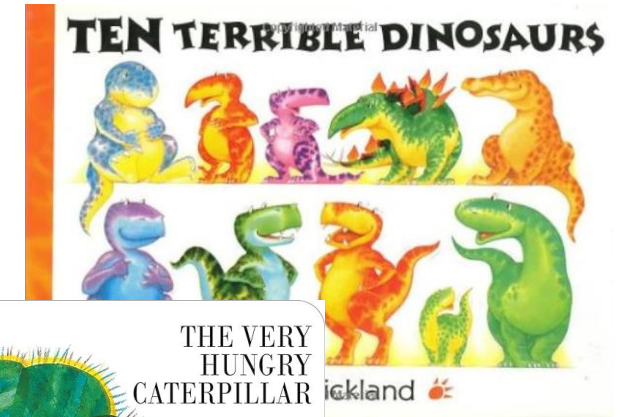
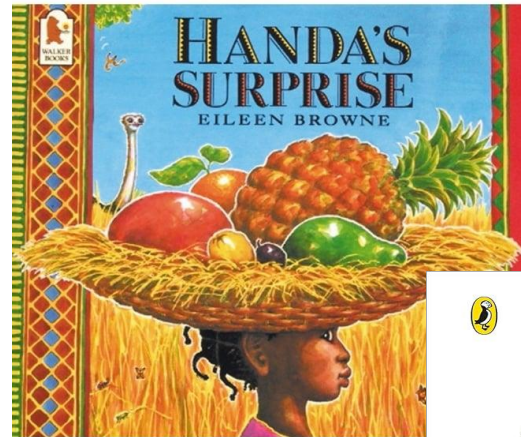
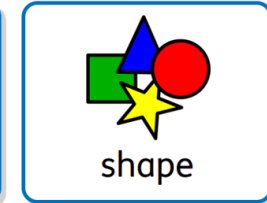
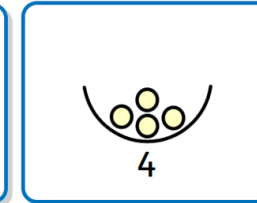
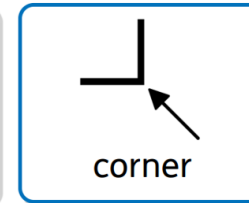
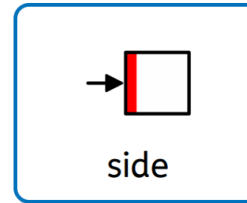
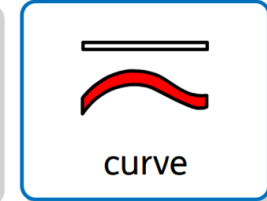
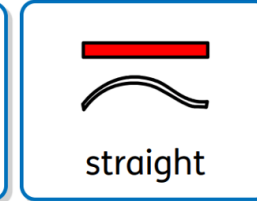
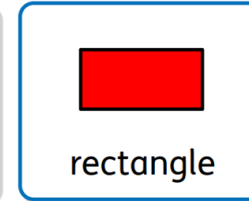
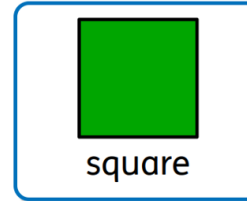
Vocabulary



Vocabulary in Maths

- Modelling vocabulary in maths inputs
- Introducing new vocabulary
- 'My turn, your turn'
- Questioning
- Setting up experiences that encourage children to use their learnt vocabulary
- Using books

Vocabulary

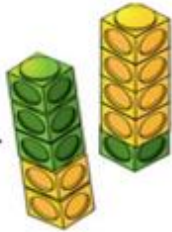


Early Years Mathematical Vocabulary

Number, zero, number one, two, three, four, five, six, seven, eight, nine, ten.

How many ...?

Subitise



Count, count on, count back, match, the same, find

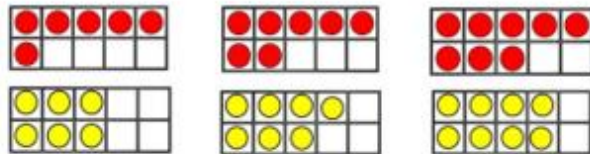
The same as, more, less, fewer, fewest, few, greater, greatest, largest, least, most

First, second, third... last, last but one, before, after, next, between



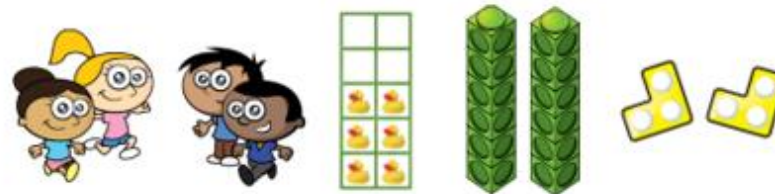
Estimate, nearly, close to, about the same as, just over, just under, too many, too few, enough, not enough

Add, plus, take away, altogether, is equal to, one more, one less, the difference, problem, solve, number bond



How many more? How many less? How many are left?

Sharing, halving, doubling, the same, equal, whole, part, group. Is it fair? Are they the same? How many groups have you made?



Size, compare, guess, estimate, order

Length, height, width, long, short, tall, high, low, wide, narrow, thick, thin, longer, shorter, taller, higher ... longest, shortest, tallest, highest ... far, near, close



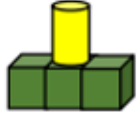
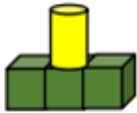
Heavy, heavier than, heaviest, light, lighter than, lightest



Full, empty, half full, holds, nearly empty, nearly full

Time, days of the week, week, birthday, season, morning, afternoon, evening, night, bedtime, lunch time, playtime, today, yesterday, tomorrow, before, after next, last now, soon, early, late

Quick, quicker, quickest, quickly, slow, slower, slowest, slowly, takes longer, takes less, time, hour, o'clock, clock, watch, hands.



Shape, pattern, flat curved, straight, round, hollow, solid, sort, make, build, symmetrical pattern, repeating pattern, match

2D shape, corner, side, rectangle (including square) circle, triangle



Position, over, under, above, below, top, bottom, side on, in, outside, inside, around, in front, behind front, back, beside, next to, opposite, apart, between, middle, edge, corner, direction, left, right up, down, forwards, backwards, sideways, across next to, close, near, far



Patterns and connections

Patterns are central to maths and children have an instinctive idea of patterns.

Research shows that children's ability to see patterns forms the basis of early mathematical thinking.

Learning about patterns and connections will help children to **make their own predictions and form logical connections**. It's an **important foundation** for later mathematical thinking and reasoning.



How can you support your child with spotting patterns and making connections?

- Rhymes and stories – e.g. by practising recall such as ‘head, shoulders, knees and toes’ and repeated refrains within stories children learn about patterns in speech and language.
- Draw their attention to patterned material like gingham, polka dots, stripes.
- Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use words like ‘pointy’, ‘spotty’, ‘stripy’.
- Show them how to arrange small objects in patterns.
- Use words like ‘repeated’ and ‘the same’ over and over.
- Patterns also exist in music and rhymes and you could engage children in inventing their own movement and music patterns. For example you could help them invent rhythms like ‘clap, clap, stamp’.
- Provide a range of natural and everyday objects and materials, as well as blocks and shapes, for children to play with freely and to make their own patterns with.

Spatial Reasoning

- Spatial reasoning is the understanding of how objects can move in a 3-dimensional world.
- Understanding the physical properties of objects allows children to picture shapes in their minds and think about how they could be manipulated.
- This is an important building block of mathematical thinking. It lies behind problem solving and later maths skills, including geometry. Children are curious and engage naturally in mathematical play.



“Problem solving is at the heart of mathematics and children should be encouraged use their creativity and to explore, play and push boundaries.”

How can you support your child with developing their spatial reasoning?

- Combine objects like stacking blocks and cups
- Put objects inside others and take them out
- Play with interesting shapes like corks, cones and balls
- Use pots and pans, shape sorters and stacking cups
- Squeezing themselves into different types of spaces, like dens.
- Describe children's climbing and hiding activities as they play, using spatial words like 'inside', 'up', 'down' and 'below'.
- Playing with jigsaw puzzles and inset puzzles
- Encourage them to play freely with building blocks, interlocking shapes, shape puzzles and shape-sorters.
- Encourage children to talk informally about shape properties using words like 'sharp corner', 'pointy' or 'curvy'.
- Make comparisons between objects relating to size, length, weight and capacity.



Mistakes grow brains!



Photo courtesy of Patrick Gibling

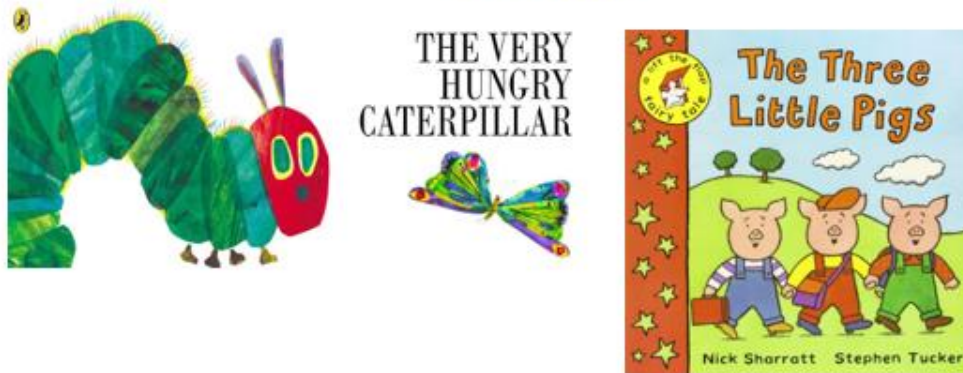
How could you create a mathematical learning experience with a collection of socks?



How could you turn wrapping a present into a mathematical learning experience?



How could you find opportunities to develop mathematical concepts through stories?



How could you create a mathematical learning experience with a bag of grocery shopping and receipt?



How could you create a mathematical learning experience with a collection of socks?

Which sock holds the most marbles?

How many different colours can you see?



Which sock will stretch the furthest? How will you work this out?

Can you match the pairs? How many pairs have you got?

Can you spot a repeating pattern? Describe it to me.

How many socks belong to you? Different family members? Can you sort them out?

How many socks will I have if I take one/two away?

How could you create a mathematical learning experience with a trip to the shop?

How many items are in the bag? Can you count them?

Recognising the numbers on packaging – weight, dates etc

Which item is the heaviest? Lightest? How do you know?

Comparing length/shapes of items – what shape is the tin?

What numbers can you see on the receipt?

Can you make your own shop? How much will the items cost?



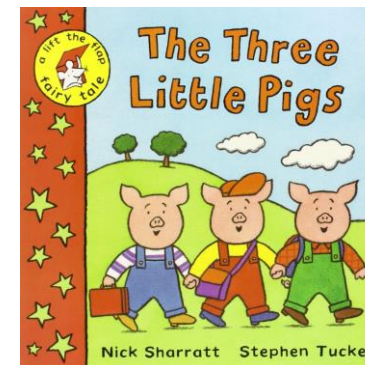
How could you find opportunities to develop mathematical concepts through stories?

Learning about the order of the days
of the week

Adding one more

Sorting and matching –
pictures that are the same

What day did he eat the
strawberries?



How many legs/arms do the
pigs have altogether?

Putting the pigs into size order

Which pig would you get the
most sausages from?

How could you
measure which
pig has the
biggest tummy?

How could you turn wrapping a present into a mathematical learning experience?

Talk about what shapes you see once the present is wrapped

Look at the patterns on the wrapping paper

How many pieces of sellotape do we need?

How many cars could we fit in this box?

Where do we need to put the tape? On the side? In the middle? At the bottom?

Is the present heavier or lighter than the paper?



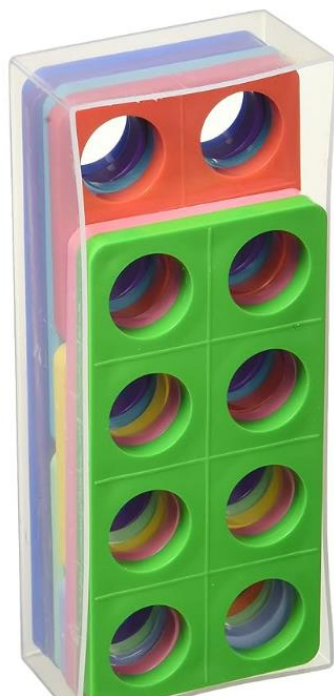
Finally.....

Make Mathematics learning
at home....

- Active
- Purposeful
- Fun
- Frequent
- A sharing experience



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