Maths

Early Maths for Parents

Peter Foulds
School Improvement Advisor - Maths
Lingfield Education Trust

January 2025

There's no way I can help my child with maths. It's so difficult and I can't do it!

Recent research suggests that young children's ***exposure*** *to patterning, rather than their number understanding, predicts the later maths learning.*
Rittle-Johnson-Fyfe, Hofer & Farran, 2017

Always remember that with very young children it is exposure to, and not proficiency that is the first and most important goal.

All about the chances we provide…

The power of words

Even if it is one-way…

Wow look at the pigeons… 1-2-3

Here is home with the number 7 on the door.

Look some puddles; let's swerve around them.

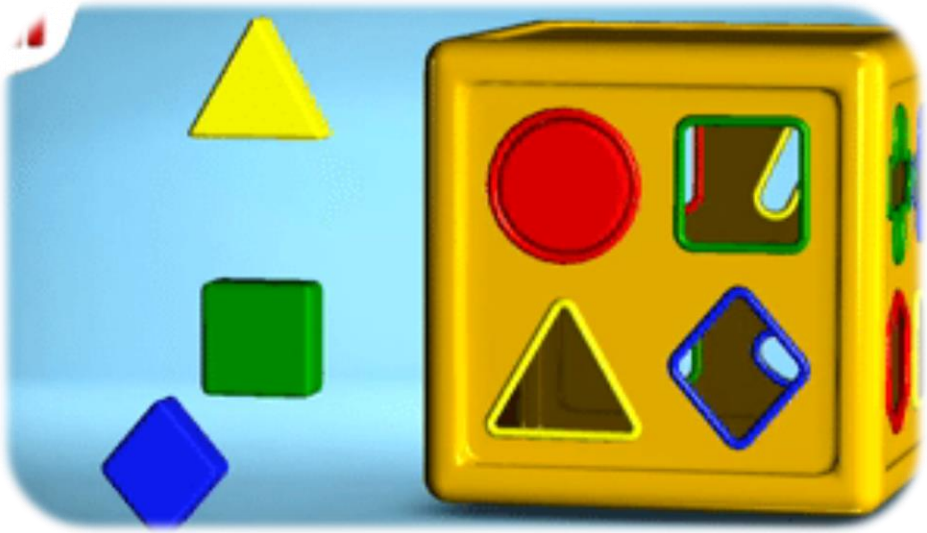
Oh I like your family of 4; three are inside and 1 is outside…

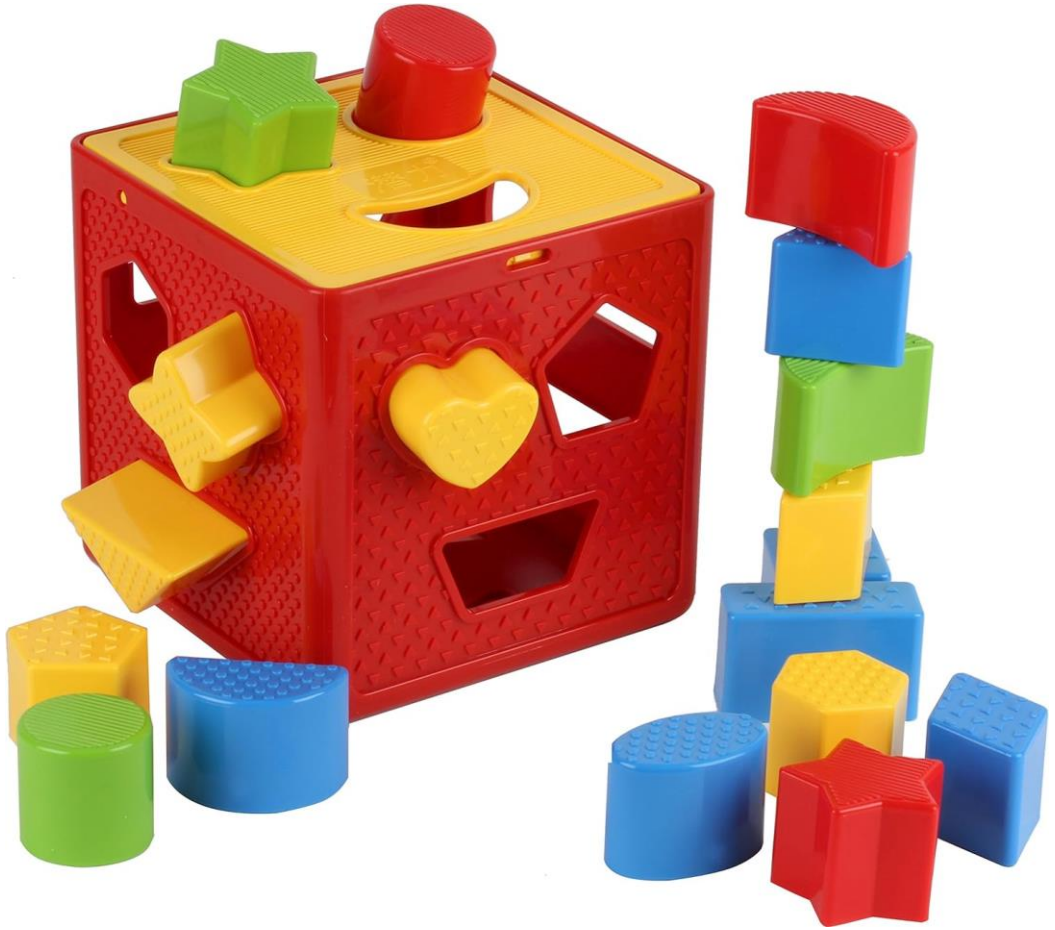
With all of the activities and ideas we look at, let the child take the lead if possible about what to talk about and build from that. Your children don't understand 'teaching' so play and discussion are what work – they soak up the world around them.

So give them lots to soak up… it's the chances to learn through play we need to lay on.

Physical Manipulation

that E-versions **can't** allow





Looks the same but 'nearly' accepted by app.
No **incidental** maths – like stacking – can come from it.

"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."
NCETM

All underlying mathematical concepts are learnt by the age of 5; after that they are simply built on. If children miss any of these key building blocks, they don't really ever catch up.

Cardinality and Counting

Understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents

Comparison

Understanding that comparing numbers involves knowing which numbers are worth more or less than each other

Composition

Understanding that one number can be made up from (composed from) two or more smaller numbers

Pattern

Looking for and finding patterns helps children notice and understand mathematical relationships

Shape and Space

Understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking

Measures

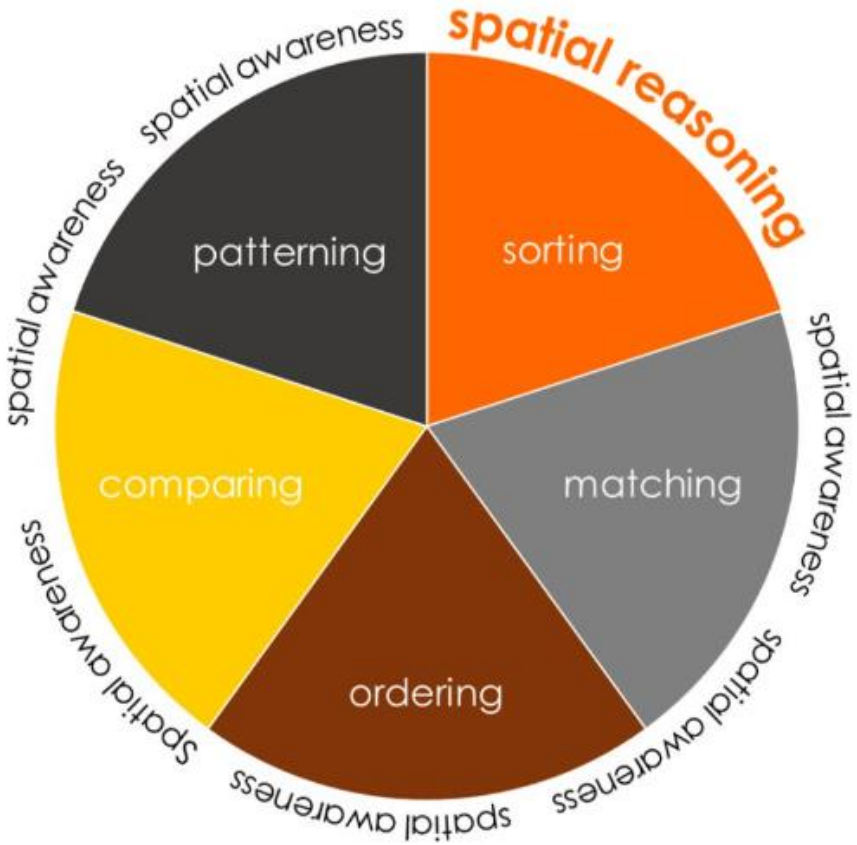
Comparing different aspects such as length, weight and volume, as a preliminary to using units to compare later

The key concepts of early maths

Schemas

A repeated action that children use to learn about the world

Posting
Emptying
Enveloping
Filling
Rotating
Transporting
Connecting & Lining-Up
Enclosing



Subitising

Counting

Composition to 10

Schemas

A repeated action that children use to learn about the world

Posting
Emptying
Enveloping
Filling
Rotating
Transporting
Connecting & Lining-Up
Enclosing

Put the chances out… and have a chat even if they don't/can't chat back

enveloping

rotating

connecting

enclosing

transporting

Schemas

A repeated action that children use to learn about the world

Posting
Emptying
Enveloping
Filling
Rotating
Transporting
Connecting & Lining-Up
Enclosing

Matching

What maths?

Matching

What maths?

Matching

What maths?

Matching

What maths?

Ordering

What maths?

Comparing

more/less

larger/smaller

heavier/lighter

full/empty

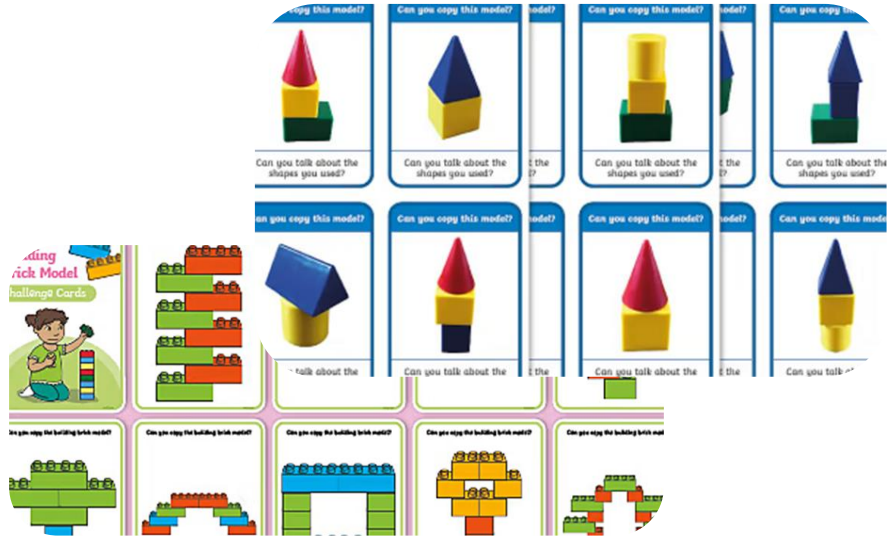
Can you make it fair?

Sorting

What maths?

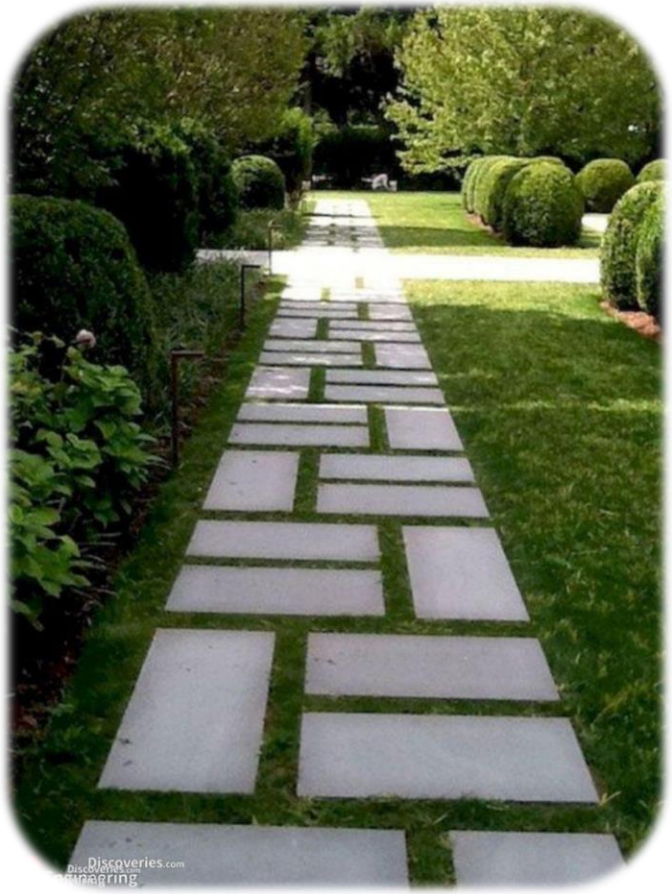
Spatial Awareness

Part of sorting, matching, ordering, comparing, patterning… but also includes gross and fine motor skills…



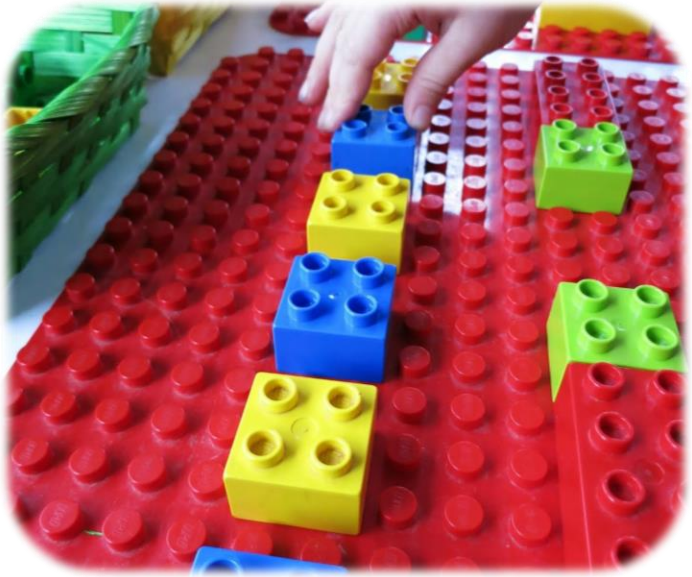
Patterning

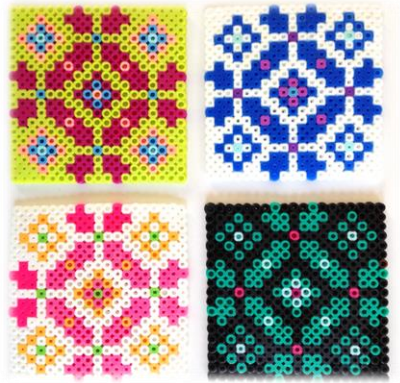
1. Pattern Noticer



2. Pattern Recognizer

3. Pattern Creator





Subitising

What do you notice?

What do you see?

Yes electronic devices have benefits – and we all use them with our children – but give chances for dice/board games too (so many benefits)

The more of this the better!

Counting

Stable order principle
(numbers in order)

One-to-one correspondence
(matching a quantity to the number name/digit)

Cardinality
(last number via the two above is the amount)

Count an amount from a larger group – not just count how many

Count 5 buttons when there are only 5 is very different to count 5 from the above; this helps get the idea of barriers in the counting system like 10 for place value or 60 for minutes. **It is so important!**

Composition 10

7

It is easy to think a child knows 7 because they can count to it and write it, however…

They understand it, if they understand its composition.

3 and 4

6 and 1

2 and 5

They understand this best through physical resources…

Composition 10

What numbers are inside 7?

Drop yellow double-sided counters.

See what two parts are made.

Could be with buttons, toys.

Look at my family.

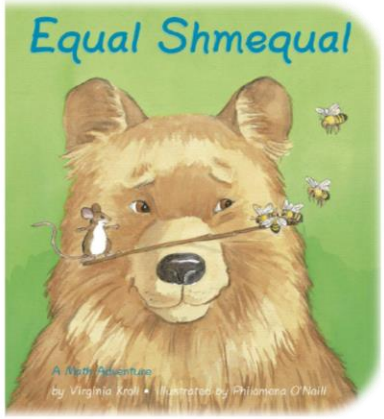
*Oh wow yes a family of **four**.*

Some are in the house and some outside.

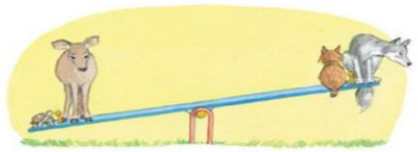
Three inside and one outside. Three and one a family of four.

And of course… maths through stories

In this story, various woodland creatures use tug-of-war and a seesaw to explore the idea of equality and balance by attempting to make equal teams. The animals create different combinations of teams to compete against the large Bear by investigating the concept of mass.



Deer got up on Turtle's side.
Their side sank down, and Wolf rose up into the air.

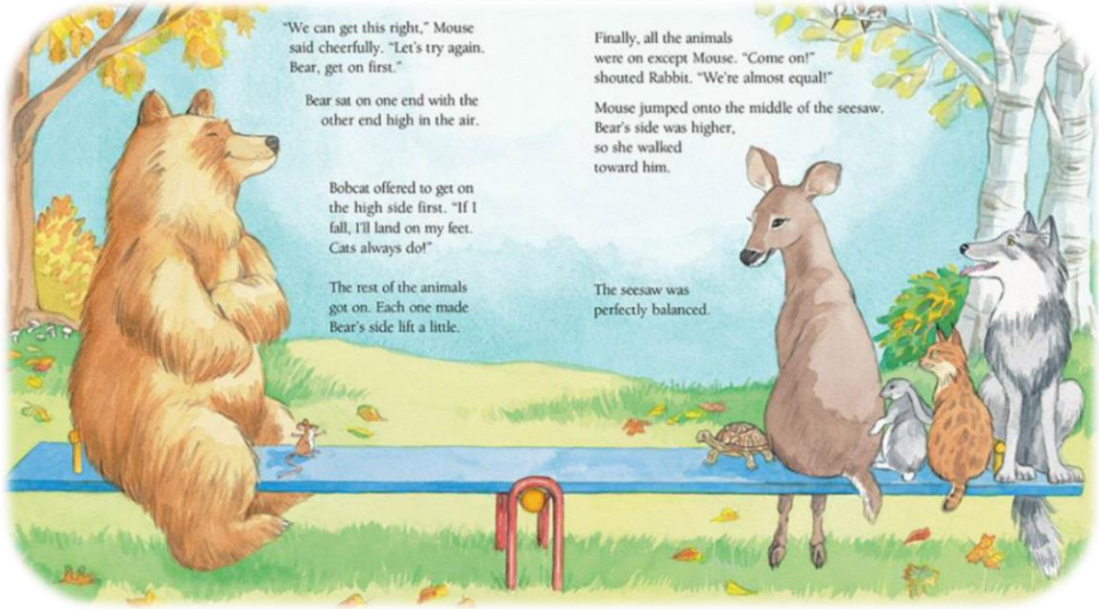


"I'm next!" shouted Bobcat. He got onto Wolf's side,
but Wolf and Bobcat together were still up in the air.

With a mighty hop, Rabbit landed in front of Bobcat.
Now the seesaw was almost balanced.

"Come on!" shouted Rabbit. "You're the last one, Mouse!"

Mouse scampered up next to Deer. The seesaw teetered
back and forth before resting perfectly straight across.



"We can get this right," Mouse said cheerfully. "Let's try again. Bear, get on first."

Bear sat on one end with the other end high in the air.

Bobcat offered to get on the high side first. "If I fall, I'll land on my feet. Cats always do!"

The rest of the animals got on. Each one made Bear's side lift a little.

Finally, all the animals were on except Mouse. "Come on!" shouted Rabbit. "We're almost equal!"

Mouse jumped onto the middle of the seesaw. Bear's side was higher, so she walked toward him.

The seesaw was perfectly balanced.

And of course… maths through stories

Lingfield Education Trust

Maths Story List

Number
Number Recognition
Filthy Franny and the four faery fleas
One
One Thing
Pink Tiana cookies for three
Sidney the Silly who only eats six
The twins two by two
Two
Two is for twins
One to one correspondence
Abu Ali counts his donkeys
Count off, squeak scouts
Crash boom
Five silly fisherman
Seaweed soup
…ckwards from 10
…found
…ckwards from 100

Lingfield Education Trust

Maths Through Stories

A list of story books that can be used to develop an understanding of maths concepts.

See accompanying training slides for how to use such stories to best effect.

And… nursery rhymes

Maths Nursery Rhymes: EYFS

Pattern

In and Out the Dusty Bluebells
Tongue twister patterns such as Red Lorry, Yellow Lorry
Clap Your Hands and Wiggle Your Fingers
Pretty patterns

Numbers 1, 2, 3

Clap Your Hands and Wiggle Your Fingers
When I Was One, I Banged My Thumb
Hickory Dickory Dock
One Elephant Went Out to Play
Three Little Speckled Frogs
Three Little Ducks
The mini-beasts came in two-by-two
One potato, two potatoes

Numbers 4 & 5

1, 2, 3, 4, 5, Once I Caught a Fish Alive
One Man Went to Mow
Five Currant Buns
Five Little Men in a Flying Saucer
Five Little Speckled Frogs
Five Little Teddy Bears
Alice the Camel

Numbers to 10

Ten Sleepy Fingers
Ten Fat Sausages
Ten Green Bottles
Ten In A Bed

Addition & Subtraction

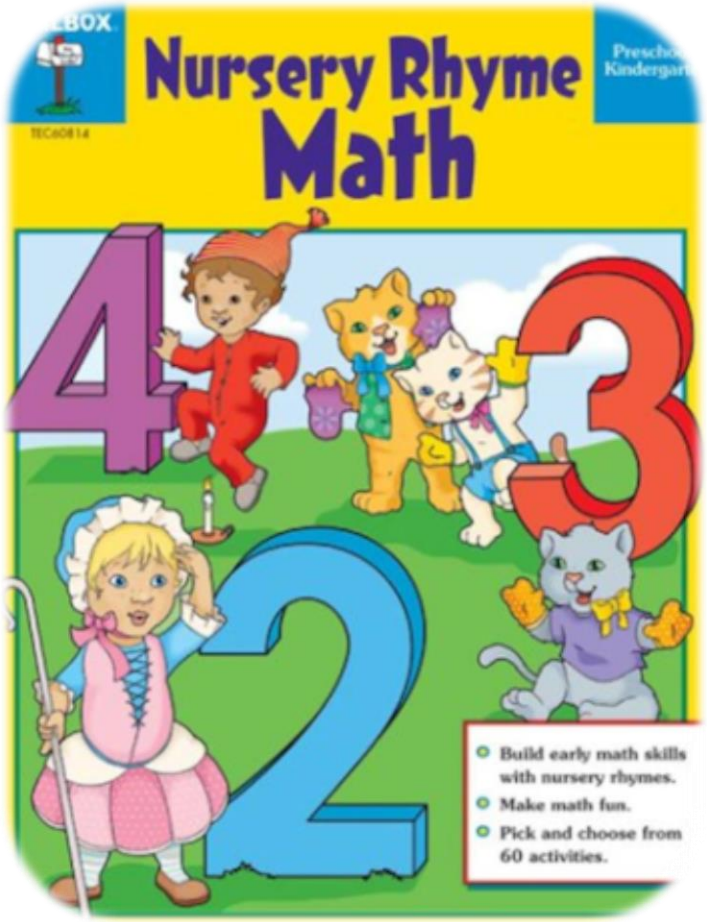
How many on the bus
Pop goes the balloon
The baker man
This is the way we take away

Geometry

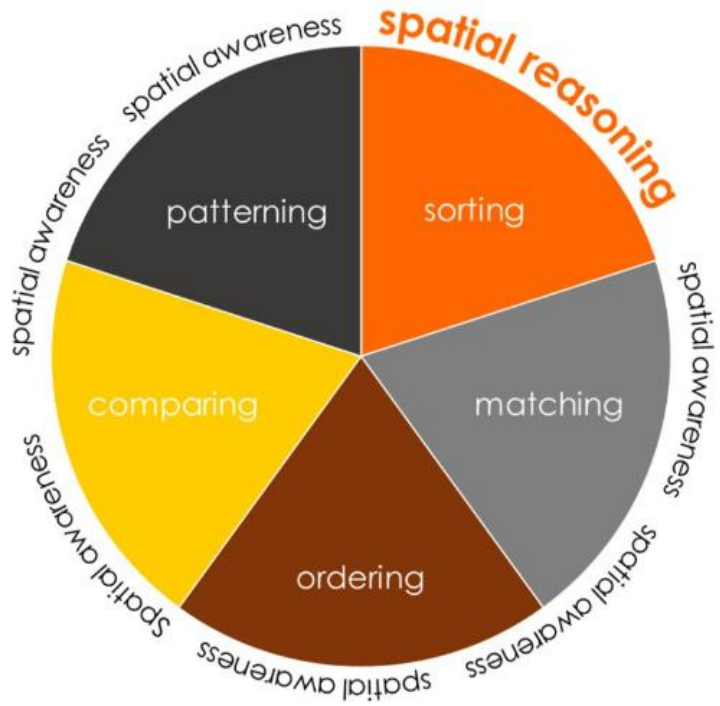
My Hat, It Has Three Corners
3D Shapes (Twinkl)
2D Shapes (Twinkl)
Pretty Patterns

Measures

This Is the Way We Brush Our Teeth
Big Fish Little Fish cardboard Box



Girls and construction?



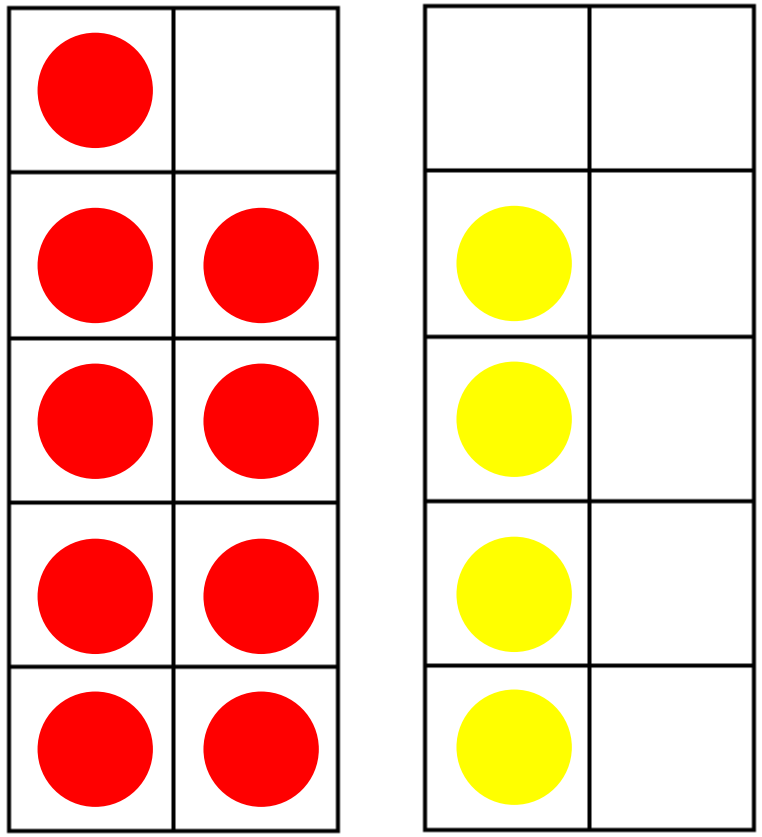
All of the above are so important as they build up what we call spatial reasoning.

Spatial reasoning is directly linked to income.

Studies find girls do less spatial awareness and reasoning play!

In Key Stage 1 they need to…

9 + 4 =



Posting
Fine motor
Comparing
Subitising
composition
Counting
Pattern
Fine motor

In Key Stage 2 they need to…

2309 + 1273

0.9 + 0.4

34.9 + 21.4

Jigsaw puzzles

(or cut up cards or photos)

size & shape

Do you think that will fit? Or is it too small / big? Or the wrong shape?

shape & fit

Can you see a piece that looks like this space? What shape will the piece be that fits here?

predicting

What picture / colours will be on the piece that goes next to this one?

fit & which way round?

Oooh, shall we turn that around and see if it fits?

predicting

I wonder what it will look like when it is finished.

website

Watch your child playing • See what they enjoy doing • Join in and use these ideas when they seem ready

In the bath

(or water play with a bowl, pool or sink)

comparing capacities

Would you like this big jug or this small jug?

comparing capacities

Let's pour all of the water from the yellow pot into this blue pot, what do you think might happen?

capacity

Let's see if one jug full will fill all these cups…

volume

Let's half-fill these ones so we can both have the same amount of 'drink'.

website

Watch your child playing • See what they enjoy doing • Join in and use these ideas when they seem ready

Playing with toy vehicles and play people

how many

How many cars have you got altogether?

size

Which do you think is the biggest / smallest car? Why do you think that?

direction

My car is going over / under / around the bridge.

size & shape

Can we make a car park / garage to fit these cars?

website

Watch your child playing • See what they enjoy doing • Join in and use these ideas when they seem ready

Putting away the shopping

EARLY CHILDHOOD MATHS GROUP

size

This is a big potato!

counting

1, 2, 3, 4.
That's 4 cans of beans. Did we buy 4? Is that all of them?

weight

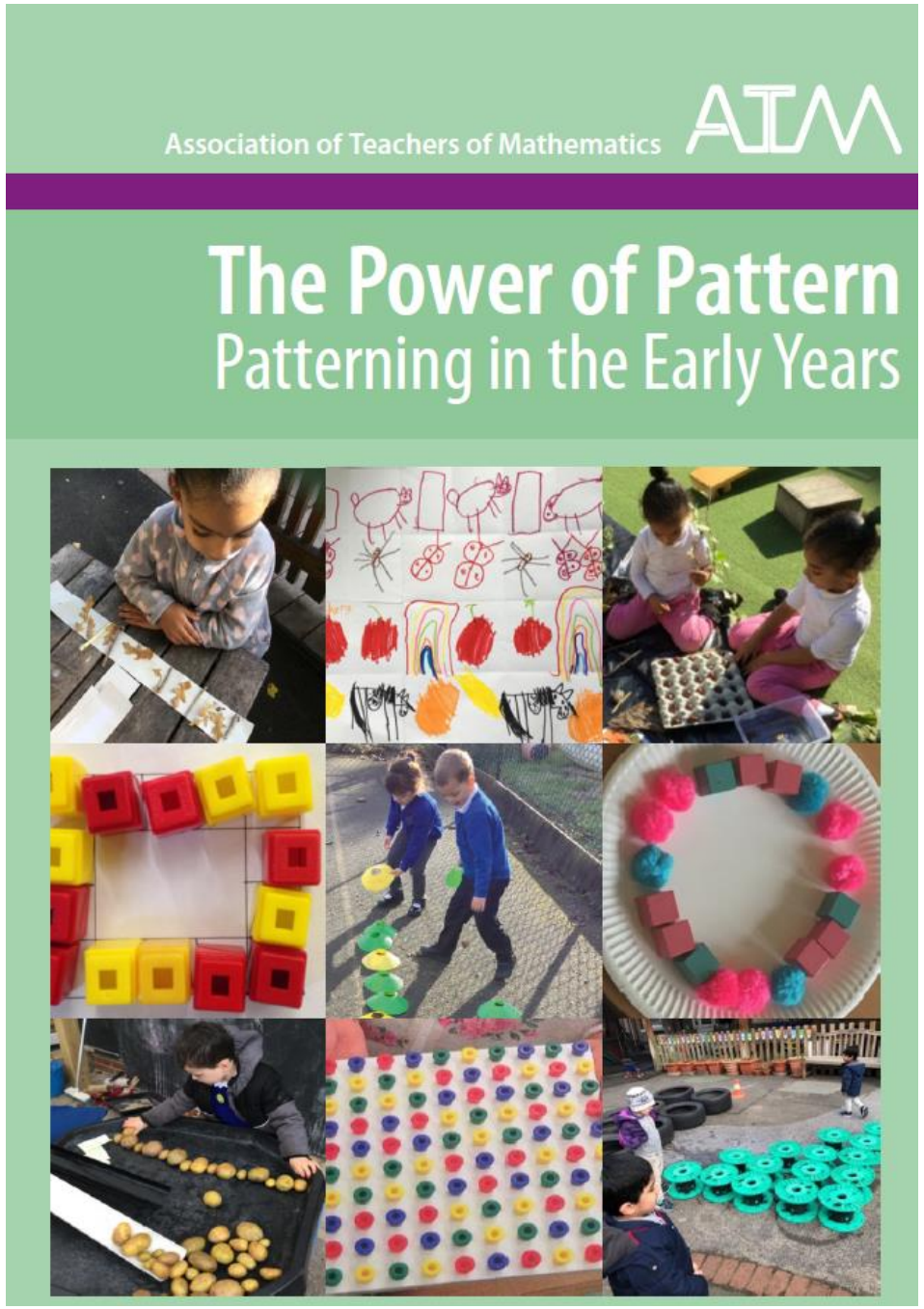
This box is heavy – can you lift it okay?

position

Put the yogurt next to / on top of / in front of / behind the butter.

website

Watch your child playing • See what they enjoy doing • Join in and use these ideas when they seem ready

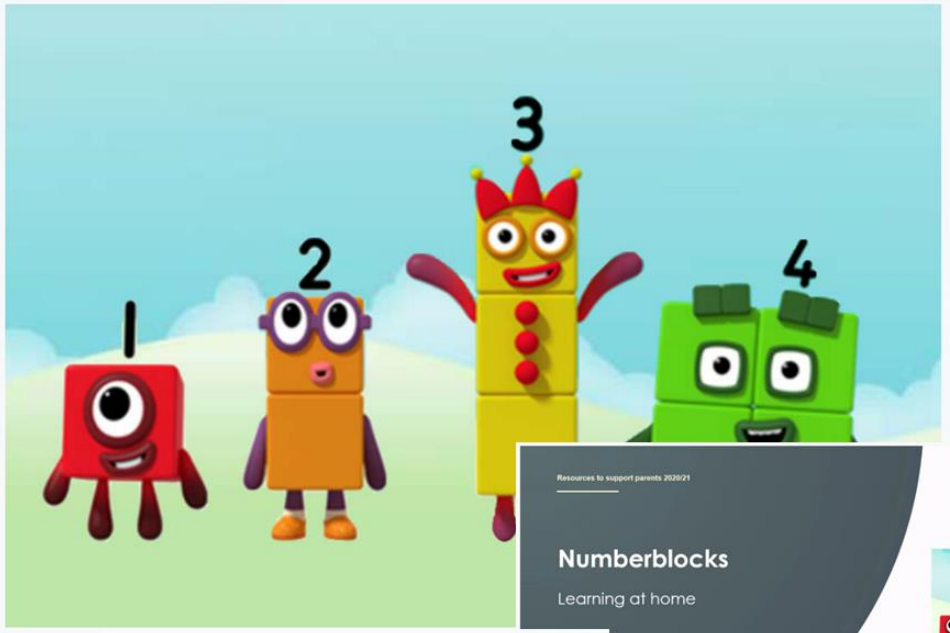


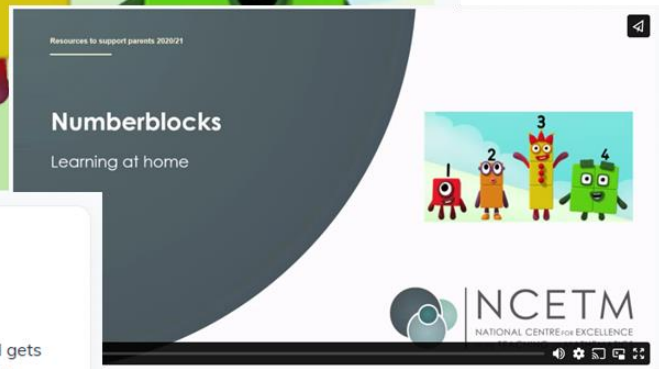
Numberblocks at home

Resources to accompany the CBeebies Numberblocks series, designed for parents to use at home with children

Early Years

Early Years Materials





Series 1, Episode 7: "Five"

Five arrives to get the band together – and gets the party started – with a big high five!

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

Lots of chances for these makes a huge difference to maths success…

Enjoy talking about them ☺

Those ‘chances’ and the talk with it will be the most valuable maths your child EVER gets!