EYFS Maths Workshop

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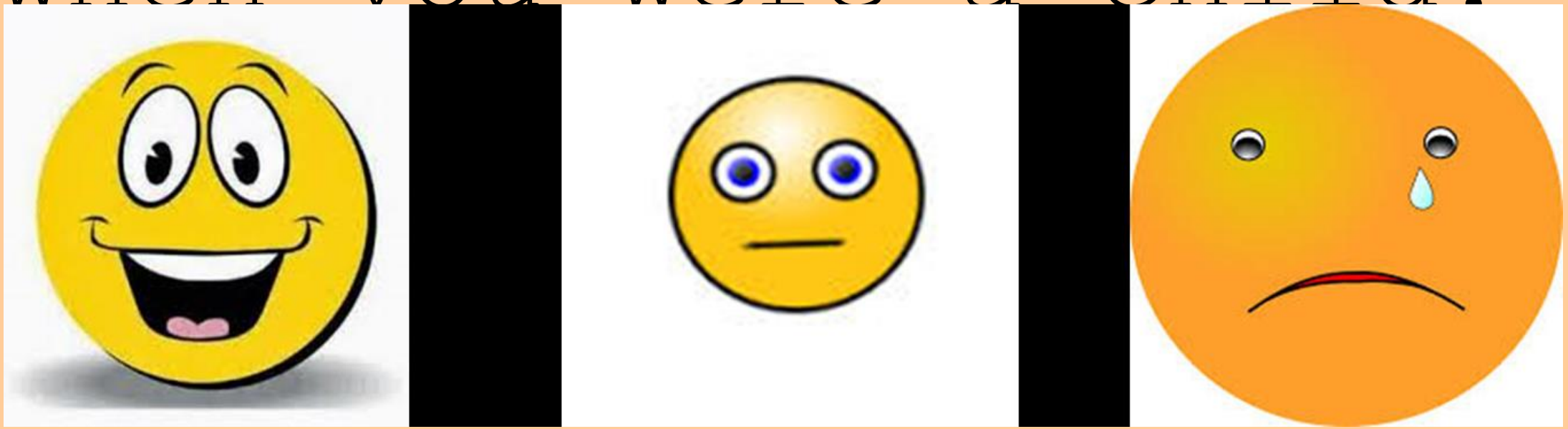
On a scale of 1 -10, how many of you enjoyed Mathematics when you were a child?



A large percentage say:

"I was never good at Maths"

As many as 2 million children are believed to be affected by maths anxiety, so why is it still so poorly understood?

IT REQUIRES LOTS OF MEMORISATION

STUDENTS THINKS IT'S DULL

IT REQUIRES MAKING A LOT OF MISTAKES

WHAT CAUSES MATHS ANXIETY?

The pressure caused by time limits on tests

Pressure from parents to 'get it right'

The fear of public embarrassment

The student feels that he or she is the only one incapable of finding the solutions, even if the math is extremely complicated.

Influence of teachers

The student begins to believe that he or she is naturally bad at math and always will be, so he or she gives up trying to improve.

The ‘problem’ with maths

“My dad thinks that the way **he** does maths is easier and better than **my** way but he doesn’t understand my way and his way confuses me.”

Pupil – Catford High School

What should my child be expected to do by the end of Reception?

Mathematics

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.

The ELG's (Early Learning Goals) are what we aim for all children to have met by the end of the year. Maths is a Prime Area of learning, so the children need to meet these targets in order to get their overall Early Learning Goal. By achieving this, it tells us that they are on track when

What should my child be expected to do by the end of Reception?

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;

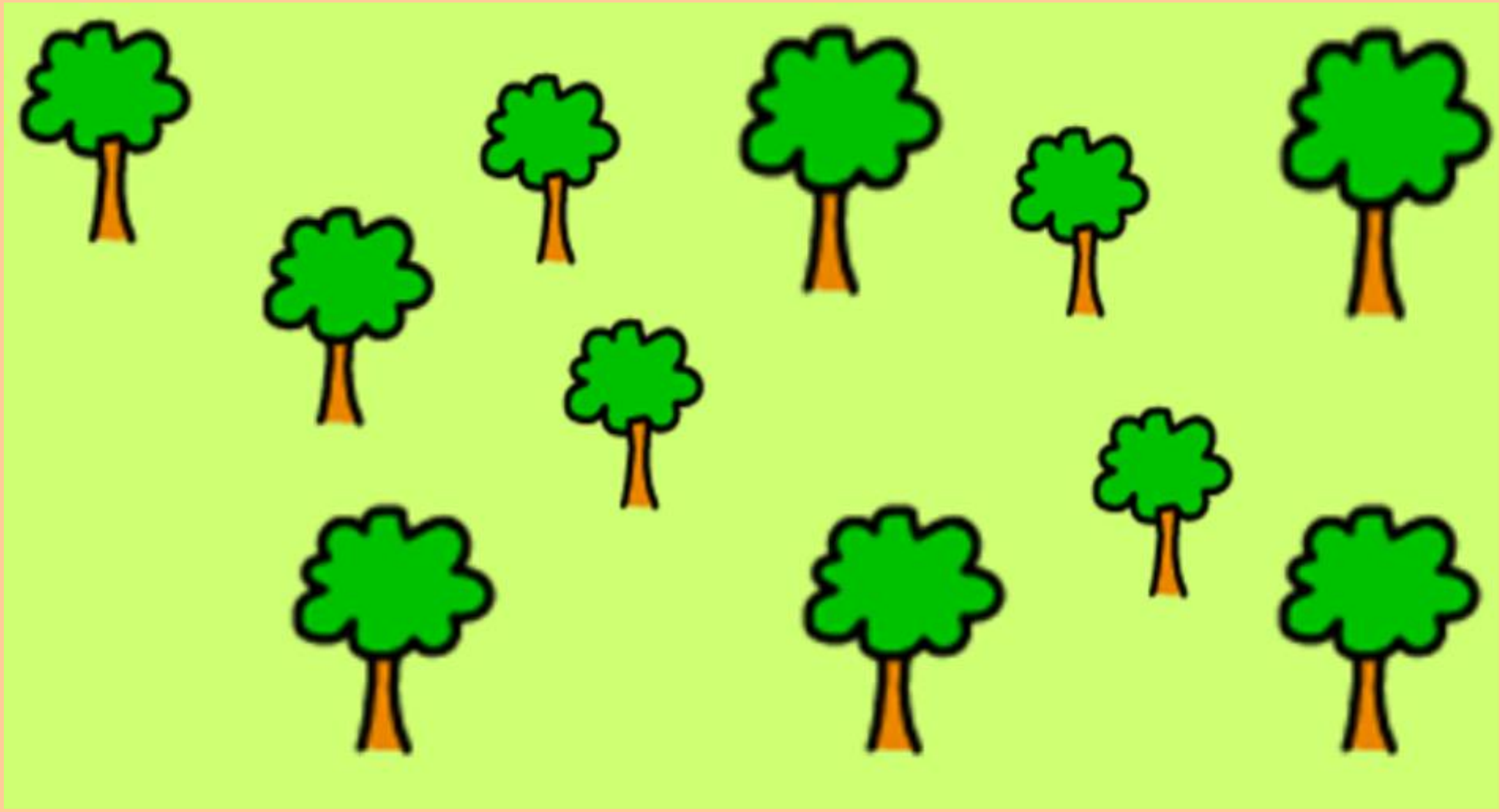
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

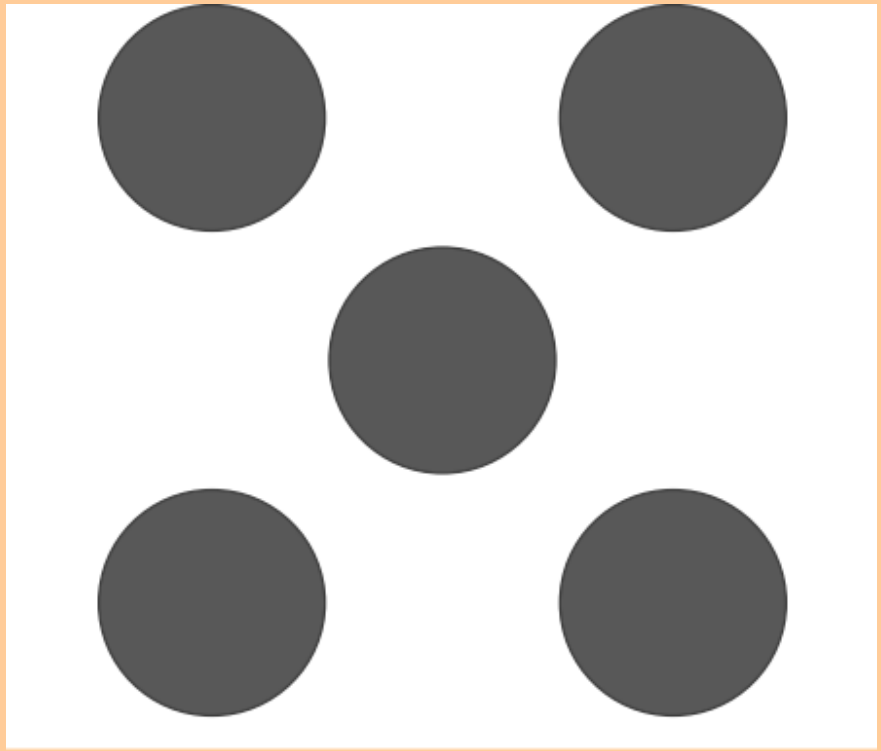
Subitising

Subitising is the ability to recognise a *small quantity* of objects *without the need to count*.

Sometimes when we subitise we can see two groups at once; if we know that 3 can be 'made' of 2 and 1, then we know how many there are altogether without counting.

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

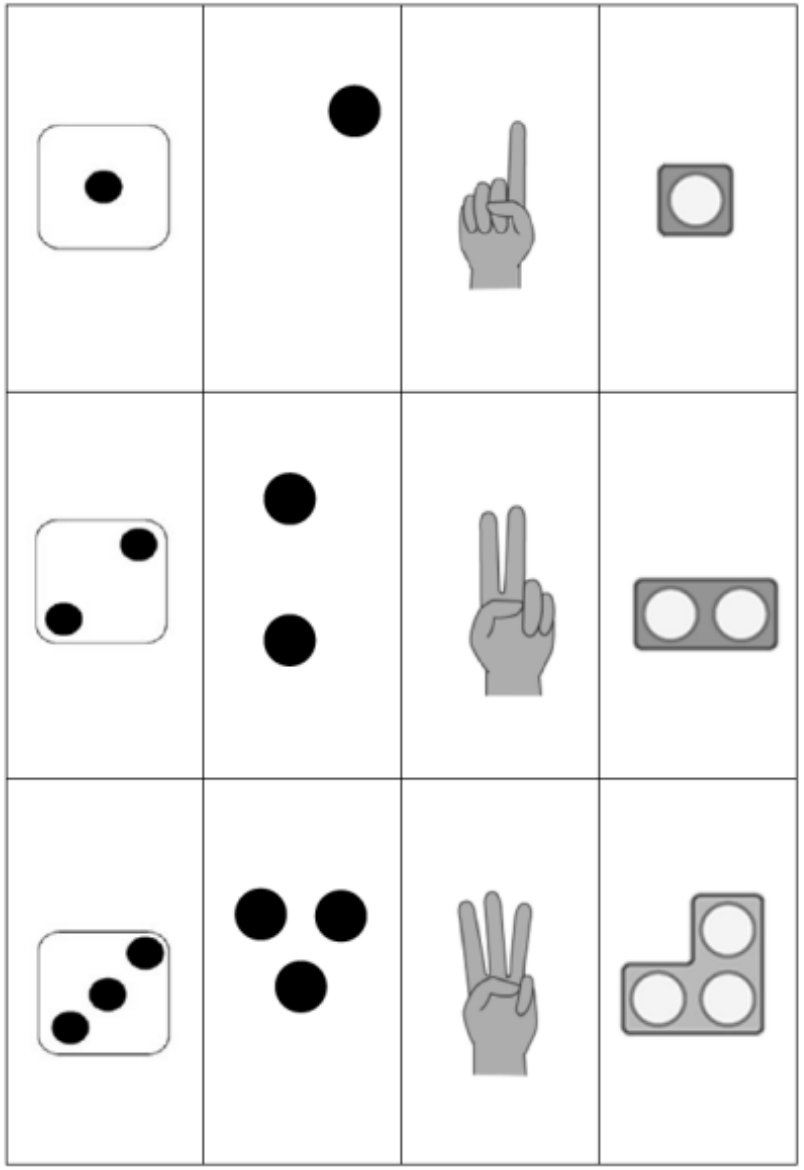




How will knowing how numbers are ‘made’ help?

If children know that **4 can be made of 3 and 1,** they can apply this knowledge later on to see that:

30 and 10 is 40
300 and 100 is 400
and that;
400 take away 100 is 300



Games you can play at home:

Please cut these into 12 separate cards and hand them to your child.

Children:

Please spread the cards out and place them ***face-down*** in front of you. (Ask the grown-up for help if unsure).

NCETM
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Counting

When counting, children need to understand:

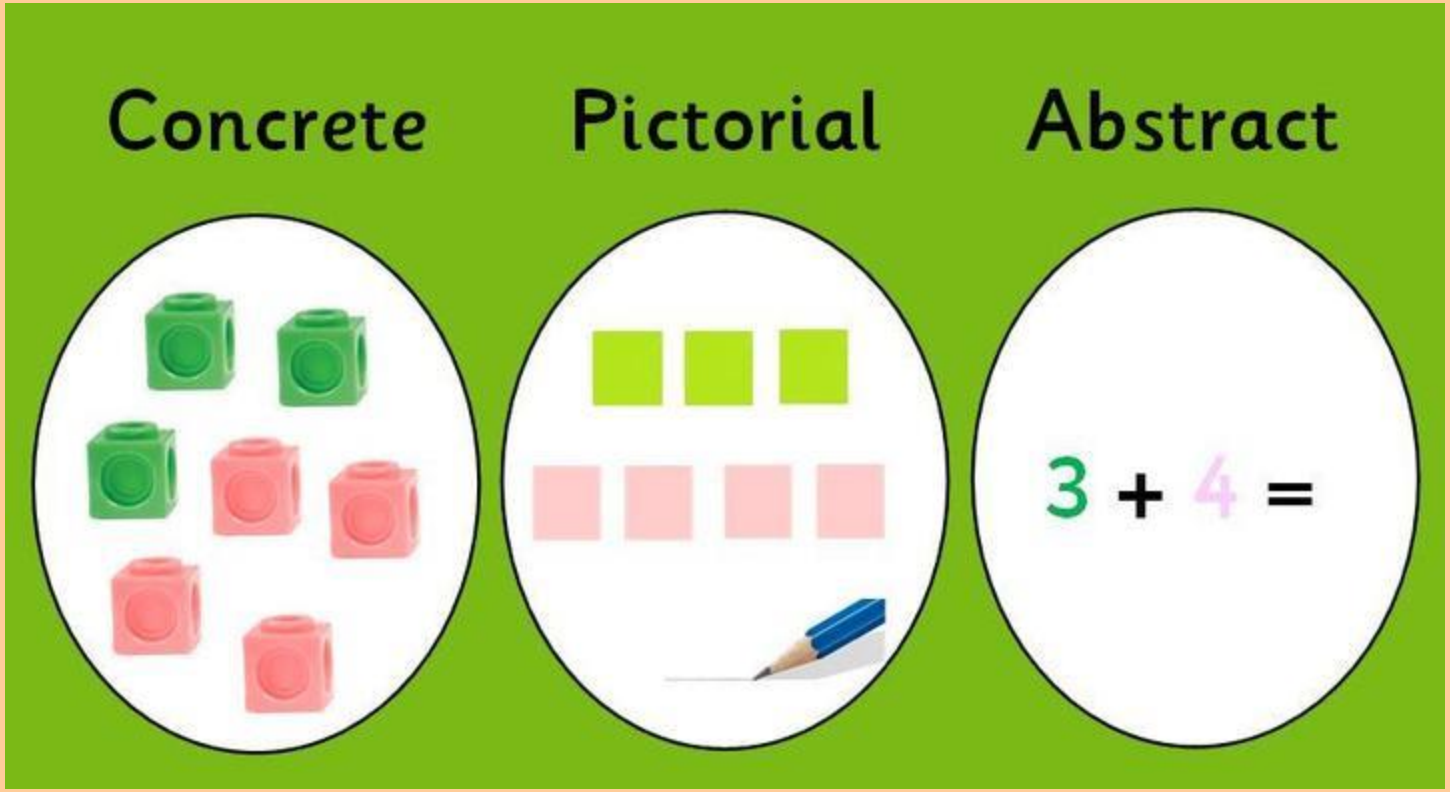
- That we need to say one number for each object counted (touch counting).
- The final number we say is how many altogether. Some children continue to count after they have reached the final object as they don't connect the numbers they are saying to the objects in front of them.
- That we can count objects in any order and the total stays the same

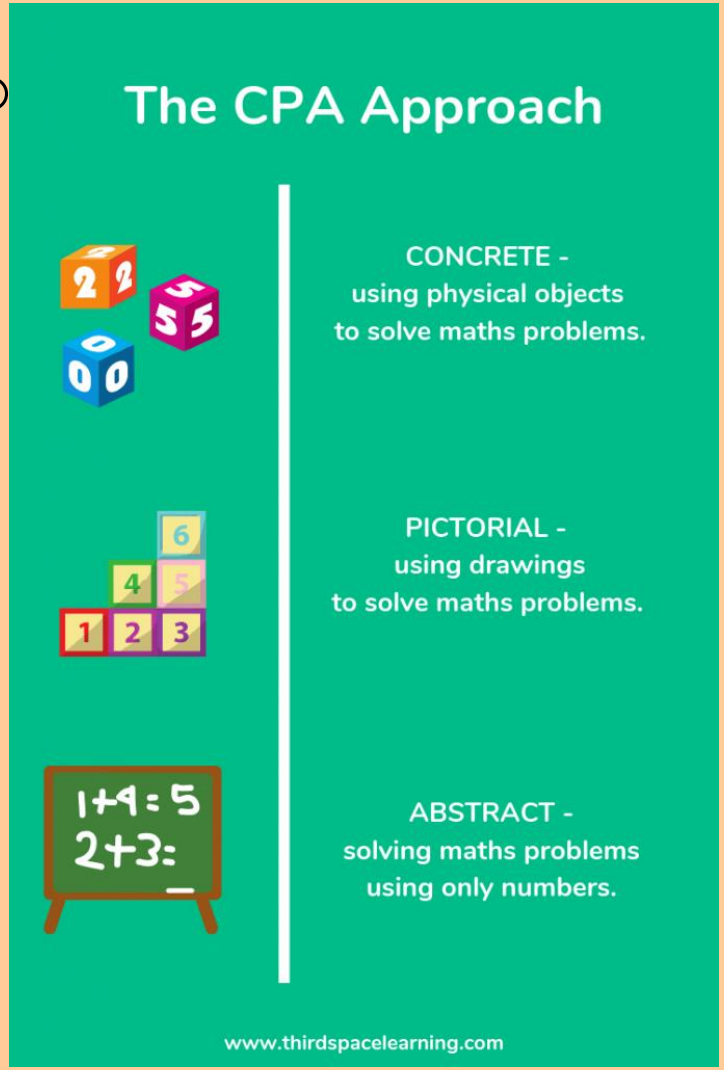
In Reception and Nursery, we aim to teach so that children have a deep understanding of number.

- Representing Numbers - We want to develop children's number sense so that they understand the number rather than just recognising the numeral. Children need to 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. n to recogni and outdoor

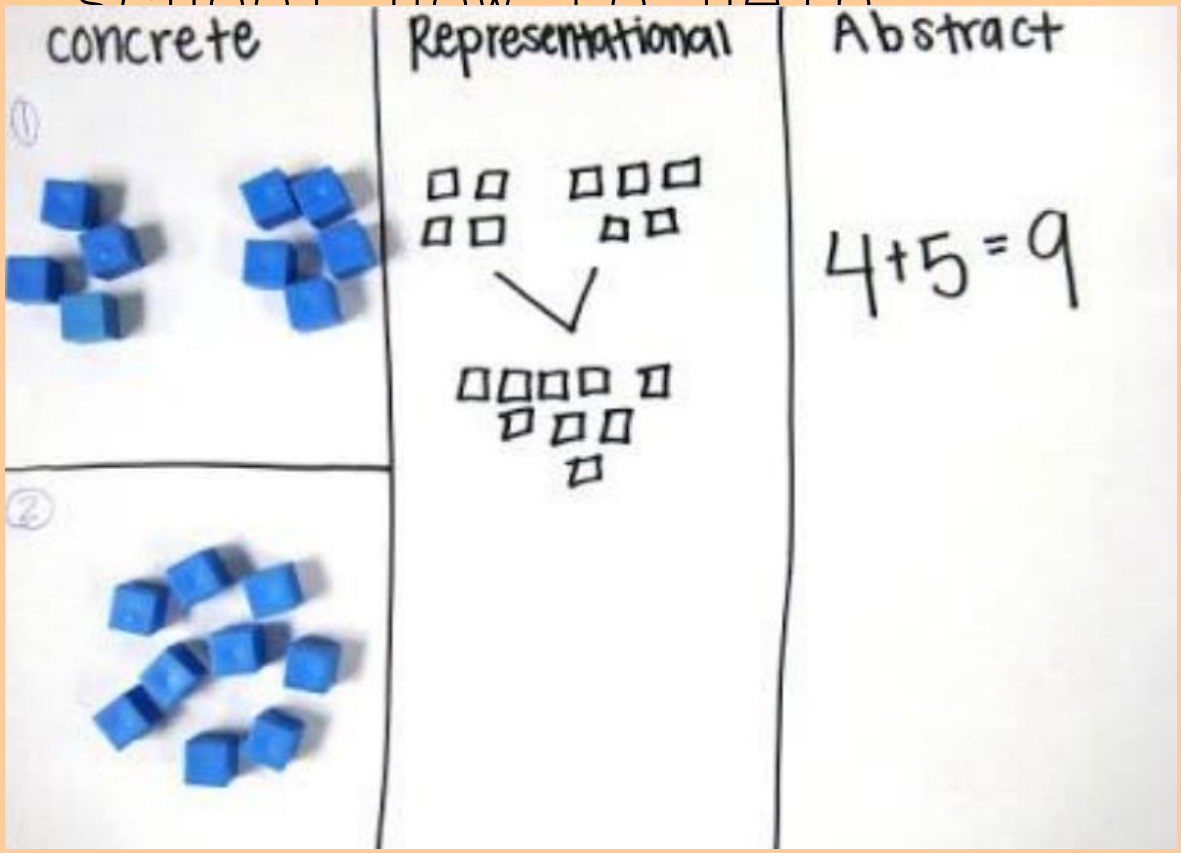
Teaching of Maths at NMP

Concrete, Pictorial, Abstract appro





This is fundamental to EYFS and KS1 teaching but actually goes through the whole school now to help



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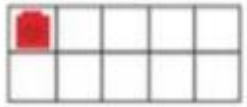
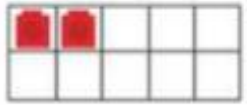
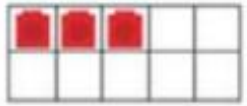
		1
		2
		3
		4

Concrete is the 'doing' stage, using concrete objects to solve problems.

Pictorial is the 'seeing' stage, using representations of the objects involved in maths problems.

Abstract is the 'symbolic' stage, where children are able to use abstract symbols to model and solve maths problems.

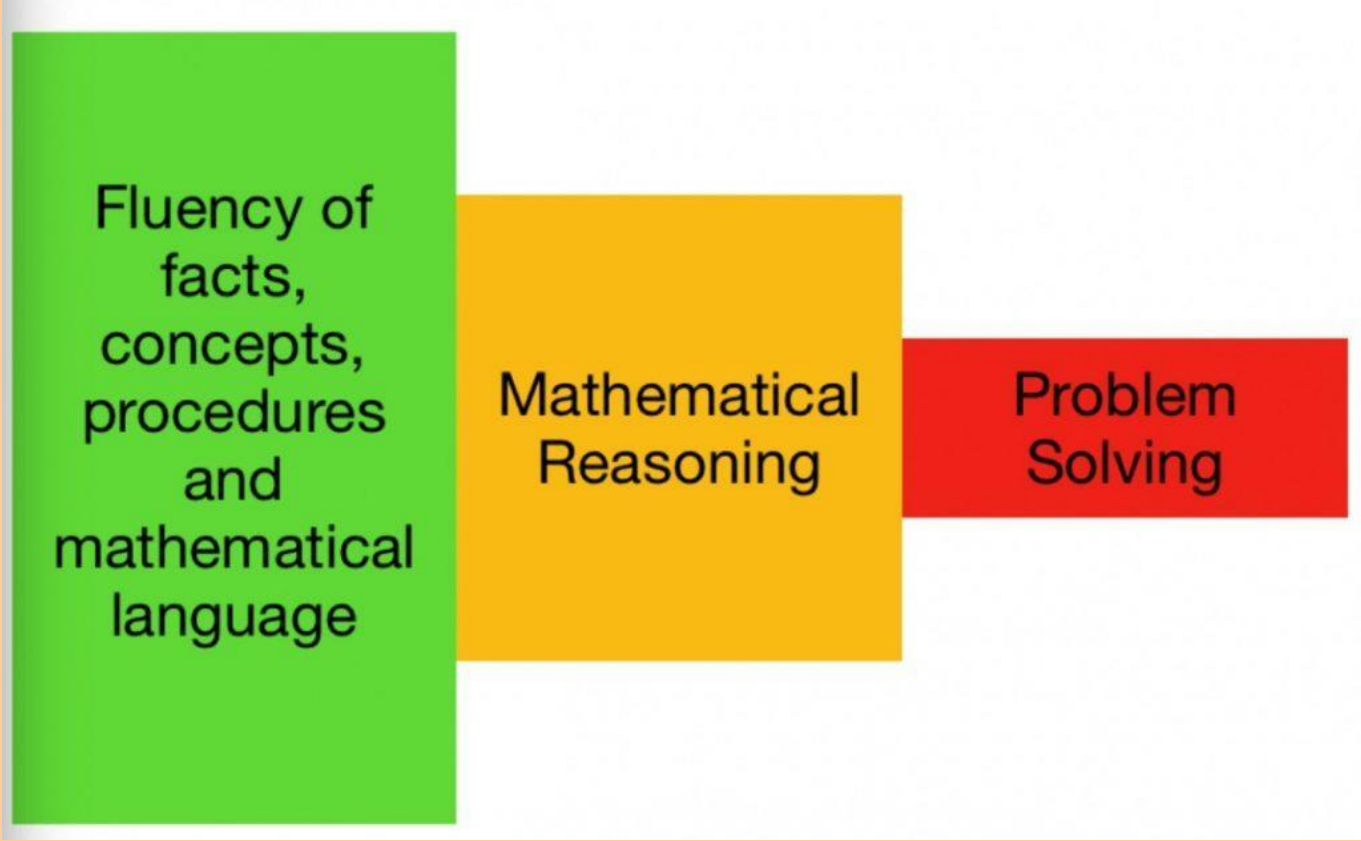
Concrete resources

Concrete resources can be found at home too!

e.g. spoons, teddies, cups, bowls, books, balls

Mastery approach

Fluency , Reasoning and Problem-solving



Fluency recap

EYFS

Fluency

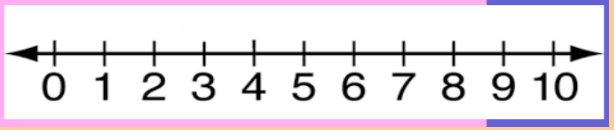
What is one fewer and one more than the given number

__ ⇐3⇒ __

__ ⇐4⇒ __

__ ⇐5⇒ __

__ ⇐1⇒ __



Year 6

Fluency Recap

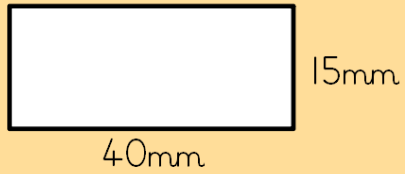
a) $\frac{3}{5} \times 35$

b) 98 - 6 = ☐ + 4

c) $17\overline{)5029}$

d) 34% of 630

e) What is the area of this rectangle?

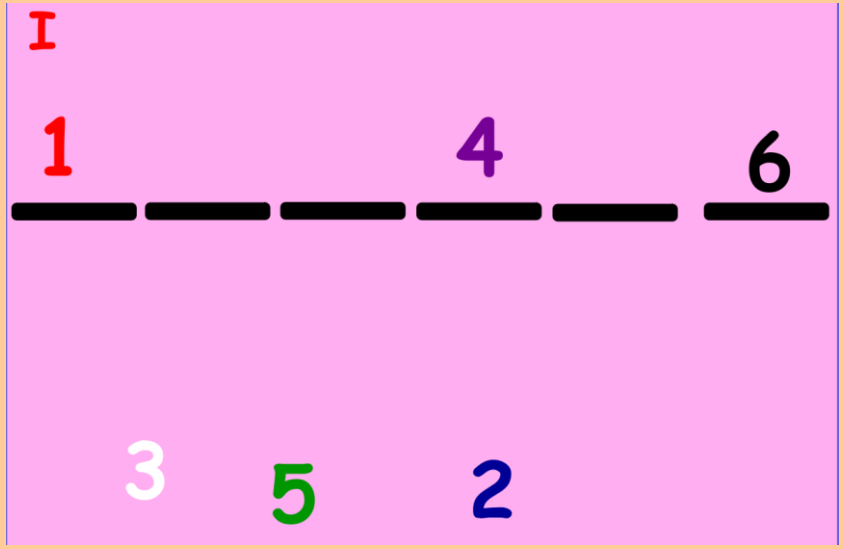


I WE YOU

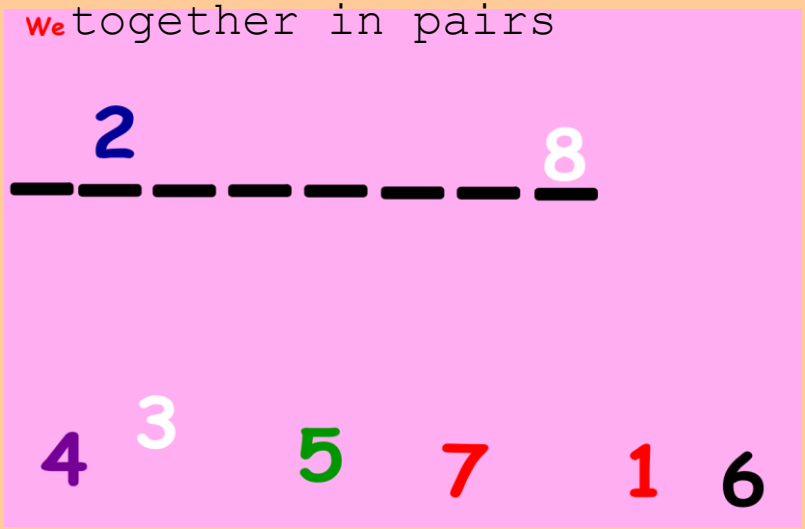
- At NMP, we use the I WE YOU approach. This particularly works for new topics in Maths. However, when problem-solving or investigating, starting with 'We' can allow you to see what your child

I, WE, YOU – Sequence numbers up to 15

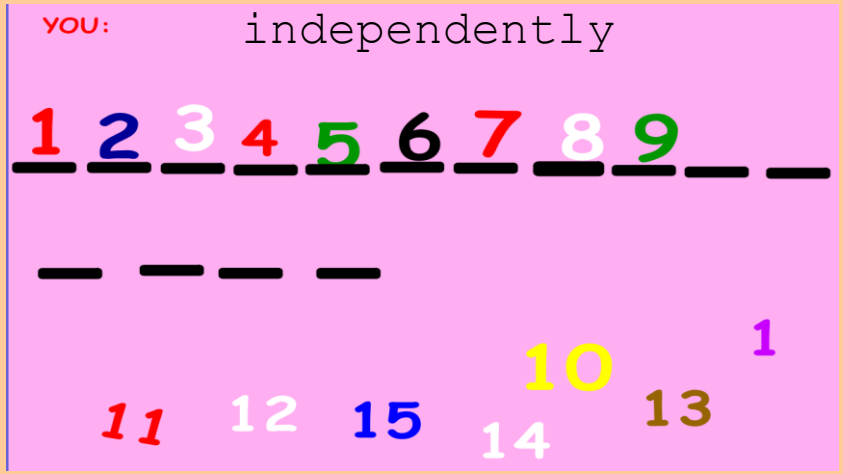
Teacher models



Children work together in pairs



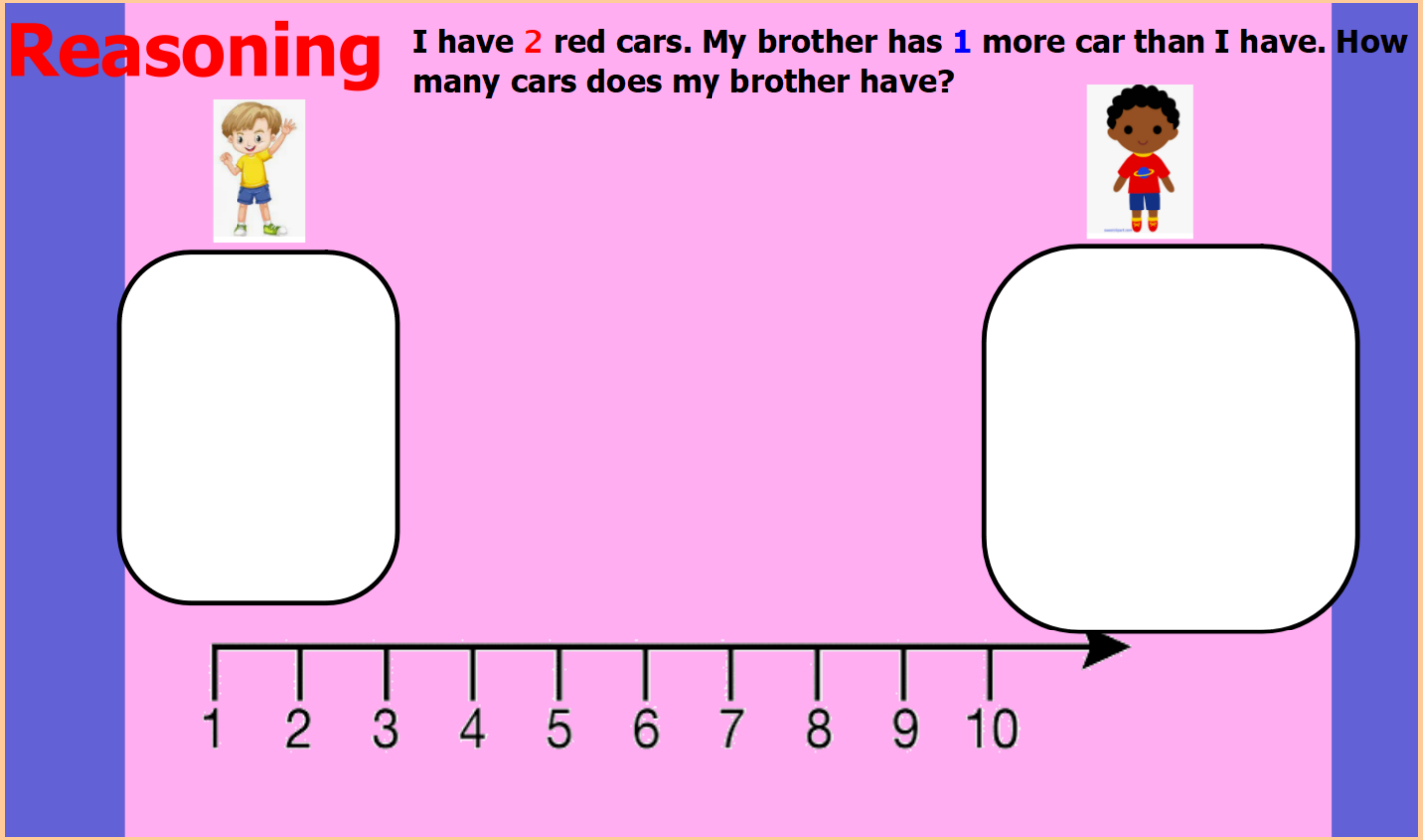
Children try independently



Challenge!

Reasoning + Problem-solving

Children are presented a reasoning/problem-solving question at the end of the lesson.



Fluency - What is fluency in maths?

- Mathematical fluency is a fairly broad concept. The basics – as defined by the National Curriculum – involve knowing key mathematical number facts and being able to recall them quickly and accurately.
- But true fluency in maths (at least up to Key Stage 2) means being able to apply the same skill to multiple contexts and being able to choose the most appropriate method for a particular task.
- Fluency in maths lessons means we teach the content using a range of representations, to

What is reasoning?

- Reasoning in Maths helps children to be able to explain their thinking.

In Reception and Nursery, some examples of reasoning are:

- 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

Which cookie is the odd one out? And why?

Reasoning

How do you know What number has Alison missed out?

Maths Mastery Number Bonds within 20 Challenge Cards

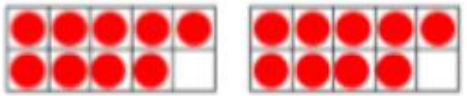
2. What can you see?

How do you know?

Draw a picture to show another way that the mermaids could sit on the rocks.

5b. Daisy says,

I know that 9 + 9 = 18 because 18 – 10 = 8.

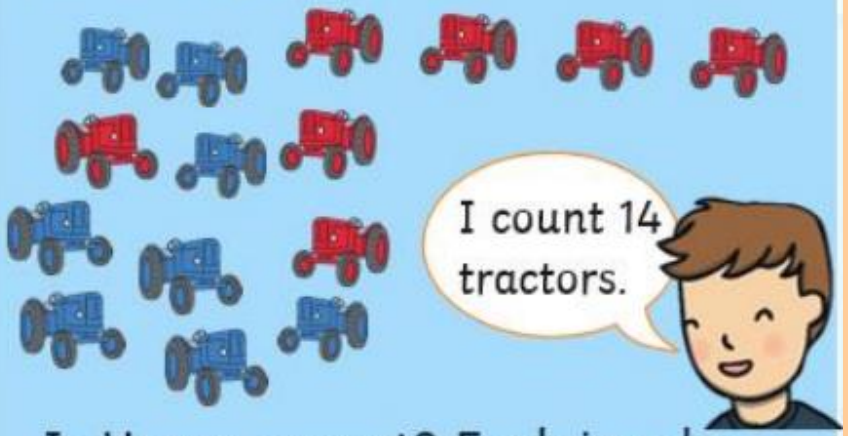


Is her method correct? Convince me.

Reasoning

How many leaves does Alison have? Prove it.

Reasoning



Is Henry correct? Explain why.

What is problem-solving in Maths?

- First off, problem solving should not be seen as something that some pupils can do and some cannot. Every single person is born with an innate level of problem-solving ability. Early on in life we solved problems like recognising faces we know, protecting ourselves, and as babies the problem of getting food is one of the first bit olving we ever do, by crying rel we were fed! This inbuilt abili problem solving easier.

Add Three 1-Digit Numbers

I have 3 party bags to fill and 10 balloons. Each bag must have at least 1 balloon.

Find all the different ways of sharing the 10 balloons between the 3 bags.

$\square + \square + \square = \square$

Problem Solving

Write an addition sentence about this picture.

7 + 6 = 13

Problem Solving

6 + 5 = 11

Write an addition sentence

If there were 6 hedgehogs in a field and another 5 arrived, how many would there be altogether?

If you had 10 glass bottles and 3 plastic bottles, how many bottles are there altogether?

5b. Which shape is the odd one out?

A.

B.

C.

D.

Find 2 possible answers.

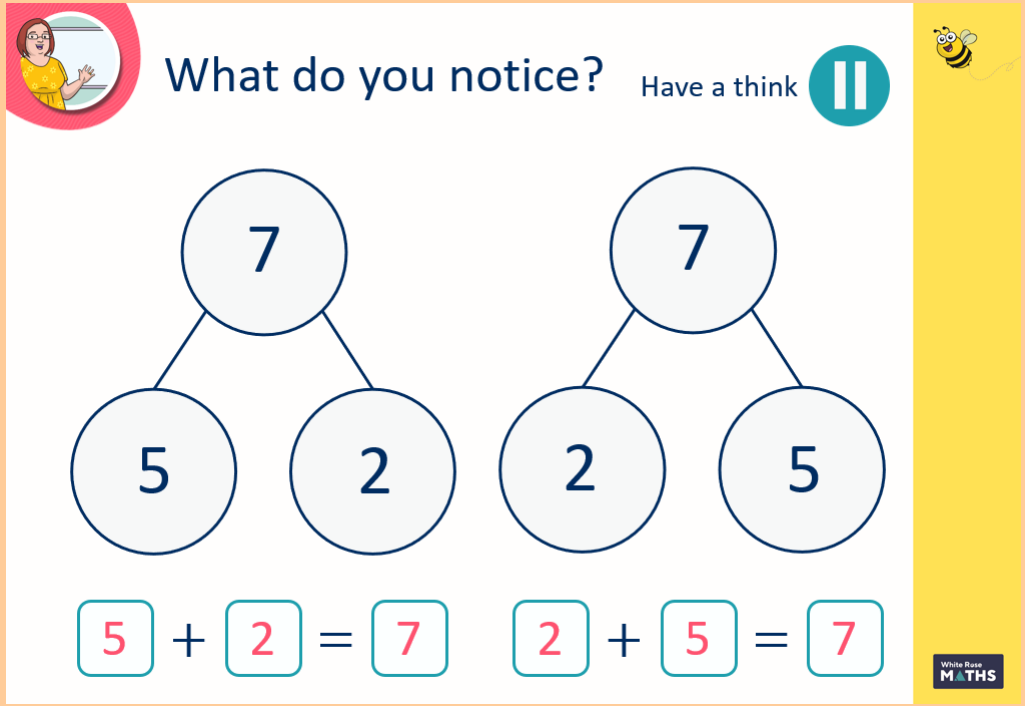
What is problem-solving?

- 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 blindly following maths procedures.

In Reception, problem solving might include:

- Spotting, following and creating patterns
- Estimating amounts of objects
- Predicting how many times they can do something in a minute
- Sharing objects between different groups – particularly when the amount of groups change and the amount of objects stays the same
- Finding different ways to partition numbers eg 5 could be 5+0, 4+1, 3+2 etc

Other methods in Maths



Part whole model

How can I help at home?

How can I help at home?

How many more?

How many are there altogether?

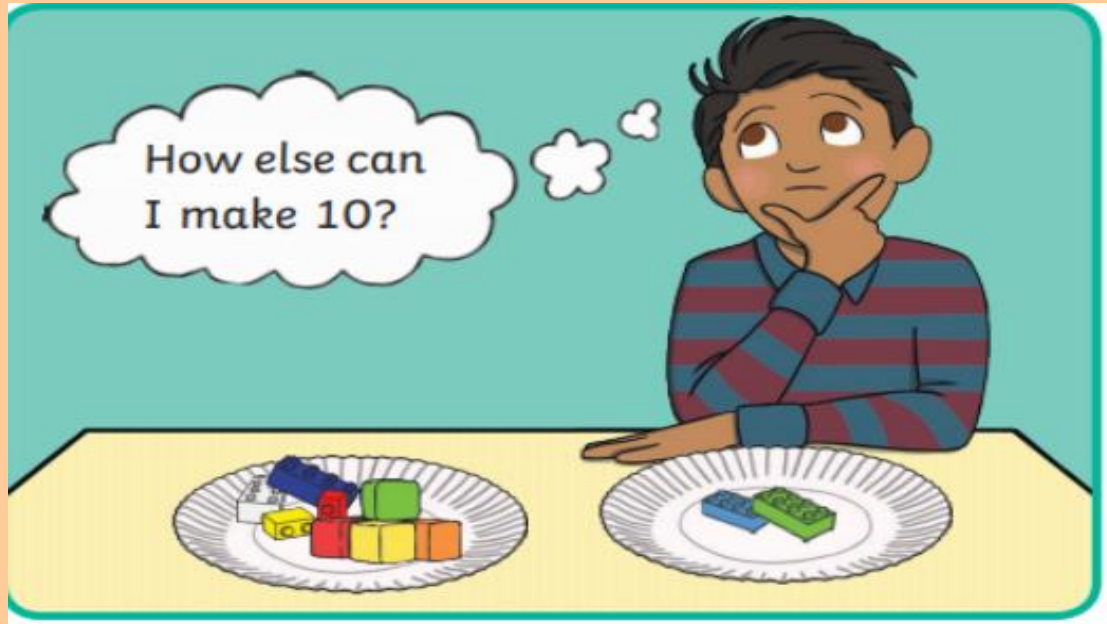
How many would I have if…?

How else can I help at home?

- Watch Numberblocks on Cbeebies. This programme is written by maths specialists to model maths concepts and represents number brilliantly. Also, Numberjacks is excellent for solving problems.
- Hide numbers around the house or garden for children to find.
- Play outdoor maths games like hopscotch and skittles. Even better, let children make up their own games and decide how to score points.
- Read books with maths concepts eg The Very Hungry Caterpillar, One is a snail, ten is a crab, What's the time, Mr Wolf? The doorbell rang.
- Draw attention to more and less. • Try some activities from the NRICH website for EYFS to

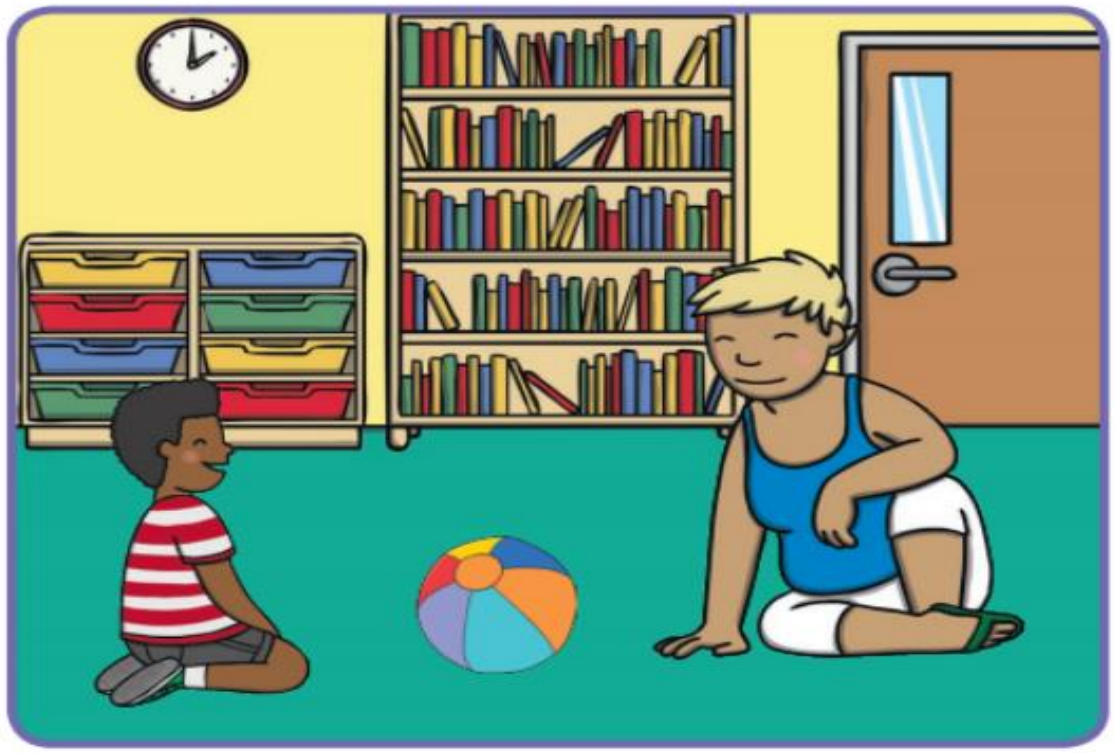
Around the home

- What did you see five of in the episode?
- • Practise counting to five and putting up one finger at a time. Now try with the other hand!
- • Where can you see five things inside or outside your home? Can you take a picture or draw them?
- • Get five toys and make a toy picnic! Get five plates, five cups, five spoons and give one to each of your toys. Can you still see the five spoons and five cups?
- • Collect lots of buttons or one penny coins. Can you put them into groups of five?
- • Choose an action, for example, clapping, jumping, hopping, stamping. Can you do four hops and one more hop to make five hops? Five claps? Try to keep count as you do each action.
- • With an adult, draw around your hand and put a 5-pointed star on it to remind you of Five's 'High Five'!



- Find ten small objects and two plates.
- Grab some of the objects and put them on one of the plates.
- Then, take the rest of the objects and put them on the other plate.
- Count how many there are on each plate.
- What number bond did you find?
- Try the game again. What other number bonds can you find?

One More



- Your partner can roll the ball to you and say a number.
- Can you catch the ball and say the number that is one more?
- As you roll the ball back, pick a different number to say.
- Can your partner say the number that is one more?

Estimating and Counting Socks

- Can you explain what an estimate is?
- Can you estimate how many socks are in the basket?
- Tip the socks out on to the floor.
- Now can you spot any groups of socks together?
- Can you estimate again then check how many there are by counting them?

In a shallow tray or plate of flour or sand, use your finger to write a numeral from 0 to 10. Challenge a friend or grown-up to identify the number. Then ask them to write a number for you to identify.

10

Can You Help with the Washing?

- Place some clothes in the washing machine, counting them as you put them in.
- Now shut the door. How many are inside?
- Keep that number in your head and add some more clothes. Can you count on?
- How many clothes are in the washing machine now?

Maths Mastery Home Learning Challenge

Adult Guidance

What Are We Learning?

We are learning to use words related to addition.

How to Set up the Challenge

- Find ten items of clothing and place these next to an empty washing machine.

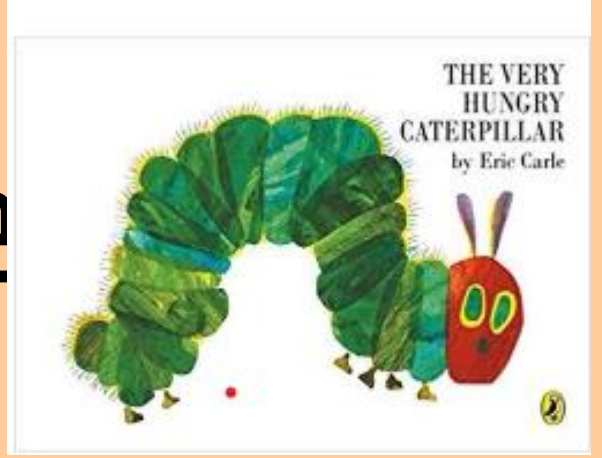
How to Get Your Child Thinking

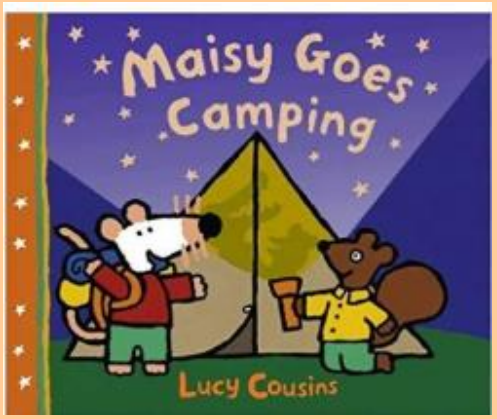
- How many clothes are already in the washing machine? Can we add more and count on?
- How many clothes are in the washing machine now?
- Can you put that number in your head and count on?

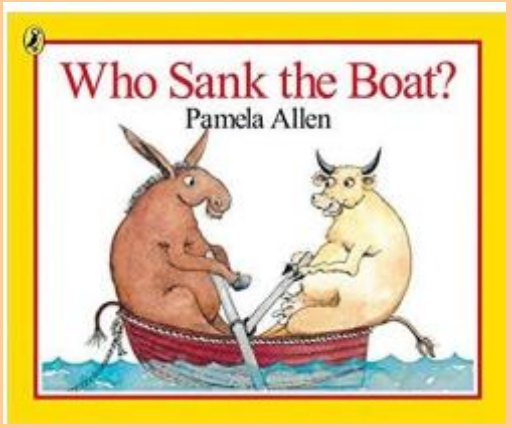
Stories with Math

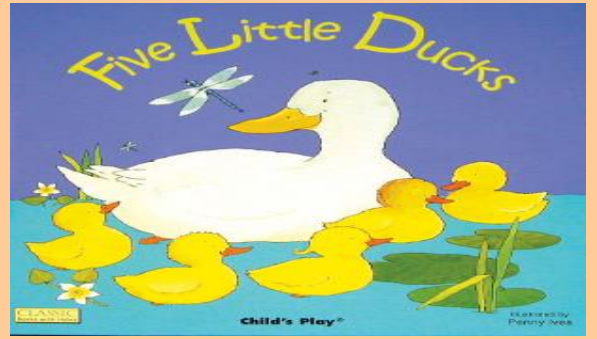
Maths storybooks are a brilliant way to bring mathematical concepts to life. For young children, the idea of counting or adding numbers can be quite abstract, which makes it difficult for them to understand.

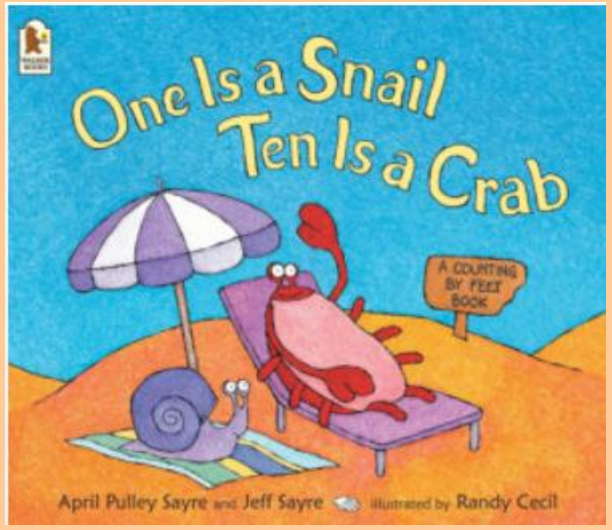
Maths-themed storybooks use fun stories and characters to help these concepts become more tangible.

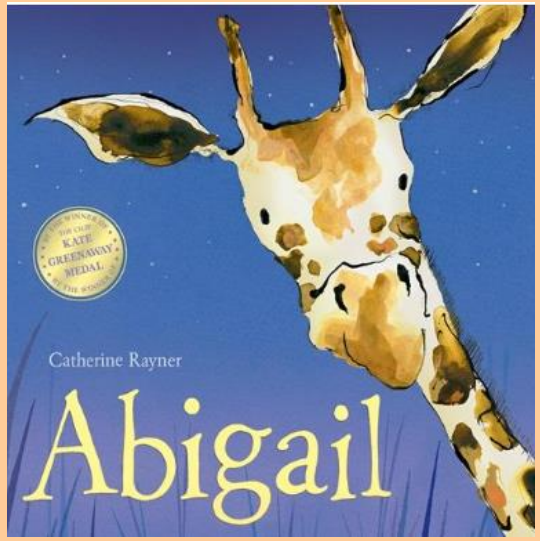


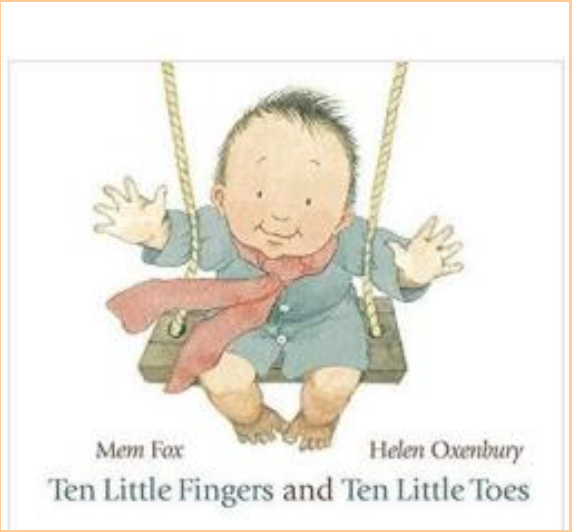


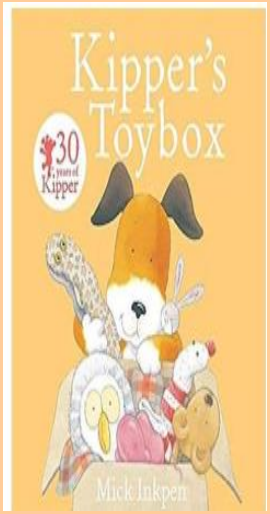








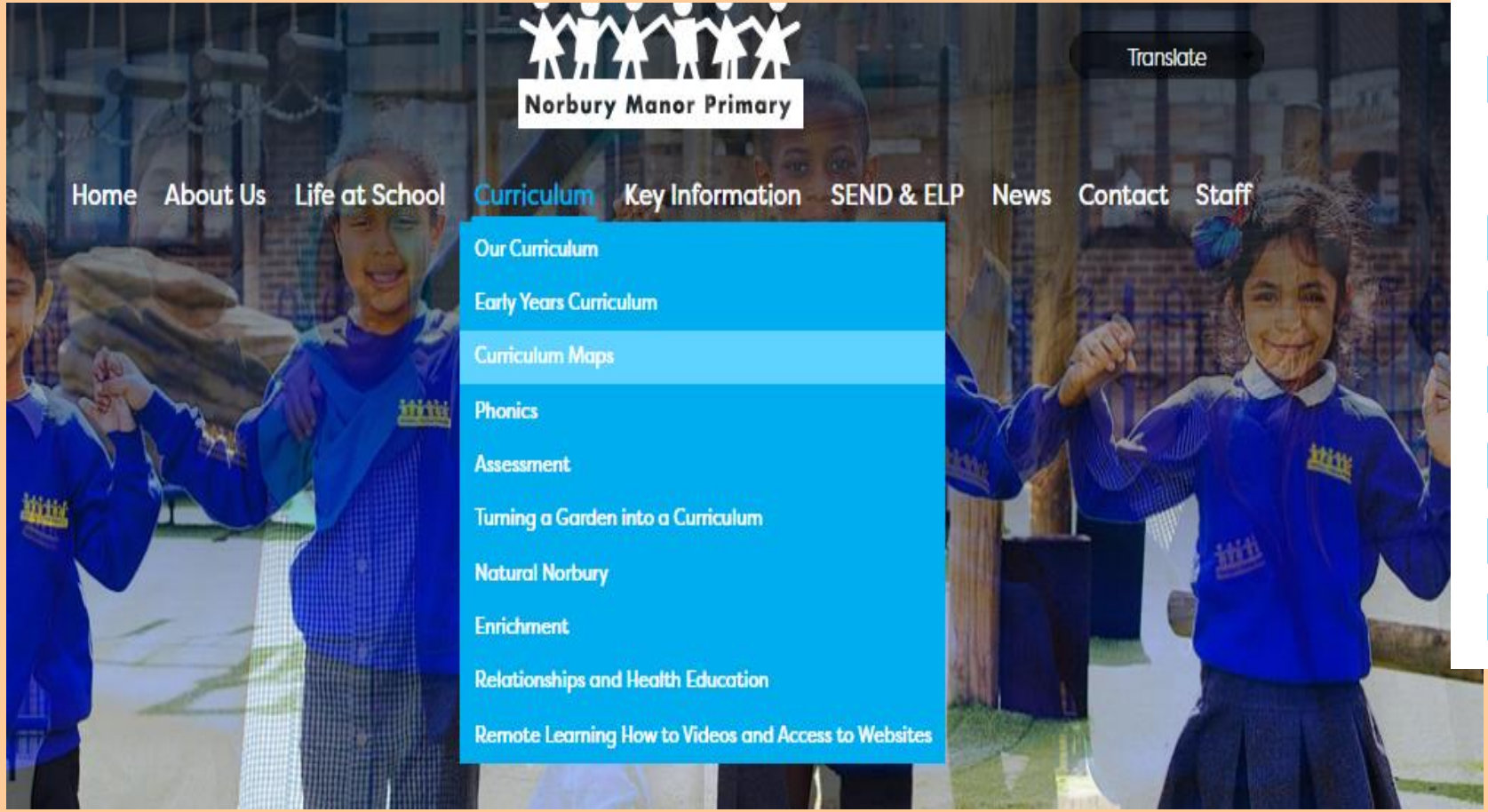




Curriculum map for EYFS is on our website!

Nursery	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Topic	**Ourselves**	**Bears**	**Wheels**	**Eggs!**	**Minibeasts**	**Water**
						Begin to blend some known sounds with support
Mathematics	Children use water tray with plastic frogs, nets, and plastic glitter numbers to 5. Recognising 1,2,3 Numbers to 5 with playdough and also on tables for tracing around, sticking and cutting. Number puzzles Number books for the children to look at. Children use the props linked to core rhymes. Children use fingers	Collecting objects to put in numbered baskets. Counting to 10 Subitise 1,2,3 (dice) Children to collect numbers of pictures of e.g. faces, cars, toys, wheels, hands etc. Shape Hunt Match the shapes to their shadow. Sort objects by colour. Play with colour puzzles. Size sorting (Big & Little)	Counting the number of chairs, plates, cups etc needed for activities/role play etc. Subitising 1,2,3 in various ways Ordering numbers to five Pass it on activity, Junk numbers activity, Big races, Snap a shape, In the hoop you go in. Working in groups of 4 to play turn taking games using counters and dice and dominoes. Size ordering (Big, middle sized and small)	Comparing sets of animals/toys or groups of children and introducing the concept of more or less. Subitise up to 5 Children sort objects using their own criteria and explaining their reasoning. Use prepared shapes to make animal pictures. Make models of animals using 3D shapes/boxes. Money - coins focus	Recognising & counting 1 to 1 to 6/10 Counting out 6 objects from a large set. Adding & subtracting up to 6 objects Sorting minibeasts Comparing sets of objects– more /less Able to name simple 2d shapes and some features Uses 3d shapes in model making Making repeating patterns.	Child created number line 1– 10 Fishing for numbers and matching quantities Addition and subtraction (combining, more, less, left, altogether) to 10 Counting out up to 10 objects Writing and recognising numbers from 0 to 10 and back again. Sorting objects by size, shape and by type. Vocabulary linked to Capacity – empty/full

EYFS curriculum map



Curriculum Maps

− Nursery

NMP Nursery Curriculum map

− Reception

NMP Reception Curriculum map

+ Year 1

+ Year 2

+ Year 3

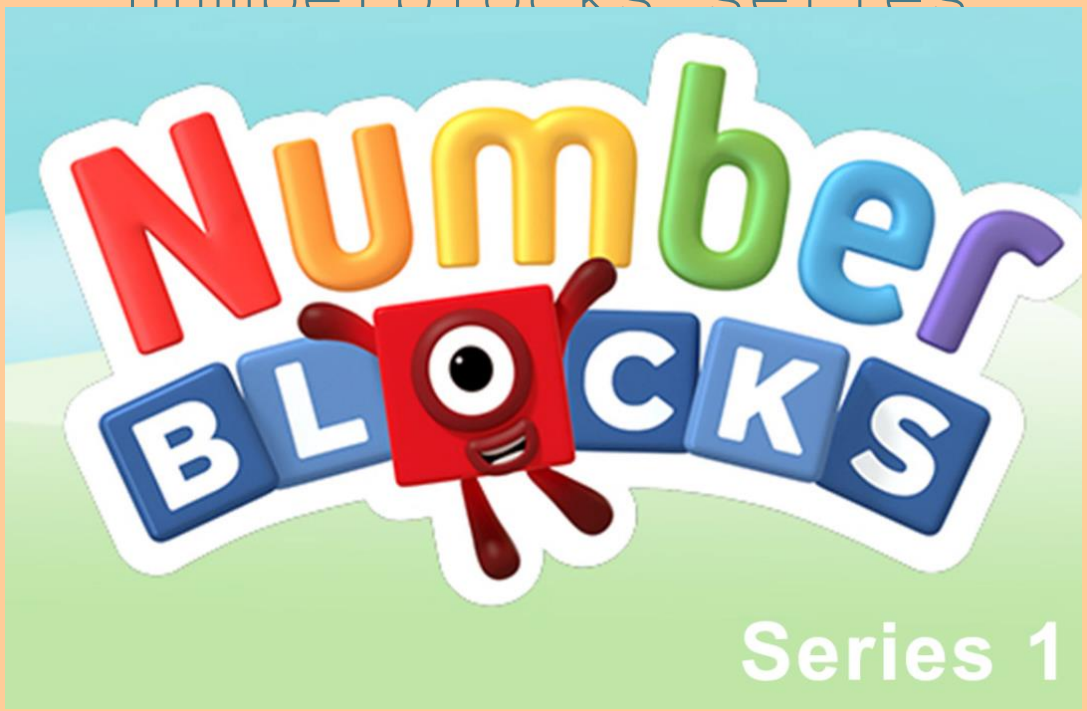
+ Year 4

+ Year 5

+ Year 6

Numberblocks

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



Series 1 Overview
stories and mathematics

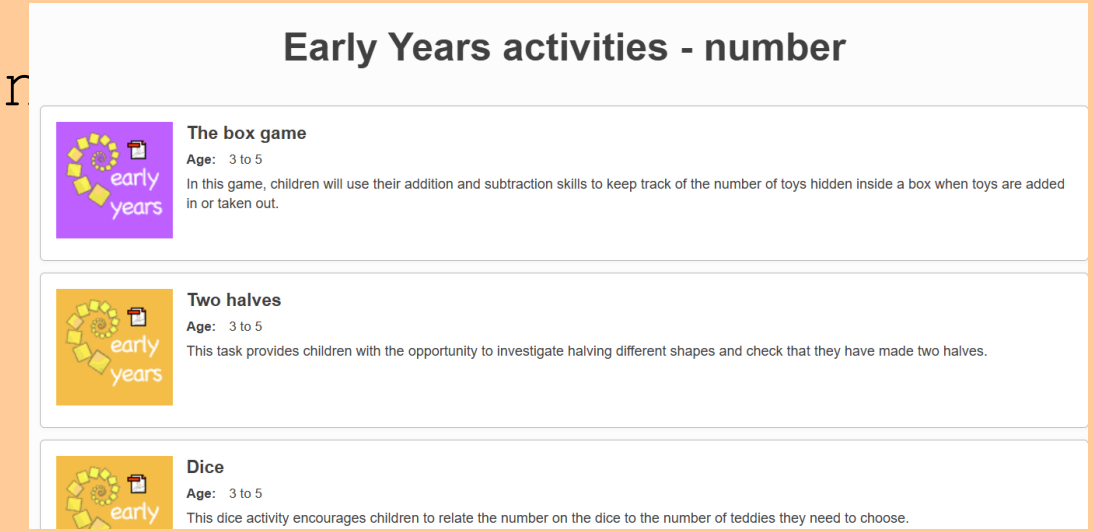
Numbers to 5

Episode	Name	Storyline	Mathematics
1	One	A little block falls out of the sky, meets her numberling and discovers one wonderful world, singing and counting to one.	• Meet *One* • Counting to 1
2	Another One	*One* discovers it's tricky to play tennis when you're the only block in the world. She bumps into a magic mirror and meets *Another One* – and they join forces to make *Two*.	• Meet *Two* • 2 is one more than 1
3	Two	*Two* finds a pair of magic dancing shoes and shows *One* that everything is better with 2, singing and counting things that belong in pairs.	• Counting to 2 • The 'twoness' of 2
4	Three	*Three* arrives with a bang – and a song-and-dance about her favourite number: 1, 2, 3, Everybody Look at Me!	• Meet *Three* • 3 is one more than 2
5	One, Two, Three!	*Three* does magic tricks with apples to show the others who goes first, who's biggest and how to surprise your number friends.	• Counting to 3 • Comparing numbers 1,2 and 3 – 'bigger' and 'smaller' • Ordering numbers 1 to 3 • 3 is made of 2 and 1
6	Four	*Four* is the new block on the block and he can't wait to share how much he loves to be square!	• Meet *Four* • 4 is one more than 3 • Counting to 4 • The structure of 4 as a square number

https://www.bbc.co.uk/iplayer/episode/b08dmn88/numberblocks-series-1-hideandseek?seriesId=b08bzfnh-1

Other useful websites

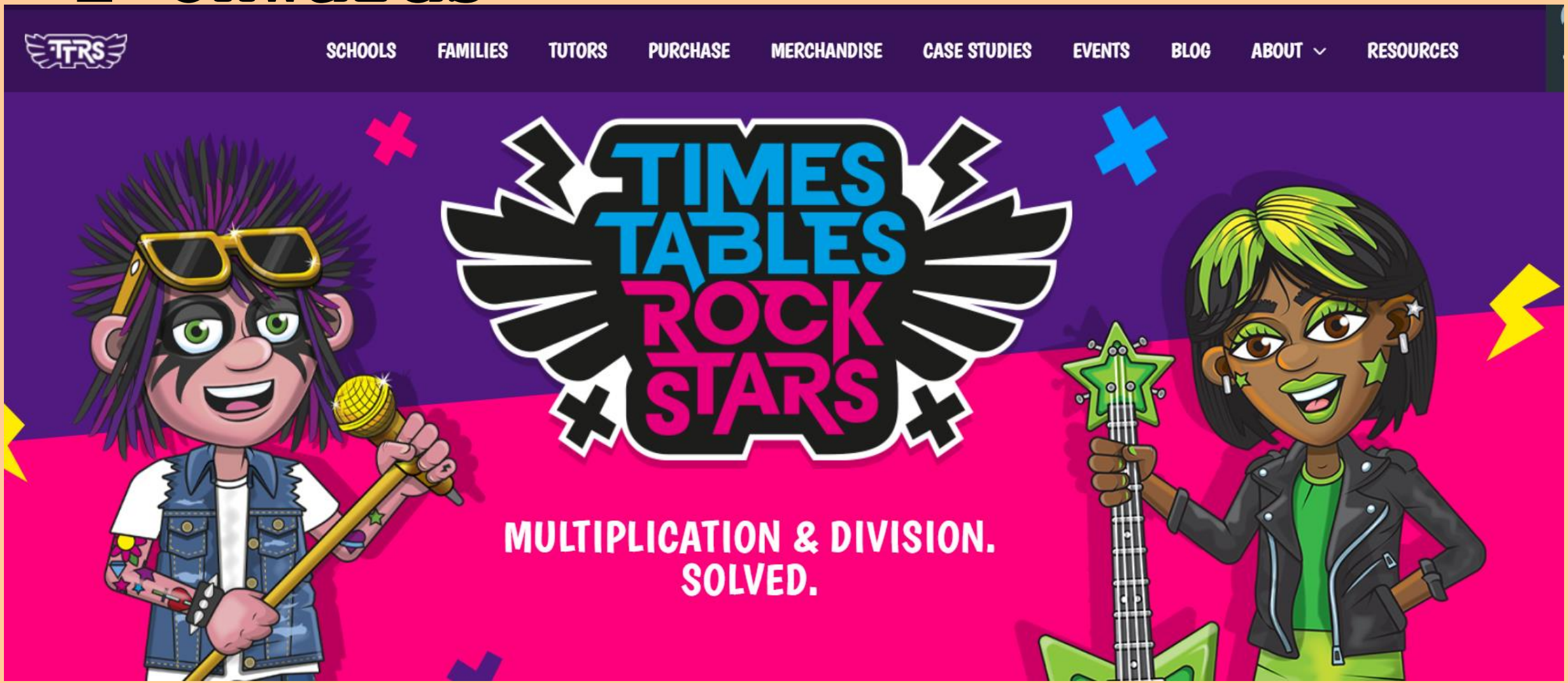
- https://nrich.maths.org/early-years-activities-number
- https://whiteroseeducation.com/parent-pupil-resources/maths/home-learning?year=early-years
- https://home.oxfordowl.co.uk/maths/primary-maths-age-4-5-reception/
- https://help-for-early-years-providers.education.gov.uk/areas-of-learning/mathematics/numbers
- https://nrich.maths.org/eyfs-r



Homework

- Please support us with our Maths homework systems. Homework is set on Thursdays and due on Tuesdays.

Timestables rockstars- from year 2 onwards



General tips that can make a difference

- Notice when there are two amounts and one is more than the other, or they are the same. For example, I have 2 eyes and 2 ears, or I have more chips than peas.
- Talk about and describe shapes you can see outside or around your home. For example, count corners, talk about straight/curved edges, flat/curved surfaces. If you have building blocks then talk about and describe the things that are built.
- In the bath or at the sink, play with containers, pouring water, counting how many small pots are needed to fill the big container.
- Encourage your child to draw a picture of their number work and explain their mark-making to you, for example, how many leaves they find on a walk. This doesn't necessarily mean writing the numerals (1, 2, 3, 4… etc.).
- Sing counting songs and rhymes. You can find some on the internet, but children love it if you join in with

Your homework!

- Children love to cook! It encourages their independence and increases awareness of healthy eating choices. Cooking can also be rich with mathematical language and thinking.
- At home, cook/bake an item of food with your child. We would love to see what you did so take a photo!

Skills involved in cooking

Describing - How much _____ will we need?
Reasoning - What if the mixture is to dry/wet? What do we need to do to add more/less of?
Recording - Take a photo!
Counting - Counting the number of spoons/cups needed?
Use of scales - weighing ingredients
Mathematical language - heavier, lighter, a lot, a little, half, quarter, size, weight, capacity, volume

Feedback!

- Please complete the questionnaire before you go. It would be great to get your feedback!

Take a look at some of the activities at the back of the hall!