Welcome to the EYFS and Key Stage One Maths Evening

Tonight, is an opportunity for us to discuss and demonstrate the two different educational curriculums that your children are working through whilst been taught here at Arnside National C of E School. We will also be covering how you can help at home.

The Hedgehog Class

(Early Years Foundation Stage)

Are taught using the guidance from the EYFS Curriculum and supported by 'Development Matters, and 'Birth to Three' Documentation

The Otter Class

Are taught from the guidance of the Key Stage One Curriculum and follow the White Rose Maths programme, this is taught throughout the school.

And both classes are also taught using the knowledge and skills based on the 'Maths Mastery Project'

The order of this evening looks like this....

1. Mrs Sharp going to give you a brief oversight into the areas of maths that we learn in the EYFS with a couple of examples
2. Next, she will look at number in more detail
3. Mrs Pearce will be explaining the complex principles, the deeper understanding of pattern, place value and subitising taught within the EYFS
4. Mrs Hartropp will then talk about the areas covered throughout Key Stage One and how we are looking deeper to build those firm foundations within Maths
5. How you can help at home and questions

Learning through play at school and home

Play is essential in teaching and consolidating in maths.

Many of the maths objectives within Development Matters can only be developed during free play.

Play enables children to be independent and remain curious.

Learning through play at school and home

By setting up and supporting activities in the environment, like the ones you see here today, children are not only learning about one specific maths objective, but they are also learning so much more in other areas of learning; the possibilities are endless!

What can the environment teach in maths and how we as teachers facilitate learning?

For pupils, it means that maths is not a memory exercise, it requires thinking, figuring things out and negotiating meaning for themselves. When we create this kind of learning environment, we draw on pupils' **natural curiosity and spirit of enquiry** which, in turn, creates a positive experience and attitude towards maths itself.

Mathematical Language

Lots of maths language for example ***more***, ***less***, ***big***, ***small***, ***wide***, ***thin*** and **positional language** needs to be modelled by adults for children to learn, and it is so much more effective if it's during authentic play experiences.

This can be replicated at home when doing everyday activities.

Problem solving, reasoning and pattern

Loose parts are not only amazing for helping children to develop creativity, problem-solving and reasoning skills, but are also perfect for developing and embedding pattern creating.

Construction is another area where children can learn these undervalued skills.

Weight and Measures

We model measuring for example outside during building and construction: large scales outside, small balance scales inside for children to explore.

Self-service play dough stations and cooking areas help children independently develop important maths skills while having fun!

Any cooking you do with your child at home will be really helpful.

Money

The best way to learn about money is to use it in a purposeful way. We use a role play shop, rolling snack till, or impromptu shop. Children can use it independently. This is kept fresh by changing it to a Supermarket, Garden Centre, Cinema etc. where children must buy things using money.

Any shopping children can help with at home will help embed the learning.

Time

We encourage children to use time every day for example measuring how long running races or car racing through guttering takes: estimate then check; will a sand timer work?

Modelling using stop clocks during races or games.

We ask children for the time.

When discussing the daily routine, we talk about the times that things will happen.

Always have as many clocks and watches at home as you can and modelling using time.

Fractions

This is in everyday life from sharing, grouping and being 'fair'.

At snack time we ask children to share things by cutting them in half and quarters.

You can encourage children to cut up sandwiches at home into halves and quarters or pizzas, ensuring we are using and encouraging the corresponding vocabulary.

Maths Group Work

As well as learning through play, we teach maths every day with a teacher for short 10-minute bursts in small mixed groups.

Our guided maths planning is practical, extremely fun, and sometimes messy!

We are going to show you now how we teach our Guided Maths with some fun activities!

Let's have some fun!

So, let's look at number in more detail!

As teachers we often hear.....

Early number sense.

'The children are just playing?'

'My child can already count to 10/20/200...'

'Why are you spending so long on numbers 1-10?'

Early number sense is critical if they are going to gain the deep understanding of number that is going to allow them to work with more complex numbers as they get older.

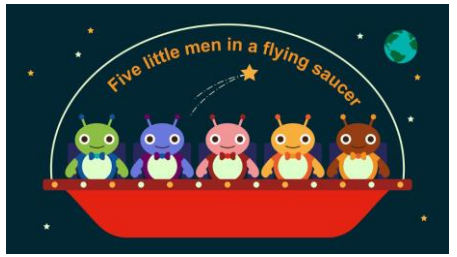
All children start at different abilities. Lots can count sequentially or by rote- what does this mean?

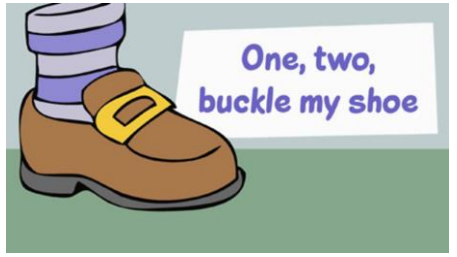
Counting sequentially / rote counting

Much like when children sing the alphabet, lots of children can rote count. But just because they can recite these strings of letters or numbers- does it mean they understand what it means?

Children have had very few experiences to associate numbers with quantity by the time they reach school.

They know they are 4, but 4 what?





What do we do?

Try and expose the children to lots of opportunities to handle, sort and compare real objects.

Explore what all these numbers mean. The handling and counting of physical objects is crucial in the understanding of the value of these numbers.

Through play and games, we support the children in the handling of the quantities 1-10. When we come to explore larger numbers like 8,9,10, the children need to use two hands and can really feel the quantities change.

Counting principles.

- In reception we start to explore "Counting principles."
- Children need lots and lots of practice to help them understand the fundamental counting principles. We do this through play and through activities both adult led and ones they can access independently.

One to one principle

- Count each object once and only once. This is something children often need lots of practice doing. We encourage children to touch the objects as they count, to avoid them skimming over numbers or flurry- where an object is counted more than once. This happens more so when the child has not yet learned to count systematically.

Staple order principle

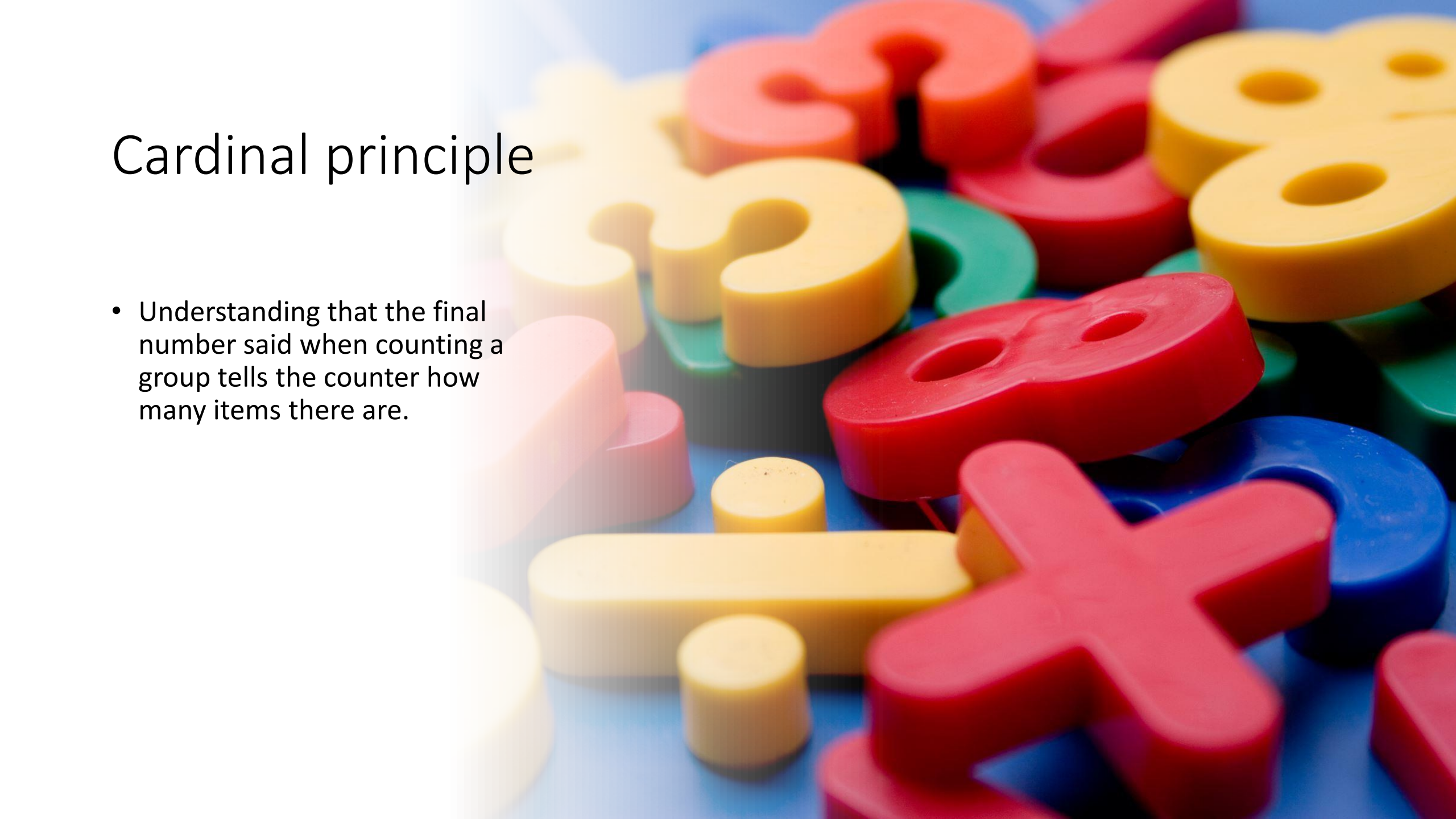
- This is when the number names are said in their correct order and knowing that the order will not change.
- Counting songs and rhymes help with this!

Order irrelevance principle

- Knowing that the order that the items is not important.
- Understanding that we will still have the same amount, not matter what order we count the objects in.

Cardinal principle

- Understanding that the final number said when counting a group tells the counter how many items there are.



Abstraction principle

Anything can be counted, even things that can't be touched or moved.

Deep understanding of the patterns and relationships of numbers within 10.

- CRUCIAL to develop a deep understanding of the composition of these numbers. Our whole number system is designed around the number 10.
- Children might be able to count beyond 10 but they need help in understanding the meaning of those numbers. Especially the tricky Teen numbers which don't follow any sort of pattern. 11, 12, 13 and 15 don't even have the right word in their names to help us.

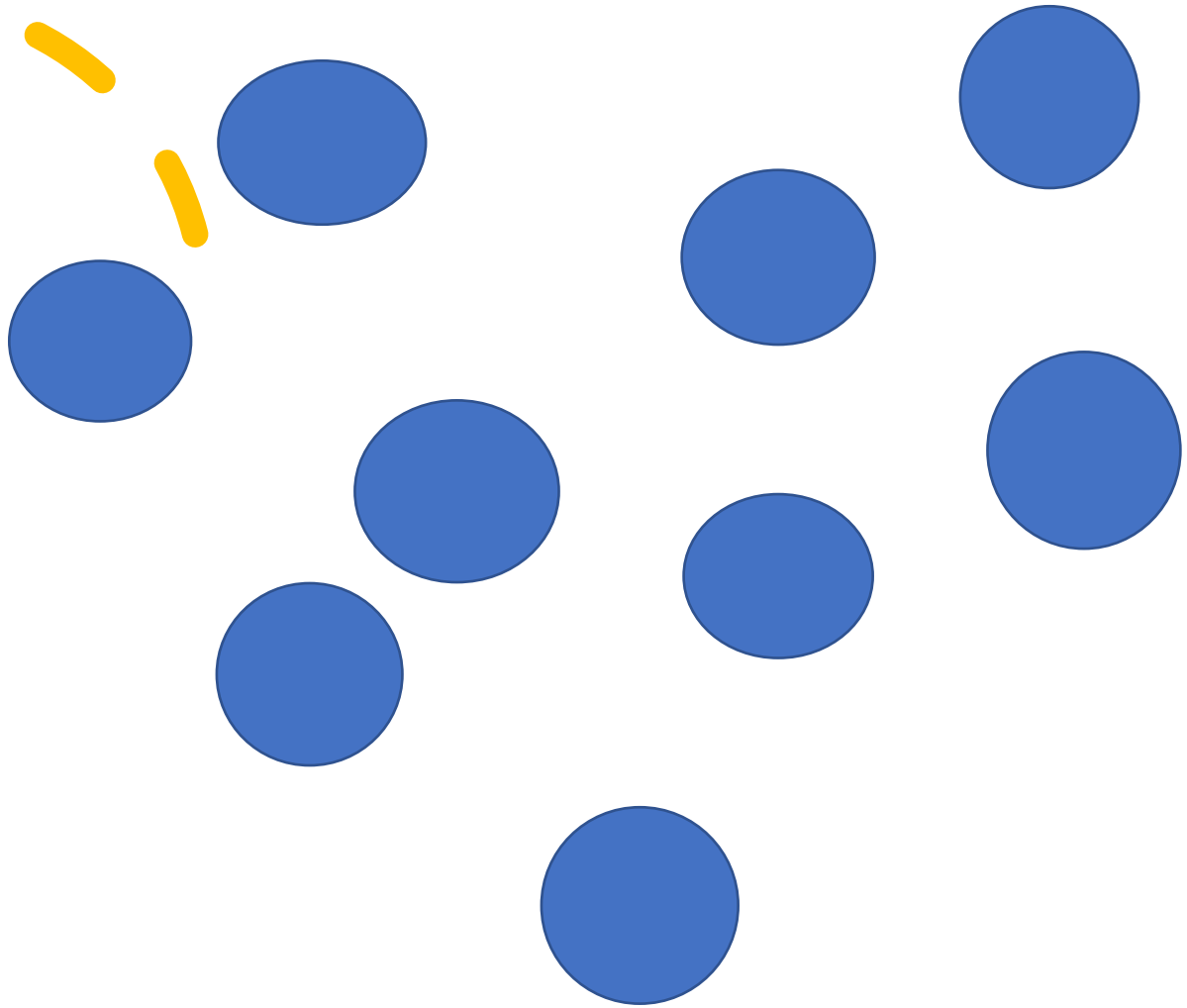
Place value

- First number represents 1 ten and the second number represents ones. So, 13 is one 10 and three 1s.
- But before we explore place value, we want children to understand the pattern in number. This leads on to subitising.

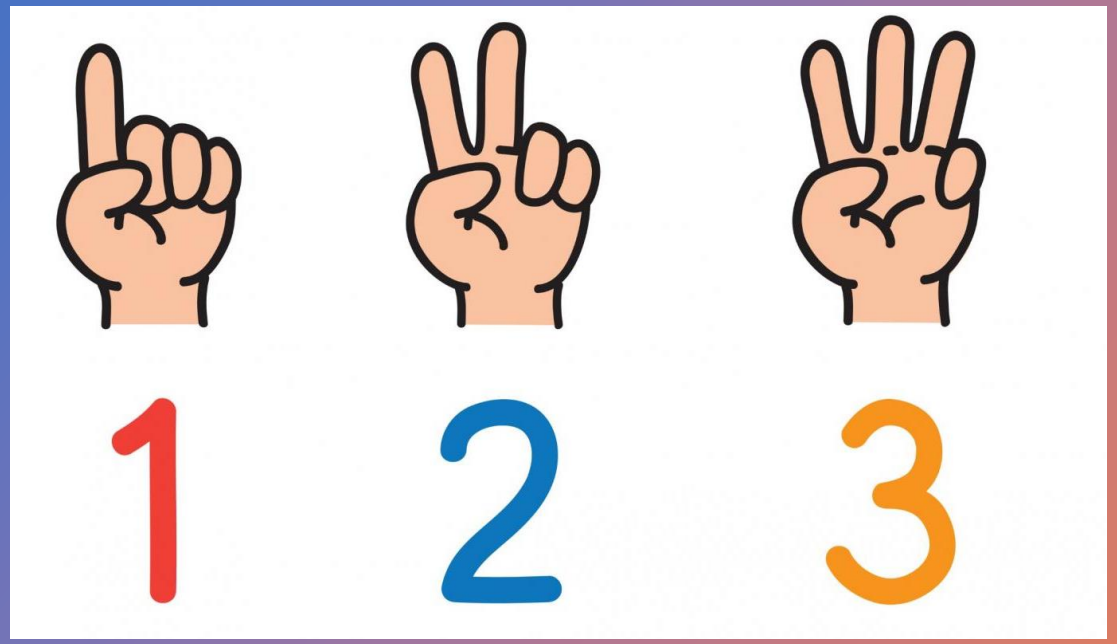
Subitising

- We encourage children to start seeing number patterns. Recognising the amount without counting.
- We show lots of arrangements of number and play quick recognition games.
- 3 is a natural number for children to subitise because they have been staring up at their adults faces. They can quickly recognise the group of three as 2 eyes and the mouth.

Watch Carefully



Again, how many?



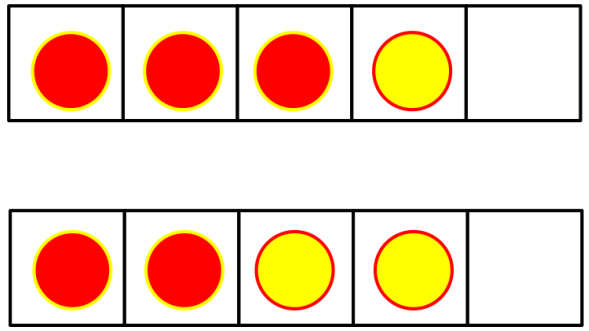
How did you do?

- The second slide was much easier to recognise. It’s the same number of dots, but just arranged in a different way. A 5 and a 4 which we instantly know makes 9.

- You used your number sense to work out how many dots there were by instantly recognising the patterns.

What next?

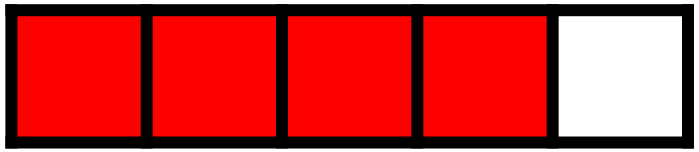
- Once children have grasped number patterns we can introduce them to a more standard way of representing number.



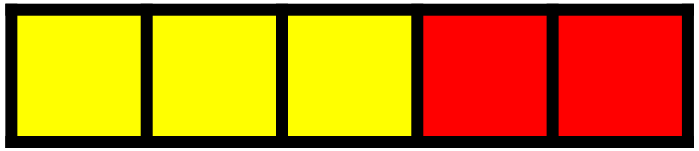
- We show children how these numbers relate to 5 and 10 as those are the benchmark numbers. We show children how to arrange items on a five frame and its here that they start to see the patterns that will help them with the more complex calculations.

5 Frames

- Here we have four full spaces and one empty space. Children soon become used to knowing that a full five frame is 5 so if there is one empty space, that is one less, which is 4.



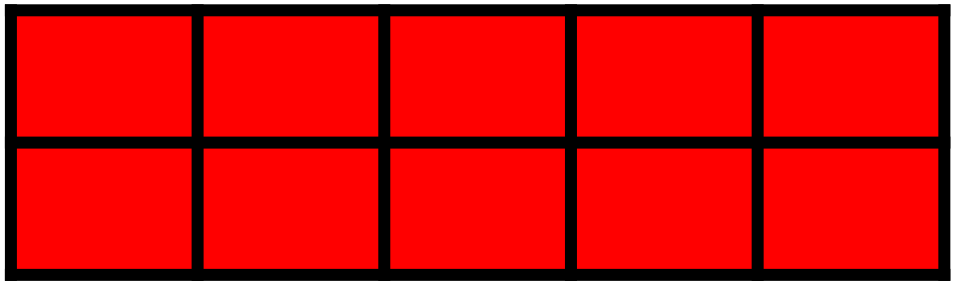
- The same here



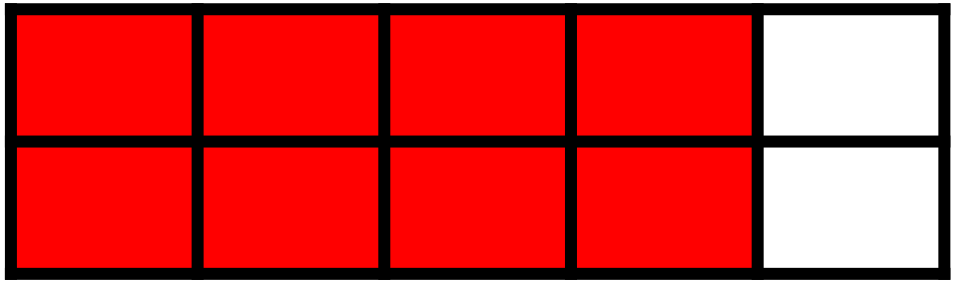
- Three yellow counters and two red counters makes 5.

10 Frames

- Then we introduce 10 frames. We start to use these a resource in play and in our maths activities



- A full tens frame means 10.



- Here we have 8 counters and 2 empty spaces, so we know that 8 and 2 makes 10.

Number Sense

- All this early number sense work that we do means that the children become very secure in their understanding of number. In the summer term when we start looking at more complex calculations and abstract numbers such as 9+7, they can use their number sense knowledge to help them work out the answer.

Number blocks

Understanding number is the most important thing we teach in EYFS. Without it, children will struggle higher up. Number Blocks is great resource that helps them understand the "oneness of one"

Other ideas to help at home

1. Building with bricks

Building things with bricks is a good way of developing maths skills through solving problems. For example: How many red bricks are there? How many blue bricks are there? How many are there altogether?

Using blocks will also help your child practise using the language of maths. For example: Hmm, I wonder which is the longest brick? Could you pass me the cube over there?

2. Talk about time

Talking about the time at which different things happen and looking at the clock together during the day is a great way to learn about time. This will help set the foundation for telling the time in later years. Learning to tell the time.

3. Count everything!

One of the first number skills your child will learn is counting. Practising counting will help them will all sorts of number problems that they will encounter as they get older. Try to get into the habit of counting when you are out and about. For example: How many buses have we seen? How many bugs are in the garden? Fun learning ideas for four-year-olds.

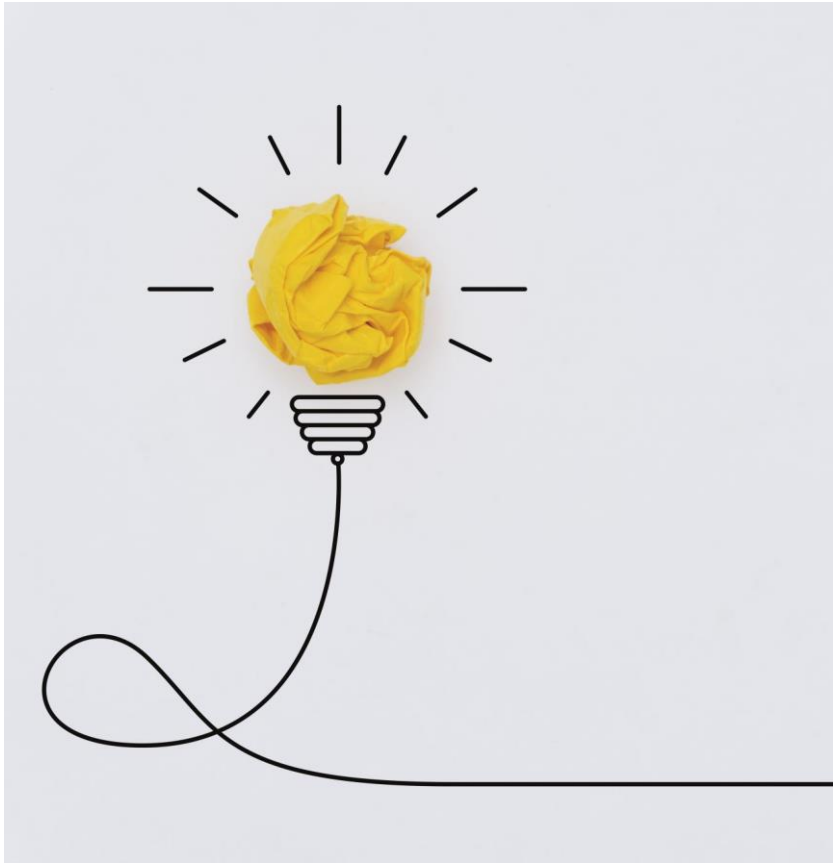
4. Spot patterns

Look for repeating patterns on curtains, wallpaper, or clothing. Ask your child: Can you see a pattern? Tell me about it. What will come next?

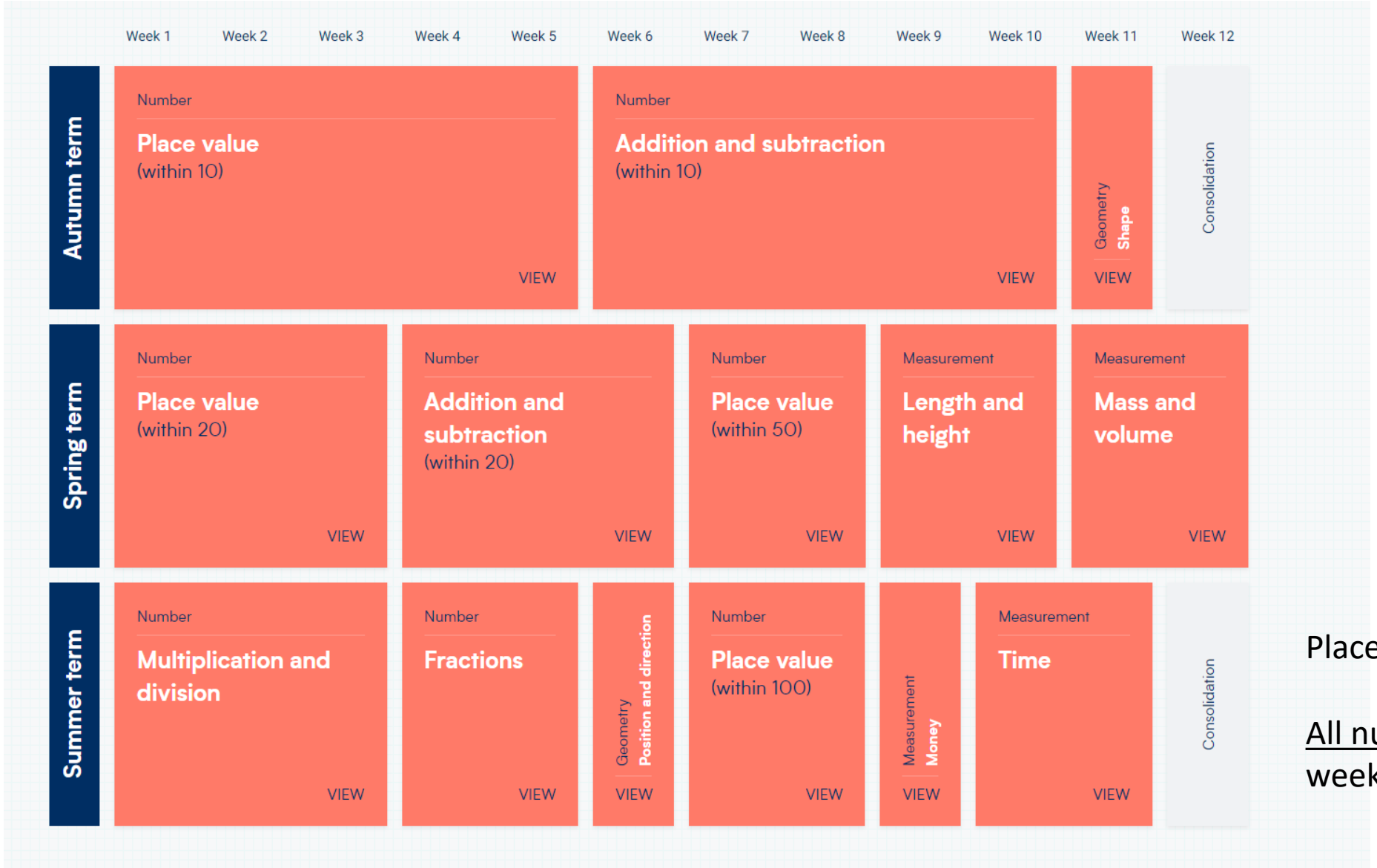
Start patterns with blocks, beads, playing cards, and toys. Encourage your child to build on the pattern to make it longer. You could also look for patterns in time together (for example, seasons, months, or daily routines) and talk about what you notice or listen for patterns in songs and clap the rhythm.

5 Practise forming numerals

Help your child to learn the numerals by exploring their shapes. You could have fun forming numbers in sand with a stick or making numbers out of modelling clay. Write numbers for your child to copy and hold your hand over their hand to help direct them. Try holding their finger and forming the number in the air. Once they can trace out the shape of numerals, see if they can write numbers on their own. Fun maths games and activities - Oxford Owl for Home



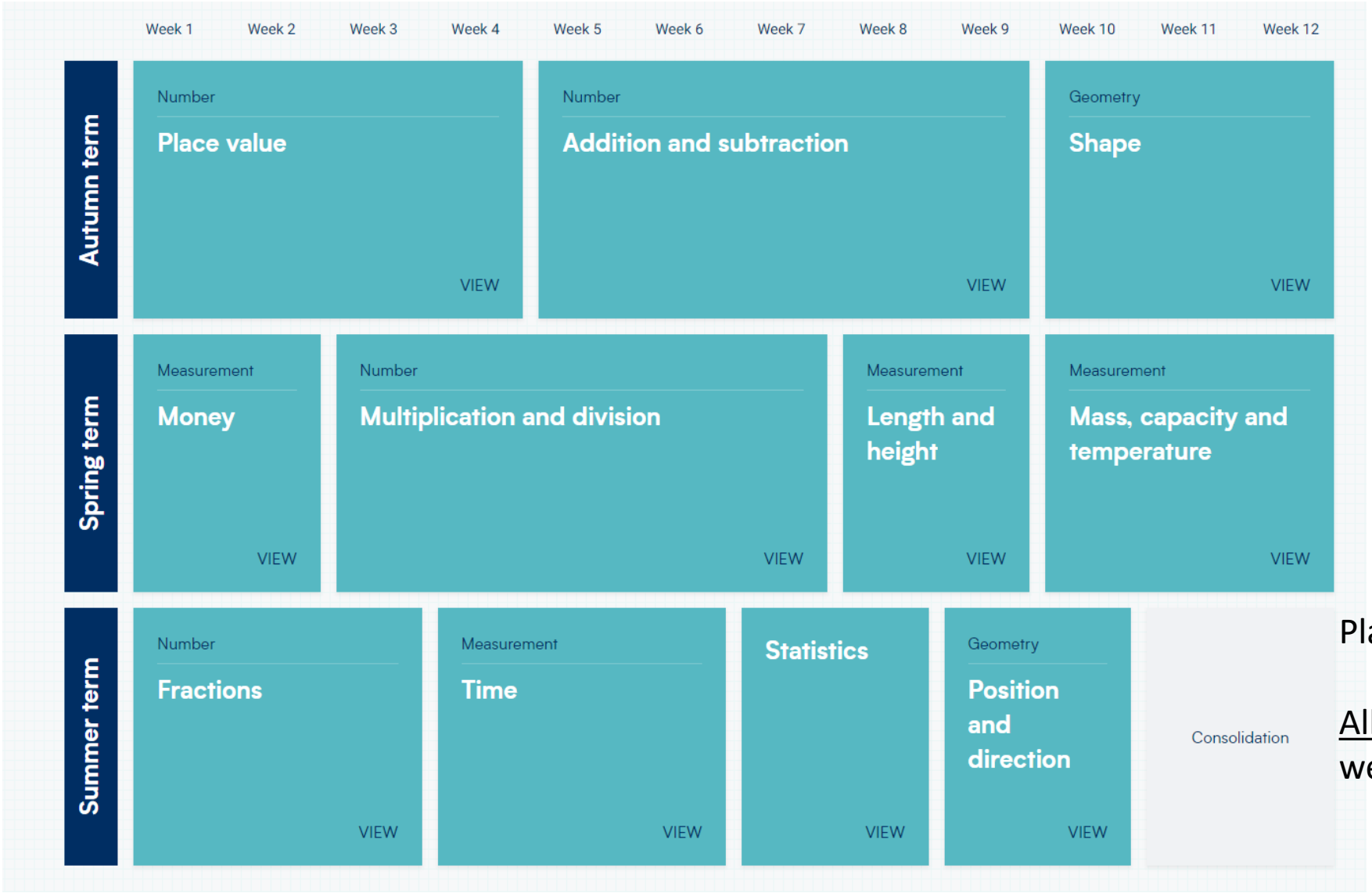
Year 1



Place Value: 12 weeks

<u>All number</u>: 25 of 34 weeks

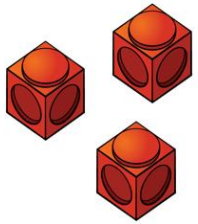
Year 2



Place Value: 4 weeks

All number: 17 of 34 weeks

Part Whole

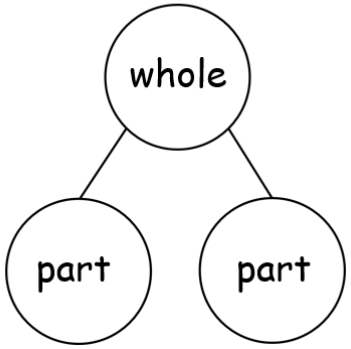


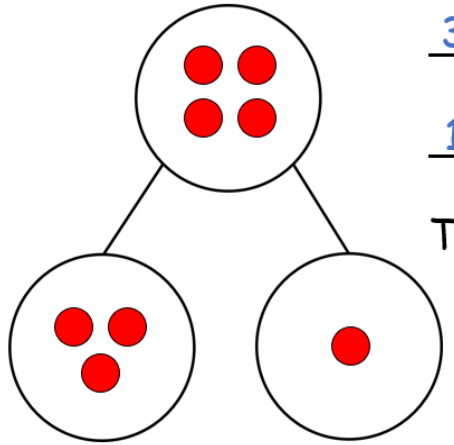
3 is a part.

1 is a part.

The whole is 4

The part-whole model





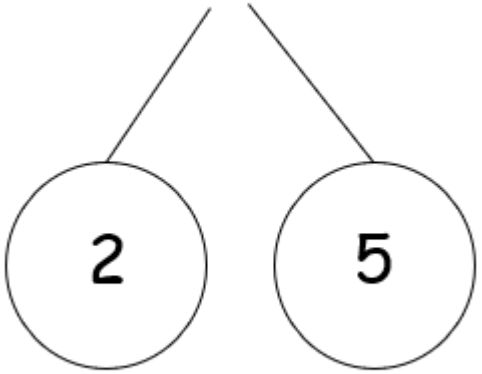
3 is a part.

1 is a part.

The whole is 4

Have a think

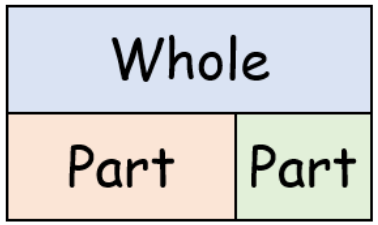
18 + 7 = 25



20 + 5 = 25

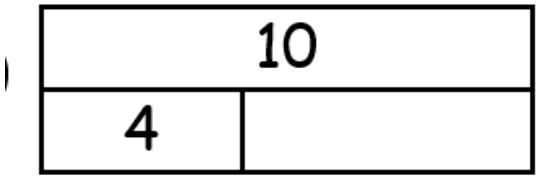
Bar Model

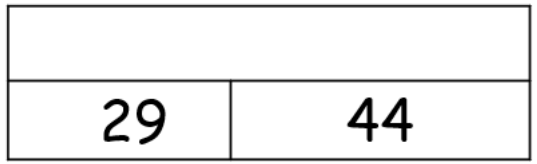
Bar model



Part + Part = Whole

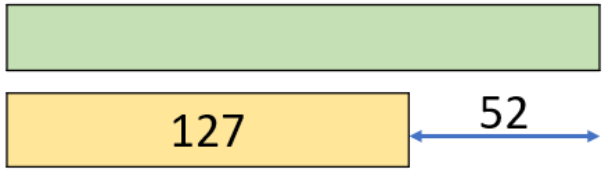
Whole = Part + Part





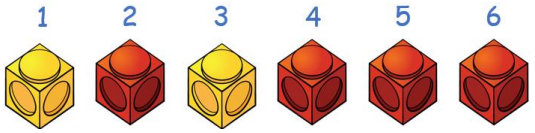
Year 4

Complete the bar model.



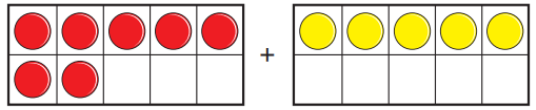
Apparatus

Cubes and counters



Tens frames

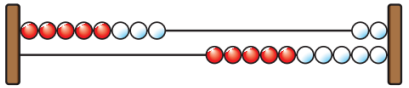
What addition is shown on the ten frames?



+ ☐

Rekenrek

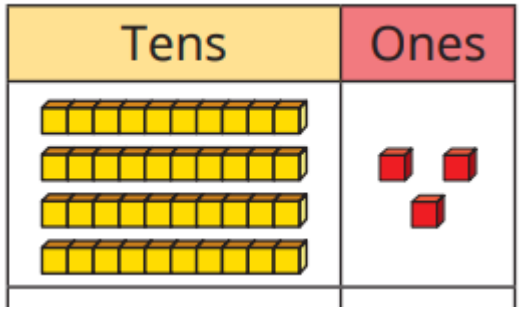
2 Mo uses a Rekenrek to work out 8 + 4



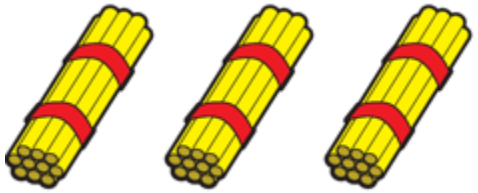
How many does Mo need to push to get to 10? ☐

How many more does Mo need to push to find the answer? ☐

Base 10 blocks

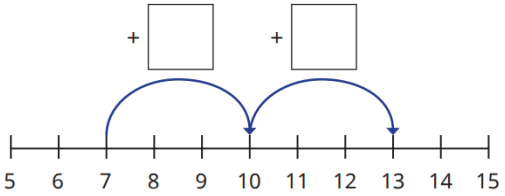


Bundles of sticks



Number lines

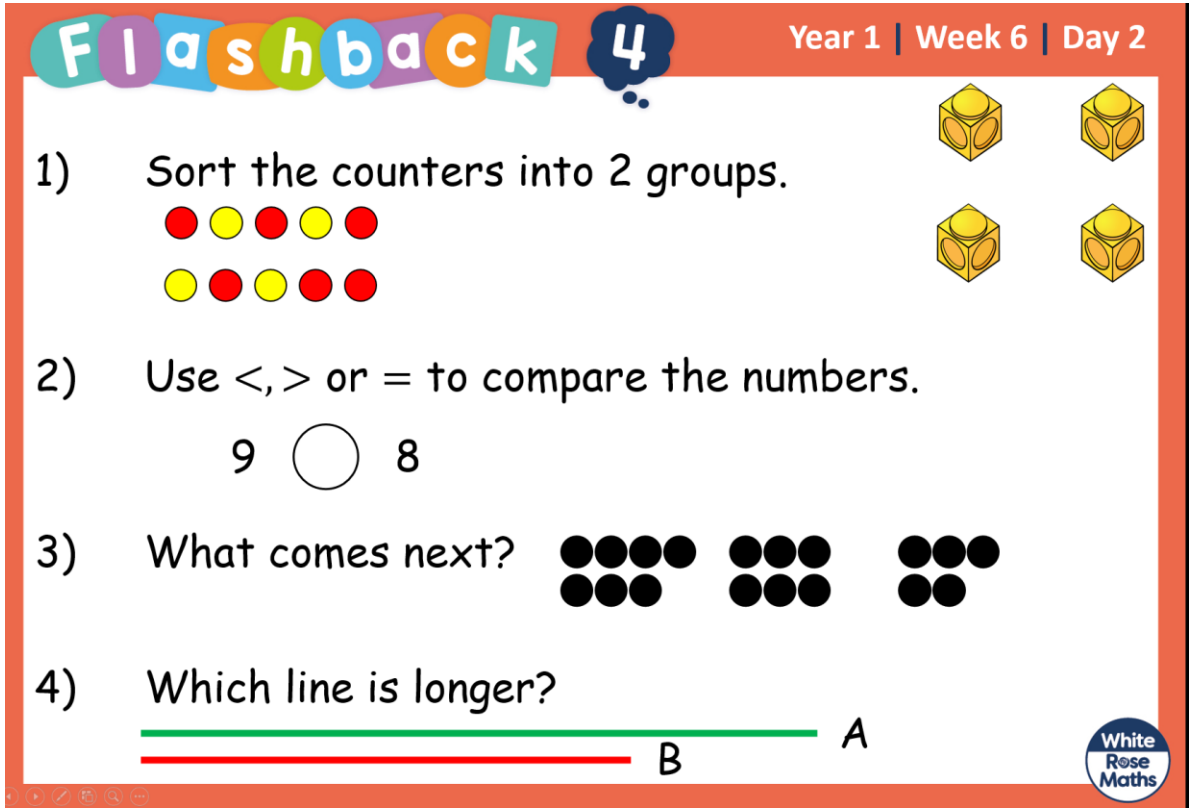
3 Sam uses a number line to work out 7 + 6
Complete Sam's workings.



7 + 6 = ☐

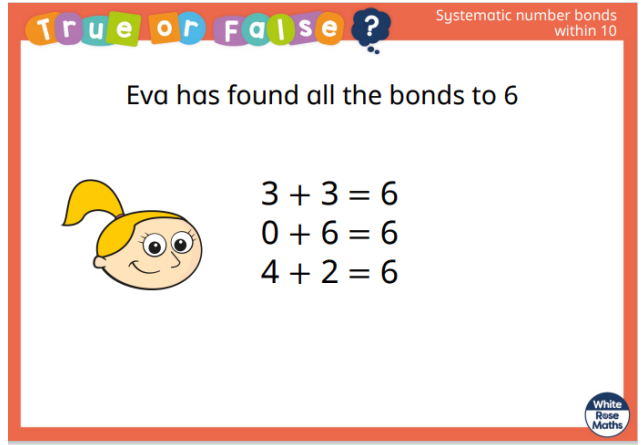
Flashback 4

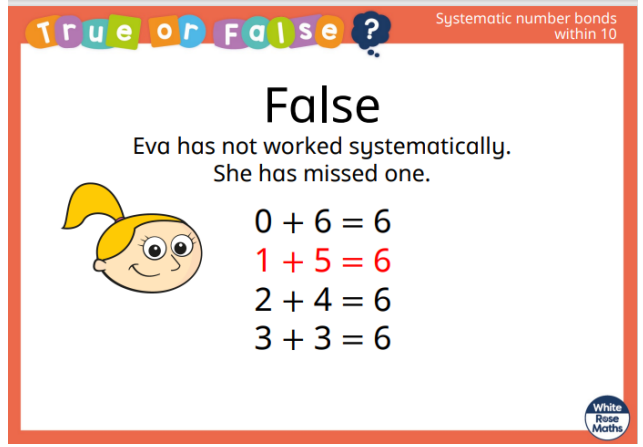
Flashback 4 allows for regular revision of skills, from 1 or 2 days previously or at times more than half a term ago. Every new maths unit starts with revision from the previous year or term if appropriate.



True or False

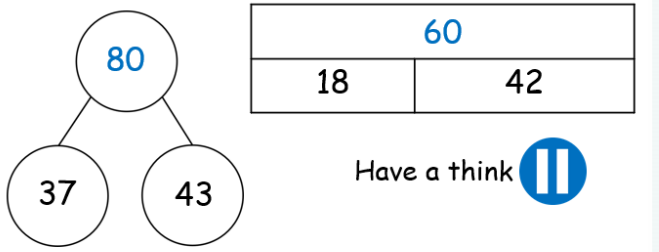
At the end of a lesson, we can access the True or False question. A slide is shown and the children are encouraged to consider and share their mathematical thinking. Then we decide if it is true or false, before the answer is revealed.





Mathematical Reasoning

Work out the wholes.



Have a think

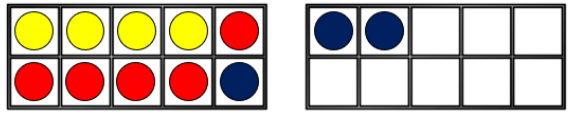
What do you notice about your answers?

Why does this happen?

Alex is using counters to calculate 4 + 5 + 3

4 + 5 + 3 = 12

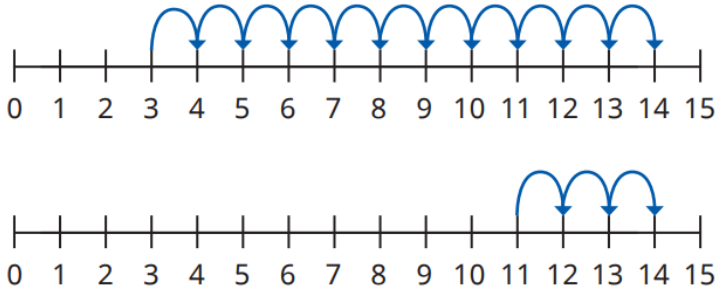
Alex



What do you like about Alex's method?

What do you not like about Alex's method?

4 Each number line shows 3 + 11



What is the same and what is different?

Mathematical Problem Solving

10 Ben has 16 stickers.

He gives 2 stickers to his brother.

He gives 6 stickers to his sister.

How many stickers does Ben have left?

How did you work this out?

4 Fill in the missing numbers.

100 = 100 − 0

90 = 100 − 10

80 = 100 − ☐

☐ = 100 − ☐

☐ = ☐ − ☐

☐ = ☐ − ☐

Can you continue this pattern?

Talk to a partner.

Write a similar pattern starting with 50 = 50 – 0

How many patterns can you find that start with different numbers?

Number Bonds

By the end of Year 1 children are expected to know their number bonds to 10 and related subtraction facts, fluently.

I know that 6 + 4 = 10 and I know that 4 + 6 = 10

If I know that 7 + 3 = 10, then I know that 10 – 7 = 3 or 10 –3 = 7

By the end of Year 2 children are expected to know their number bonds to 20 and related subtraction facts, fluently.

If I know that 6 + 4 = 10, then I know that 16 + 4 = 20.

I know that 16 + 4 = 20 and I know that 14 + 6 = 20

If I know that 17 + 3 = 20, then I know that 20 – 7 = 3 or 20 –3 = 7

Fluently means automatic, without counting.

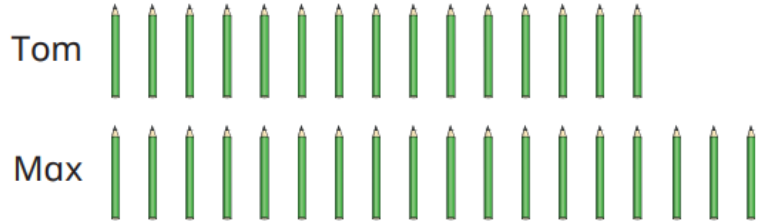
Addition and Subtraction

Year 1

To and within 20

Tom has 15 pencils.

Max has 18 pencils.

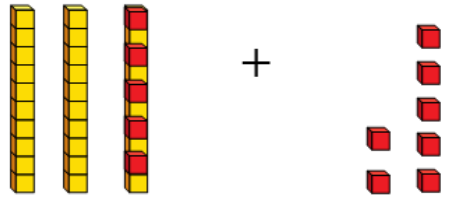


What is the difference between the number of pencils?

Year 2

To and within 100

Tommy is using base 10 to solve 25 + 7



If I exchange some base 10, it will make the calculation easier to solve.

25 + 7 = 32

30 + 2 = 32

How do you know 25 + 7 = 30 + 2?

Multiplication and Division

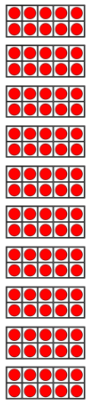
Year 1

2, 4, 6, ___, ____, ____

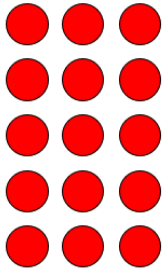
5, 10, 15, ____, ____, ____

Counting in 10s

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Can you make an array with
5 rows and 3 columns?



Have a think

Year 2

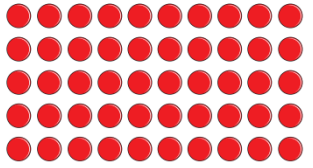
a)

☐ lots of 3 = ☐

☐ multiplied by 3 = ☐

☐ × 3 = ☐

Use the array to complete the fact family.



☐ × ☐ = ☐

☐ × ☐ = ☐

☐ ÷ ☐ = ☐

☐ ÷ ☐ = ☐

Working at the Expected Standard	
1.	The pupil can read scales in divisions of ones, twos, fives and tens.
2.	The pupil can partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus.
3.	The pupil can add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g. 48 + 35; 72 – 17).
4.	The pupil can recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7 + 3 = 10, then 17 + 3 = 20; if 7 – 3 = 4, then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14).
5.	The pupil can recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary.
6.	The pupil can identify 1/4, 1/3 , 1/2 , 2/4, 3/4, of a number or shape, and know that all parts must be equal parts of the whole.
7.	The pupil can use different coins to make the same amount
8.	The pupil can read the time on a clock to the nearest 15 minutes.
9.	The pupil can name and describe properties of 2-D and 3-D shapes, including number of sides, vertices, edges, faces and lines of symmetry.

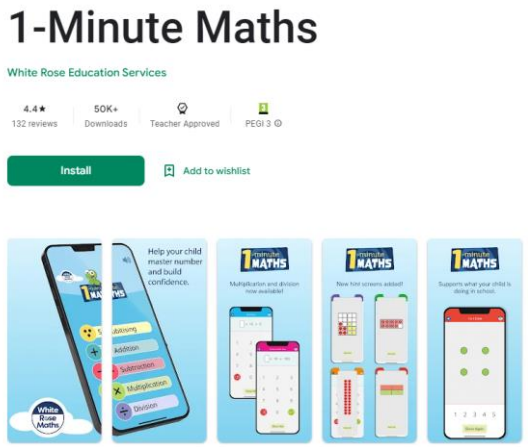
By the end of KS1 (end of Year 2)

- By the end of Year 2 children are expected to know;

How can I help my child?

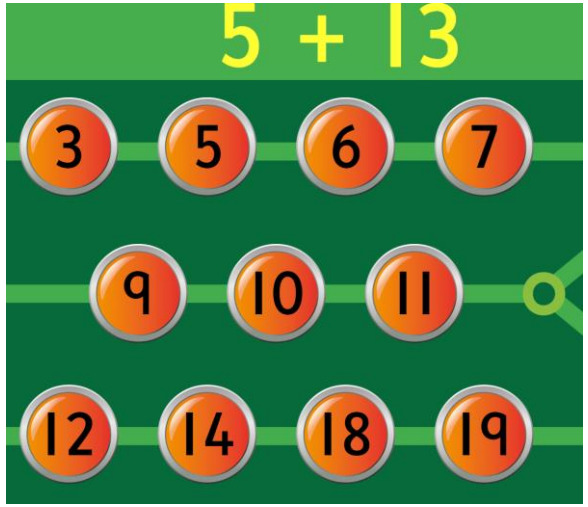
White Rose Maths App

[1-Minute Maths App | White Rose Maths]

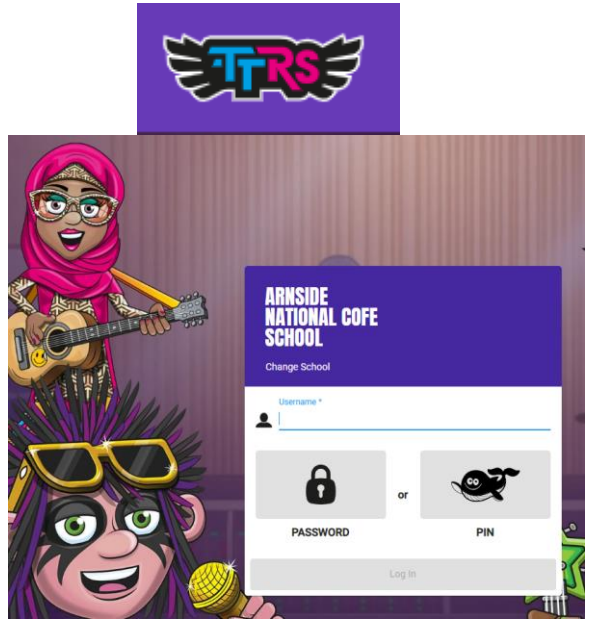


Hit the Button

[Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk)]



Times tables Rockstars



Money

Handling money needs to be regular and relevant.

Pocket money, birthday money, tooth fairy money etc

Time

Time needs to be regular and relevant.

We often say, 'You need to be ready in 1 minute!'
What is a minute?

Mastery in maths

- We are a maths mastery school.
- What does this mean?

- All pupils of all ages acquire a deep, long term and secure understanding of number. They develop mathematical fluency and are able to explain their reasoning.

Master in number

- Every day we have a short session to help develop number fluency. These follow the same format each day and research into the program has shown it helps children gain the confidence they need to become fluent in number.

I hope you have enjoyed and found this evening useful

- Any further questions please ask
- This PowerPoint will be available on our website for further reference after this evening.

Thank you for coming!