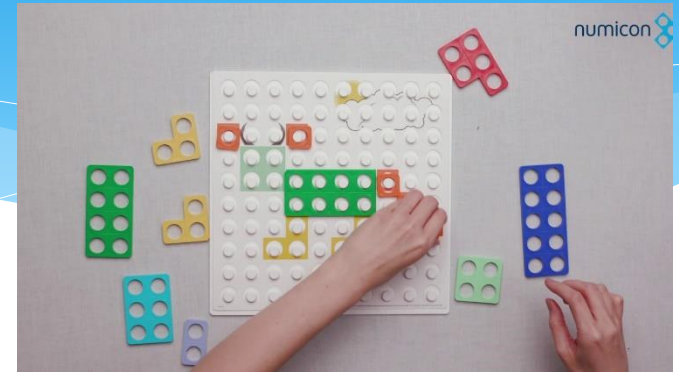


# Reception Maths Workshop



# Today's talk

- What do we do in school?
- What does the curriculum look like?
- How we teach maths
- Useful resources – physical, books and websites
- How you can help at home



## Children develop their Mathematical understanding in the following ways:

- ❖ **Exploring** - playing with numbers, exploring weight, capacity, measures, counters, dice.
- ❖ **Reasoning**- answering why and how, talking about what they found.
- ❖ **Problem - solving**- How can I make 5? A shape with 3 corners?
- ❖ **Fluency** - quick mental recall! Coming to an answer quickly and without in depth thinking. This is important as it will form the foundations of a child's Mathematical knowledge.



At The Mead we want your child's experiences of Maths to be.....

fun

memorable

interesting

practical

exciting



# The Early Years Foundation Stage curriculum

## Development Matters states:

It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.



# Our Progression Trackers

This is on the school website and shows the progression from Nursery to Year 2.

Maths Subject Progression Tracker				
	Nursery	Reception	Year 1	Year 2
Number – number & place value	<ul style="list-style-type: none"> <li>Recite numbers past 5.</li> <li>Say one number name for each item in order: 1, 2, 3, 4, 5.</li> <li>Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').</li> <li>Fast recognition of up to 3 objects, without having to count them individually ('subitising').</li> <li>Show 'finger numbers' up to 5.</li> <li>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> <li>Experiment with their own symbols and marks as well as numerals.</li> <li>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> <li>Compare quantities using language: 'more than', 'fewer than'.</li> <li>Solve real world mathematical problems with numbers up to 5</li> </ul>	<ul style="list-style-type: none"> <li>Count objects, actions and sounds.</li> <li>Count beyond ten.</li> <li>Subitise.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> <li>Compare numbers.</li> <li>Understand the 'one more than/one less than' relationship between consecutive numbers.</li> <li>Explore the composition of numbers to 10.</li> <li>Verbally count beyond 20, recognising the pattern of the counting system.</li> <li>Subitise (recognising quantities without counting) up to 5.</li> <li>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</li> <li>Have a deep understanding of numbers to 10, including the composition of each number.</li> </ul>	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</li> <li>given a number, identify one more and one less</li> <li>identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</li> <li>read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li> <li>recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>identify, represent and estimate numbers using different representations, including the number line</li> <li>compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> <li>read and write numbers to at least 100 in numerals and in words</li> <li>use place value and number facts to solve problems.</li> </ul>
Number – addition & subtraction		<ul style="list-style-type: none"> <li>Automatically recall number bonds for numbers 0-10.</li> <li>Subitise.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</li> <li>represent and use number bonds and related subtraction facts within 20</li> <li>add and subtract one-digit and two-digit numbers to 20, including zero</li> <li>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial</li> </ul>	<ul style="list-style-type: none"> <li>solve problems with addition and subtraction:</li> <li>using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>applying their increasing knowledge of mental and written methods</li> <li>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> </ul>



# The Early Years Foundation Stage curriculum

## Early Learning Goal

Maths Subject Progression Tracker				
	Nursery	Reception	Year 1	Year 2
Number – number & place value	<ul style="list-style-type: none"> <li>Recite numbers past 5.</li> <li>Say one number name for each item in order: 1, 2, 3, 4, 5.</li> <li>Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').</li> <li>Fast recognition of up to 3 objects, without having to count them individually ('subitising').</li> <li>Show 'finger numbers' up to 5.</li> <li>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> <li>Experiment with their own symbols and marks as well as numerals.</li> <li>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> <li>Compare quantities using language: "more than", "fewer than".</li> <li>Solve real world mathematical problems with numbers up to 5</li> </ul>	<ul style="list-style-type: none"> <li>Count objects, actions and sounds.</li> <li>Count beyond ten.</li> <li>Subitise.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> <li>Compare numbers.</li> <li>Understand the 'one more than/one less than' relationship between consecutive numbers.</li> <li>Explore the composition of numbers to 10.</li> <li>Verbally count beyond 20, recognising the pattern of the counting system.</li> <li>Subitise (recognising quantities without counting) up to 5.</li> <li>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</li> <li>Have a deep understanding of numbers to 10, including the composition of each number.</li> </ul>	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</li> <li>given a number, identify one more and one less</li> <li>Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</li> <li>read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li> <li>recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>identify, represent and estimate numbers using different representations, including the number line</li> <li>compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> <li>read and write numbers to at least 100 in numerals and in words</li> <li>use place value and number facts to solve problems.</li> </ul>
Number – addition & subtraction		<ul style="list-style-type: none"> <li>Automatically recall number bonds for numbers 0-10.</li> <li>Subitise.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</li> <li>represent and use number bonds and related subtraction facts within 20</li> <li>add and subtract one-digit and two-digit numbers to 20, including zero</li> <li>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial</li> </ul>	<ul style="list-style-type: none"> <li>solve problems with addition and subtraction:</li> <li>using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>applying their increasing knowledge of mental and written methods</li> <li>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> </ul>

## Mathematics

### 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 teach maths?

**We make it fun! Where possible Maths is linked to real life problems, stories and children's interests.**

**Using objects, children need to be secure in using practical apparatus before moving onto more abstract concepts.**

**Throughout the day: counting how many children in the classroom, using the visual timetable, action songs and singing, and questioning during independent learning such as how many blocks have you used? Who is taller, shorter?.**

**Short, focused carpet inputs with the whole class and in addition, we do small group work and adult led tasks which children complete independently or support by an adult.**





# White Rose Maths

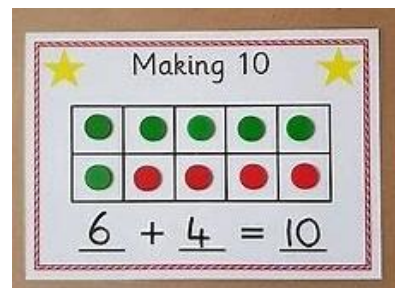
## Autumn

Matching, sorting and comparing  
Patterns  
Measure  
2D Shapes  
Subitising  
1 more, 1 less  
Number Composition



## Spring

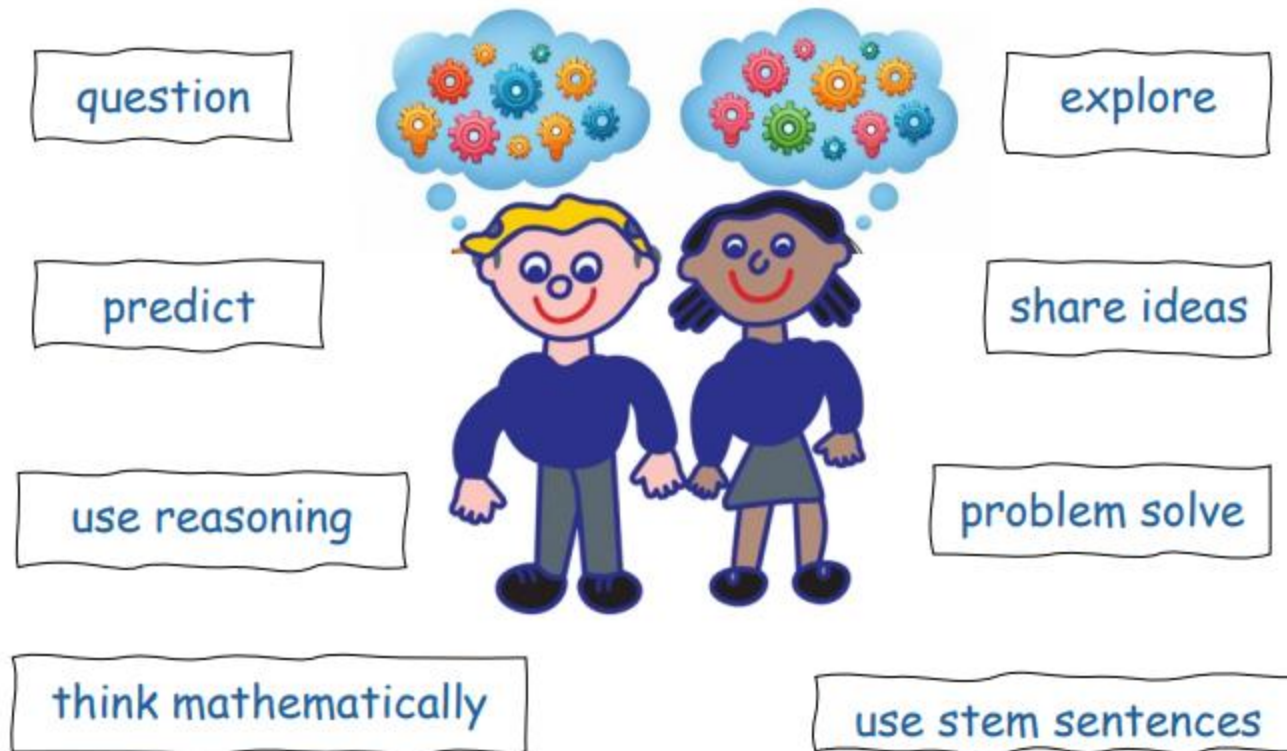
Continuing Number composition  
Introducing Zero  
Mass and capacity  
Length and height  
Time  
2d and 3D Shapes  
Conceptual subitising to 10



## Summer

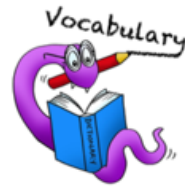
Building numbers beyond 10  
Counting beyond 20  
Addition and subtraction  
Manipulating and creating shapes  
Sharing and Grouping  
Doubling  
Odd and Even Numbers

# As Mead Mathematicians we will:





Today we are learning that objects can be compared and ordered by weight.



## Key Vocabulary

heavier

lighter

balanced

compare

order

## Stem Sentences

- The \_\_\_\_\_ is bigger/smaller than the \_\_\_\_\_ .
- The \_\_\_\_\_ is larger/smaller than the \_\_\_\_\_ .
- The \_\_\_\_\_ is longer/shorter than the \_\_\_\_\_ .
- The \_\_\_\_\_ is taller/shorter than the \_\_\_\_\_ .

# CPA

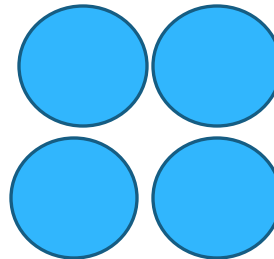
## Concrete

Introduces real objects and Maths resources that children can use to 'do' the maths.



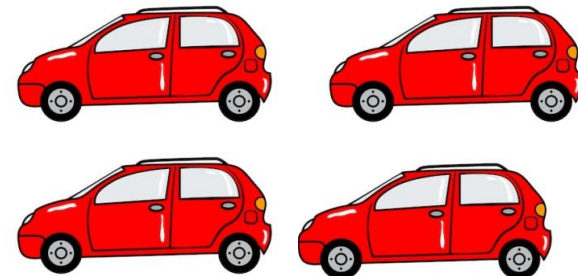
## Pictorial

This stage uses pictorial representations of objects to let children 'see' what a maths problem looks like.



## Abstract

This stage uses numerals and symbols. It is imperative that children are not moved to this stage too quickly!



Use at any time and with any age to support understanding

# Concrete








# Make it practical and fun!



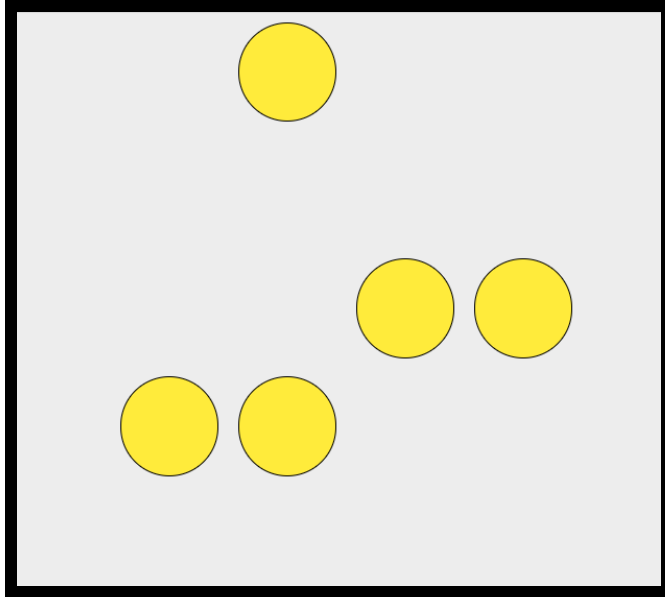


# Subitising

“Young children have a remarkable skill: they can recognise numbers of things without counting. This is called subitising, and it develops from a very early age. Very young babies can not only tell the difference between one and two but also between large numbers of dots when there are twice as many in one group, as with 16 and 8 (Sarama and Clements, 2009). Young children also have powerful visual memories and some may find it easier to remember images than words: three-year-olds can recognise three things, although they may not say the word. Subitising can help children to build images for numbers, to visualise and to learn number facts. For instance, most four-year-olds readily learn to recognise five dots on a dice, which helps them to understand the cardinal value or '**howmanyness**' of five, which they can link to the word and symbol for 5. Structured images like this also help children to begin to see numbers inside numbers, for instance seeing four and one within five.”

Taken from <https://nrich.maths.org/14004>

# What questions would you ask your child to support subitising?



What do you notice?

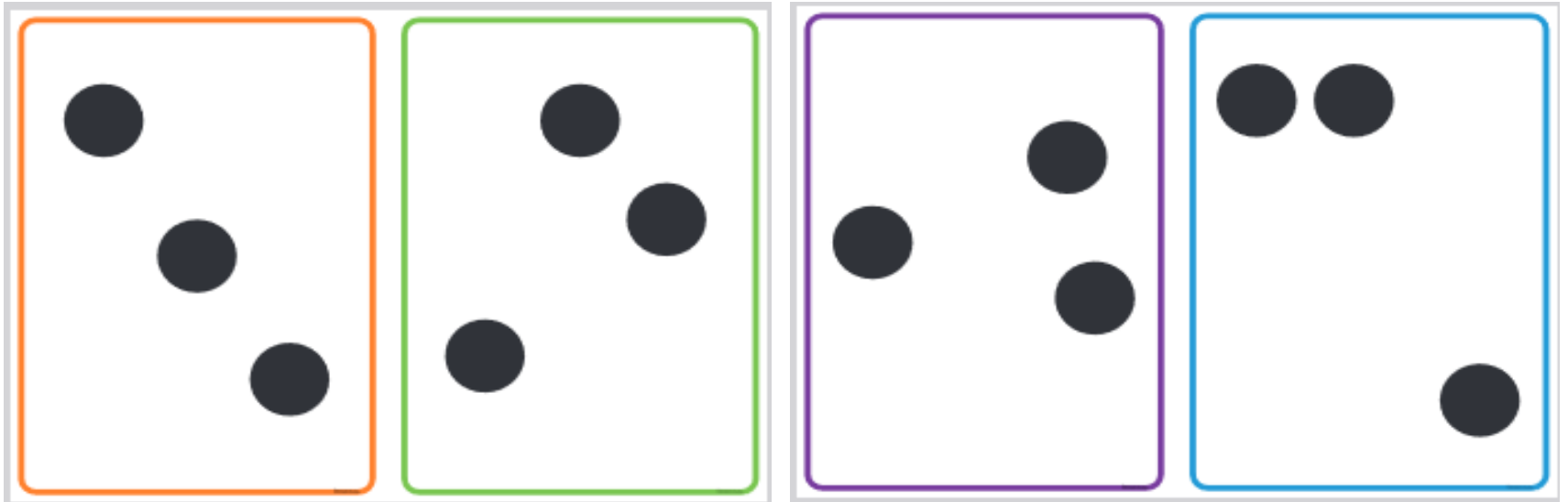
How did you see it?

Look at it in a different way and describe what you see.

Draw how you see it (in the air / on some paper etc).

Ask someone else how they see it – was it the same way?

# Subitising



# Subitising

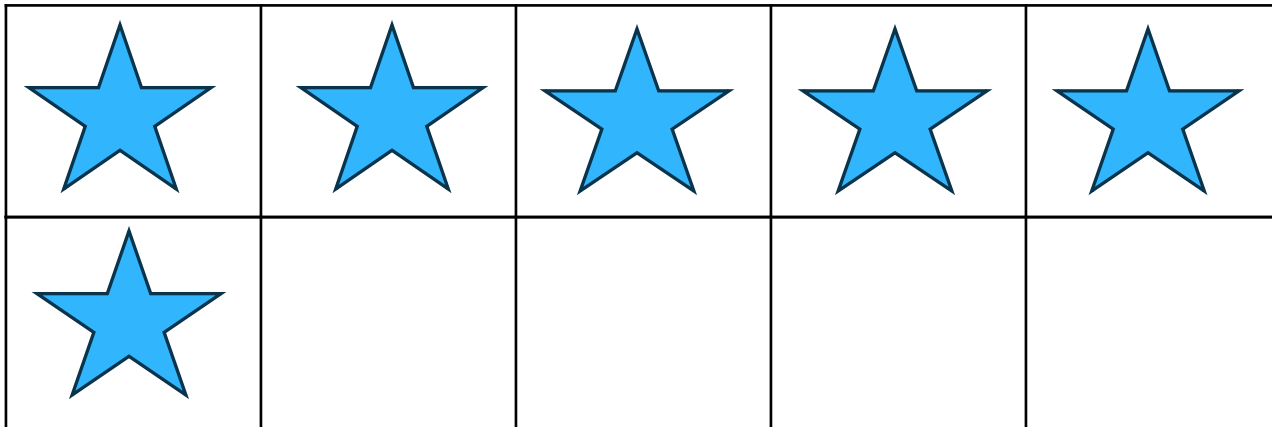
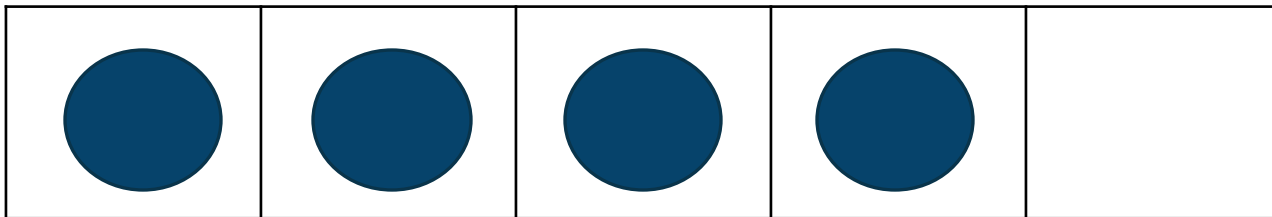


# 5 frames and 10 frames

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We don't want children to count objects in 5 or 10 frame – we want them to use the skill of subitising and noticing patterns

# 5 frames and 10 frames





# Number Bonds

A number bond is 2 numbers that make a given number.

Children need to learn their number bonds but also understand what that means.

In Reception we start with our number bonds to 5 and move on to number bonds to 10. Children need to know these to achieve the expected outcome in Maths at the end of the year.

## Questions to ask you child:

Which 2 numbers make 5?

Which number goes with \_ to make 5?

If I have 5 and take away \_ how many will I have left?

## Make it into a story:

I went to the shop and bought 5 pieces of fruit. I bought 3 apples, how many oranges did I buy?

Joe gave me 2 pencils and Ana gave me 3 pencils. How many pencils do I have?

## Number bonds to 5

$$0 + 5 = 5$$

$$1 + 4 = 5$$

$$2 + 3 = 5$$

$$3 + 2 = 5$$

$$4 + 1 = 5$$

$$5 + 0 = 5$$

## Number bonds to 10

$$10 + 0 = 10$$

$$9 + 1 = 10$$

$$8 + 2 = 10$$

$$7 + 3 = 10$$

$$6 + 4 = 10$$

$$5 + 5 = 10$$

$$4 + 6 = 10$$

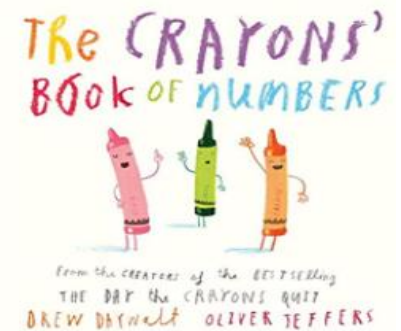
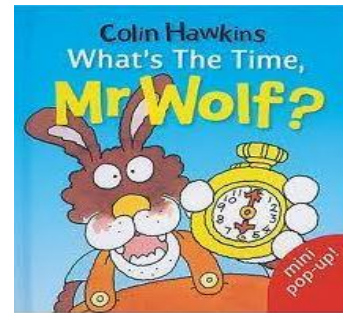
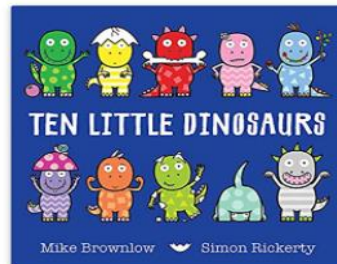
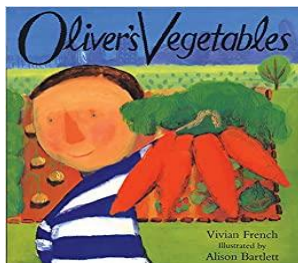
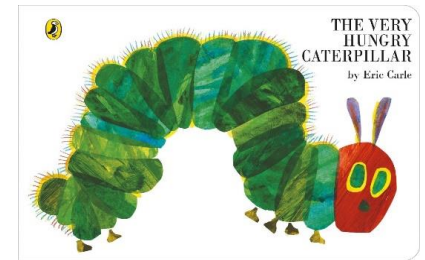
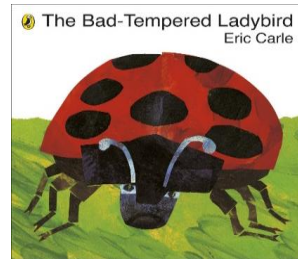
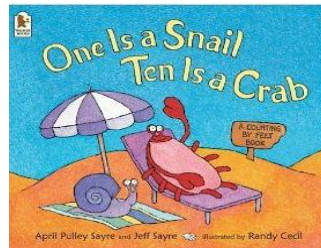
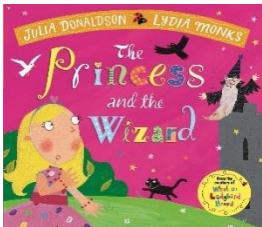
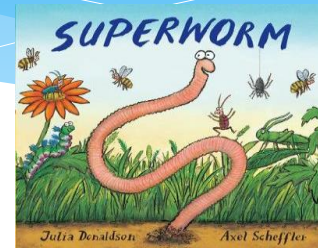
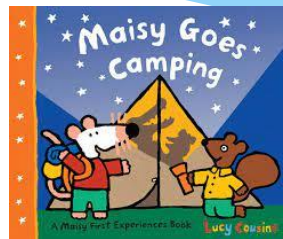
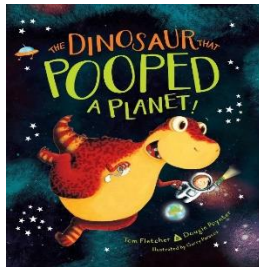
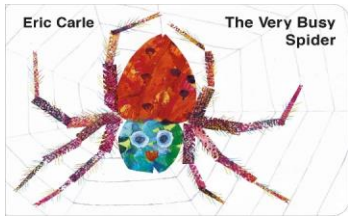
$$3 + 7 = 10$$

$$2 + 8 = 10$$

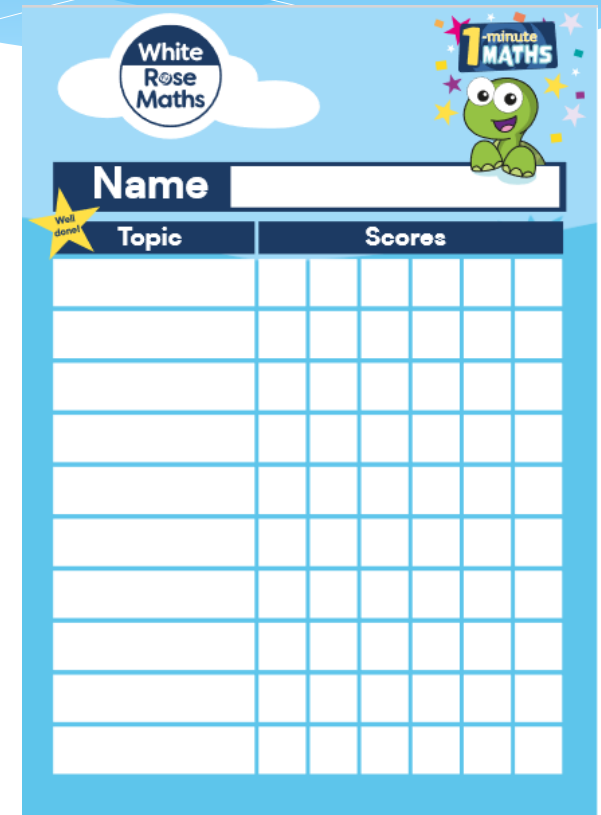
$$1 + 9 = 10$$

$$10 + 0 = 10$$

# Maths books



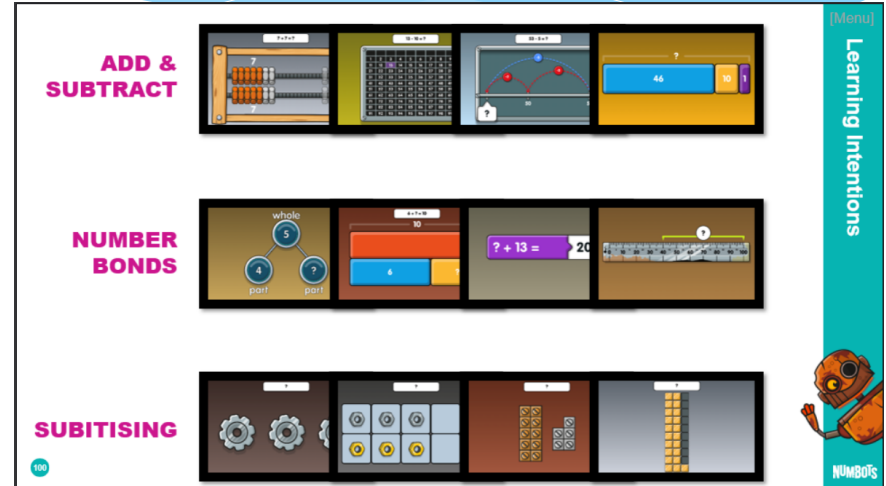
# White Rose Maths App



White Rose Maths app available – 1 minute maths games

<https://whiteroseeducation.com/1-minute-maths#download>

# Numbots



- Fun and engaging
- Supports learning of addition, subtraction, number bonds and subitising
- Collect trophies and badges
- Compete with friends
- Challenges at appropriate level

*Login details have been sent home. Please speak to your class teacher if you have not received this.*

# Number Talks

Number Talks encourages mathematical thinking and reasoning.

<https://nrich.maths.org/14005>

## Number Talks

Recognising, creating and describing patterns with numbers



**Children often** enjoy saying how they see something differently from someone else.

**Adults could** show interesting arrangements of objects and invite children to talk about the numbers they see.

### The Activity

Arrange five large magnets on a tin tray and confirm that everyone sees five. Ask, 'What numbers can you see hidden inside five?' Collect different views. Turn the board away to rearrange, show briefly and ask, 'How do you see them now?'

**Encouraging mathematical thinking and reasoning:**

### Describing

Can you tell me how you saw them?  
Did anyone see them differently? How did Lucas say he saw them?

### Reasoning

How did you know how many there were?  
Does this way make it easier to see how many there are? Why did you find it easier?

### Opening Out

Has anyone got a quicker way of counting?  
Can you arrange your counters so that you can quickly see how many there are?

### Recording

Can you copy this pattern with your counters?  
Can you record this by drawing or stamping or with stickers?



# Number BLOCKS





# How you can help at home

*Most importantly: please be positive about maths and look for opportunities to use maths.*

## Number formation



- Model number writing and reading in different ways: Lists, tracing, birthday cards, buses, front doors, recipes, in books, phones
- Number hunts
- Write numbers in sand/on the carpet/paint, make numbers with play dough, on a whiteboard, on paper, post it notes, on a tablet

# How you can help at home?

## Counting:

- Practise counting in ones, forwards and backwards to twenty. Sing counting songs and rhymes.
- Ask children to help set the table or sort the washing- can they match the pairs of socks, count in 2s, tell you if there is an odd/ even number?
- Look for things to count when you're out- how many cars/ birds/ dogs can you count?
- Go on a treasure hunt: Can you find 5 flowers/ 7 twigs/ 10 leaves

## Games:

- Play board and dice games, snap, pairs, dominoes, hopscotch, skittles. Jigsaw puzzles are great for spatial awareness and fine motor skills.

## Sharing books:

- Talk about the number, position and shape of things in the pictures.

## Money:

- Begin to recognise and sort coins, practise counting it in the shops or as part of role-play with real coins at home.

# How you can help at home?

- Point out **patterns** in everyday situations e.g. tablecloth, wallpaper, books. Create your own with objects, paint, stickers or Lego.
- Demonstrate the **language** for shape, position and measures e.g. sphere, inside, under, shortest, heavy.
- Use **mathematical names** for shapes and encourage children to talk about the shapes that they see.
- Encourage your child to use the **correct terms** early on- tall, short, narrow, wide, thick, thin etc...
- **Time**: look at clocks, point out the time throughout the day, think about calendars and dates. Days of the week and months of the year.
- **Cooking**: encourage children to help in the kitchen by weighing, comparing ingredients using heavier and lighter, measuring liquids.
- **Sharing**: Help children to understand that one thing can be shared by a number of pieces e.g. pizza, cake. They are usually quick to tell you if it is the same size!

# How you can help at home?

## **Link to school**

## **Evidence me**

Tell us about any maths activities your child has done at home

## **Coming up next week....**

- Tells you what we are doing in maths that week
- Homework – from the Spring Term

# Any questions?



# Useful websites

<https://www.topmarks.co.uk/maths-games/3-5-years/counting> - Maths games

<https://www.mathsisfun.com/> - A range of maths games.

<https://whiteroseeducation.com/> - maths curriculum resources and support for parents.

<https://www.bbc.co.uk/cbeebies/games> - The games cover the whole curriculum and are tablet friendly.

<http://www.crickweb.co.uk/> - Activities focusing on Maths and Literacy. Free to use

<https://www.pinterest.co.uk/> - While Pinterest isn't a learning website as such, it is nonetheless an absolute treasure trove of resources if you would like an activity for your child that isn't screen based. Pinterest has so many investigative activities that you can make at home, some beautiful art activities and fine motor activities. Type 'eyfs' or 'for kids' after your search. For example 'numbers to 10 for kids' or 'shape patterns for kids'

<https://www.youtubekids.com/> You can search for a wide range of videos on number bonds, shapes, counting, as well as phonics, Alphablocks, Number Jacks etc. 'Art for Kids' and 'Cosmic Yoga Kids'.

[NumBots | Motivational maths practice for schools and families.](#) You will need login details for access. Please speak to your class teacher if you need another copy.

