

# Year One Maths Workshop

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# Maths

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Thinking is at the heart of Mathematics and therefore should be at the heart of Maths teaching and learning.

At The Mead, we believe that a positive, fun attitude will support all children to make progress in Maths.

# Aim of today's meeting

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

# How we teach maths

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As children make their first steps into learning about mathematics, one of the key aims for Year One is to help them become confident when identifying and representing numbers. Children need strong foundations to build on.

We continue to use practical, hands-on teaching and learning. The children will be working individually, in groups and as a class. Their maths learning will involve investigating, counting, playing number games and using practical equipment to help them solve problems and do simple equations.

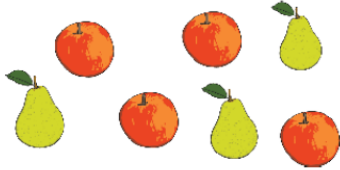


# How we teach maths

As they start to become more familiar with the mathematical language, the children will be encouraged to talk about their methods for solving problems and presenting their results.

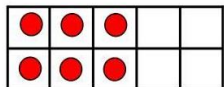
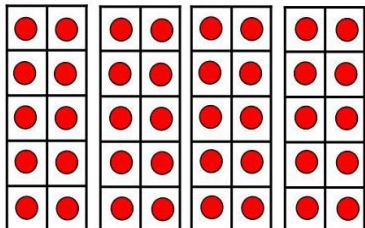
Addition Word Problem Challenge Cards ★★

If you had 4 apples and 3 pears, how many do you have?



Answer:

1. There are 6 tens and 4 ones.



Do you agree? Explain your answer.

Children will be given opportunities to deepen their learning by using their logic and reasoning skills in a range of real-life contexts and problems.

# As Mead Mathematicians we will:

question

predict

use reasoning

think mathematically



explore

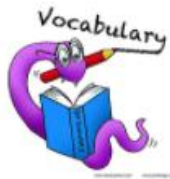
share ideas

problem solve

use stem sentences



LO: I am learning to compare 3 numbers.



## Key Vocabulary

123

number

12③

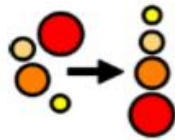
numeral

3 4 1 5 2



1 2 3 4 5

sequence



order



greater than



less than

# The Maths Curriculum

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Children should:

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **Reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language.
- **Solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

# The Maths Curriculum

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There are seven fundamental areas that the children will be learning.

- Number - Number and Place Value
- Number - Addition and Subtraction
- Number - Multiplication and Division
- Number - Fractions
- Measurement
- Geometry - Properties of Shape
- Geometry - Position and Direction

# 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>



# White Rose Maths

**Autumn**

**Place Value within 10  
Addition  
Subtraction  
Geometry - Shape**

**Spring**

**Place Value within 20  
Addition  
Subtraction  
Place Value within 50  
Length and Height  
Mass and Volume**

**Summer**

**Multiplication  
Division  
Fractions  
Position and Direction  
Place Value within 100  
Money  
Time**



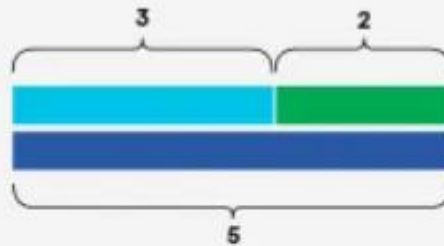
# Concrete, Pictorial to Abstract

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This is an essential approach to learning maths. Children are introduced to new concepts using concrete items such as counters, fruit etc. Once they are confident, they are then moved onto using pictures to represent concrete items. From there, they will start problem solving using abstract such as numbers or other symbols.



Concrete



Pictorial

$$3 + 2 = 5$$

Abstract

# Number – Place Value

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- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- given a number, identify one more and one less
- 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
- read and write numbers from 1 to 20 in numerals and words

# Number – Place Value

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Place value is the value of each digit in a number. Having a strong knowledge of place value is a vital skill.

It means understanding that 582 is made up of 500, 80 and 2, rather than 5, 8 and 2.

Thousands	Hundreds	Tens	Ones
	5	8	2

# Number – Place Value

We start teaching place value by reinforcing number in order to build competency and ensure children can confidently access the rest of the curriculum. Initially we look at sorting objects and counting, moving on to greater/less than, comparing numbers and using a number line.

• Complete the number tracks.

2	3	4						
---	---	---	--	--	--	--	--	--

5	6				
---	---	--	--	--	--

3								
---	--	--	--	--	--	--	--	--

Circle a group of 2 cats.



Circle a group of 5 cats.

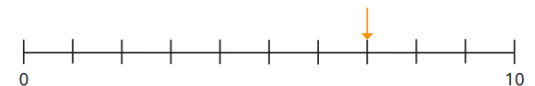


Circle a group of 6 cats.

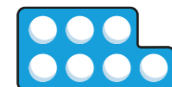
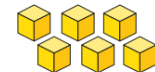
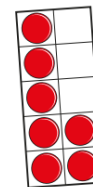


How many cats are **not** circled in each set?

Tiny draws an arrow to a number on the number line.



Which picture does **not** match Tiny's number?



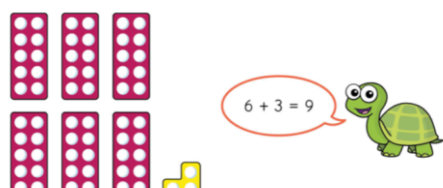
Talk about it with a partner.



# Number – Place Value

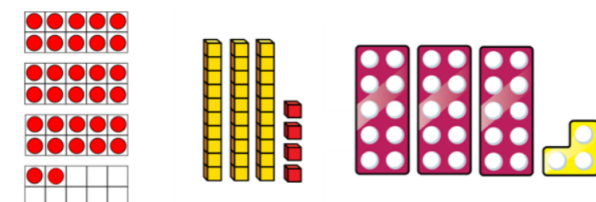
By the summer term, the children will be learning about partitioning numbers in to 10s and 1s, using number lines to 100 and comparing any 2 numbers.

Tiny uses number pieces to make a number.

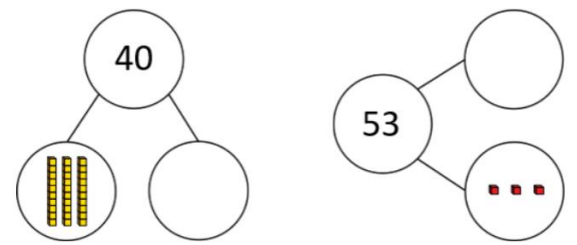


What mistake has Tiny made?  
 What number is shown?  
 How do you know?

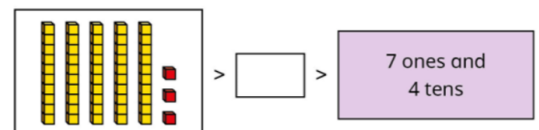
Tick the image that shows one less than 33



Complete the part-whole models.



What could the missing number be?



How many possible answers can you find?

# Number – Addition and Subtraction


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- read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as  $7 = \_ - 9$


# Number – Addition and Subtraction

We start with addition to 10 and once the children are confident we move onto addition to 20.

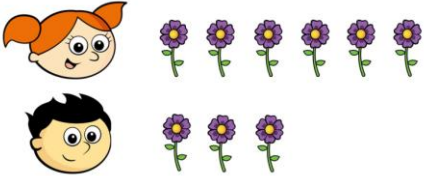
I have ten buttons.



I add 5 more buttons.

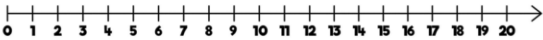


How many buttons are there in total?



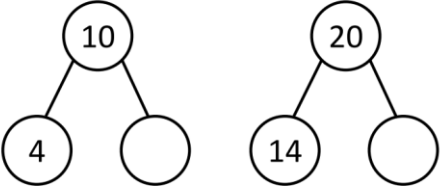
Jack has  fewer flowers than Alex.

Use the number line to show  $20 - 6$



$20 - 6 =$


Complete the part-whole models.



$10 = 4 +$

$20 = 14 +$

There were 14 birds.  
Some flew away. Now there are 8 birds.



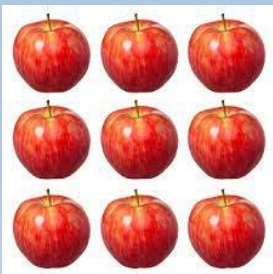
How many birds flew away?  
\_\_\_\_\_ birds flew away.

# Number – Multiplication & Division






- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and **arrays** with the support of the teacher

It can be helpful for children to learn that multiplication is repeated addition. For example,  $2 \times 5$  is the same as two lots of five or  $5+5$ .

Using visuals and manipulatives helps reinforce and embed this understanding.



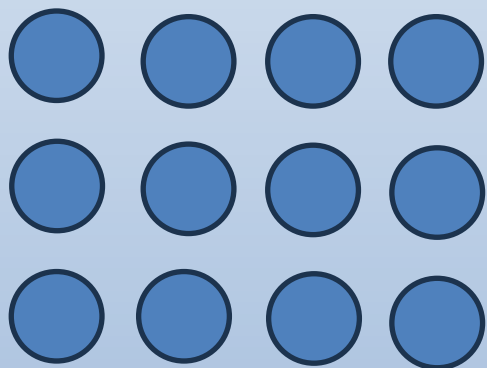
Division is taught in a practical way. For example, having a fixed number of objects and dividing them so each group has an equal amount, such as, 9 apples and 3 bags, the children will discover that each bag will have 3 apples.

1.		$2 + 2 + 2 = \square$	$3 \times 2 = \square$
2.		$4 + 4 = \square$	$2 \times 4 = \square$
3.		$3 + 3 = \square$	$2 \times 3 = \square$
4.		$3 + 3 + 3 = \square$	$3 \times 3 = \square$
5.		$1 + 1 + 1 + 1 = \square$	$4 \times 1 = \square$

# Number – Multiplication & Division

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An array in maths is an ordered arrangement of objects, numbers or pictures in columns or rows. The purpose of an array is to help children understand multiplication and division. We use arrays to identify fact families.



This array has four columns and three rows, could be used to represent the number sentence:

$$3 \times 4 = 12$$

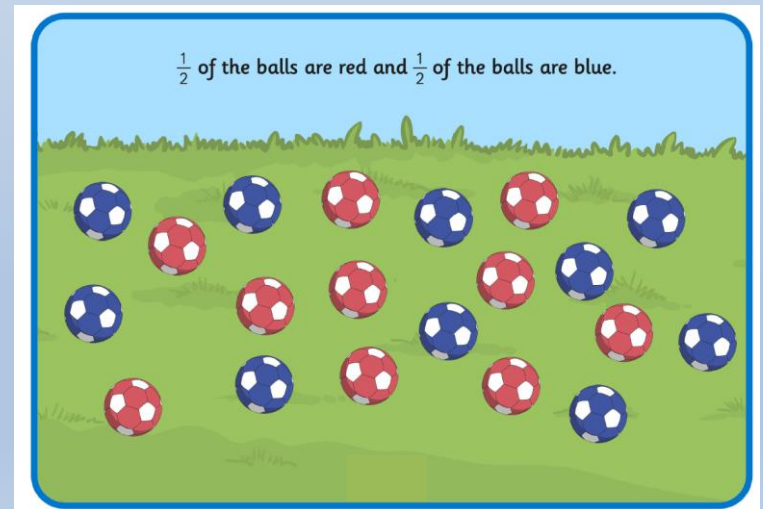
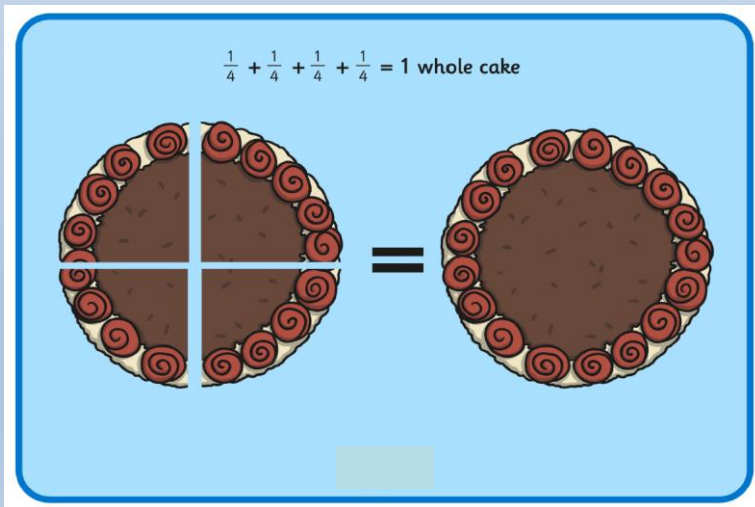
$$4 \times 3 = 12$$

$$3 + 3 + 3 + 3 = 12$$

$$4 + 4 + 4 = 12.$$

# Number – Fractions

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

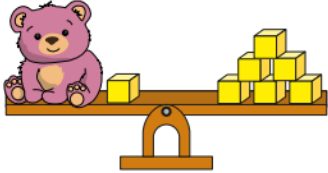


# Number – Measurement

Compare, describe and solve practical problems, measure and begin to record the following:


- lengths and heights [for example, long/short, longer/ shorter, tall/short, double/half]
- mass/weight [for example, heavy/light, heavier than, lighter than]
- capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]

What is the mass of the teddy bear?



How do you know?

Tiny and Ron are measuring the length of a car and a bus.



The car and the bus are the same length, because there are 4 paper clips and 4 bricks

Tiny

The car and the bus are not the same length.

Ron




Who do you agree with? Why?

# Number – Measurement

**Compare, describe and solve practical problems, measure and begin to record the following:**

- time [for example, quicker, slower, earlier, later]  
sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]  
recognise and use language relating to dates, including days of the week, weeks, months and years  
tell the time to the hour and half past the hour and draw the hands on a clock face to show these time





Write the time shown on each stopwatch.

A  B  C 

A \_\_\_\_\_ seconds  
B \_\_\_\_\_ minutes and \_\_\_\_\_ seconds  
C \_\_\_\_\_ hours, \_\_\_\_\_ minutes and \_\_\_\_\_ seconds

- Money [for example, pounds and pence and symbols]  
recognise and know the value of different denominations of coins and notes

Match each coin to its value.

2 pounds      1 penny      2 pence      1 pound

# Number – Geometry

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## Properties of Shape



Recognise and name common 2-D and 3-D shapes, including:

- 2-D shapes [for example, rectangles (including squares), circles and triangles].
- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres.

They recognise these shapes in different orientations and sizes.

## Position and Direction















Describe position, direction and movement, including whole, half, quarter and three-quarter turn.


# Fluency


It is important that children recognise number bonds, (different pairs of numbers with the same total) and are fluent in this.

Year 1 children are expected to be **secure** in their number bonds to 10.

 + ? =  $7 + \square = 20$	 + ? =  $11 + \square = 20$	 + ? =  $9 + \square = 20$
 + ? =  $16 + \square = 20$	 + ? =  $8 + \square = 20$	 + ? =  $4 + \square = 20$

**Rainbow to 10**



0 1 2 3 4 5  5 6 7 8 9 10

$0 + 10 = 10$	$10 + 0 = 10$
$1 + 9 = 10$	$9 + 1 = 10$
$2 + 8 = 10$	$8 + 2 = 10$
$3 + 7 = 10$	$7 + 3 = 10$
$4 + 6 = 10$	$6 + 4 = 10$
$5 + 5 = 10$	$5 + 5 = 10$

# How can you help at home?

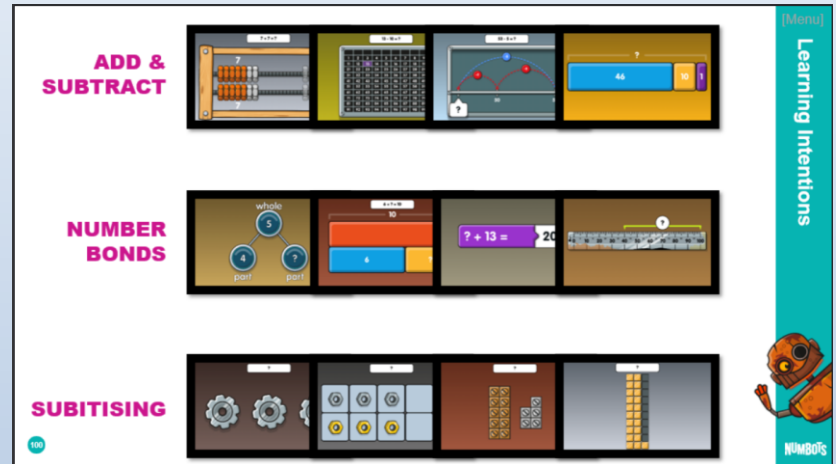
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- Have a positive attitude towards maths!
- Use the correct language especially for shape, positions and measuring
- Look at clocks – both analogue and digital and talk about time
- Encourage children to help in the kitchen by weighing, exploring capacity and different measurements such as grams, ml etc.
- Play games that challenge your child eg dice games, strategy games, jigsaw puzzles, card games
- Allow children to handle and experience real coins, talking about their value
- Giving children the opportunity to practically investigate fractions such as cutting up sandwiches





# 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.*

# Activities Ideas

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<https://www.topmarks.co.uk/maths-games> - 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 curriculum and are tablet friendly.

[Purple Mash by 2Simple](#) – Browse by subjects, includes games and activities

[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.

# Questions

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