Year Two
Maths Workshop

Maths

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

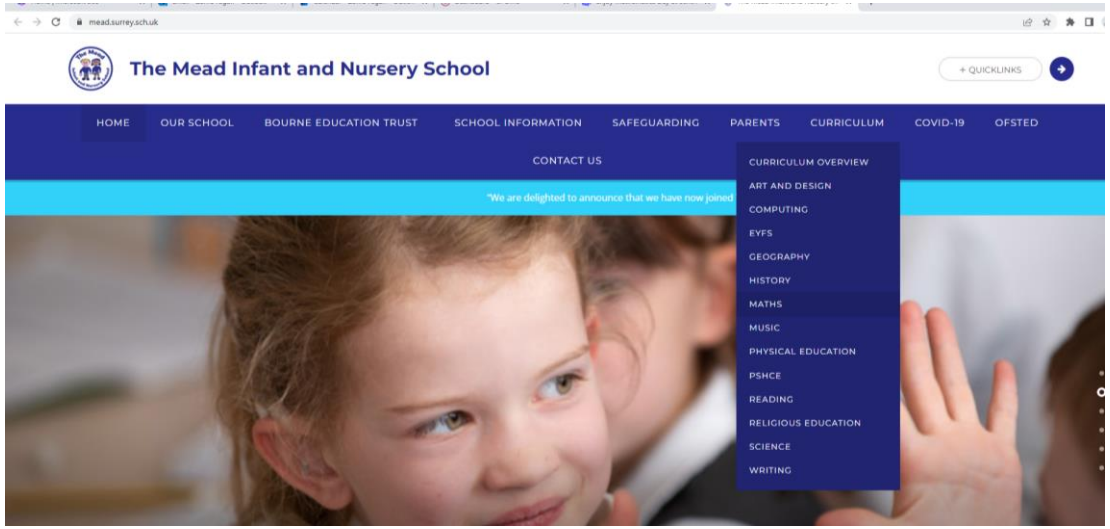
At The Mead, we believe that a positive, fun attitude will support all children to make progress in Maths.

Aims of the session today

- To share the curriculum objectives / implementation of maths in Year 2 at The Mead
- To understand key mathematical concepts
- To share strategies and resources used in school to teach the following 4 calculations
    - Addition
    - Subtraction
    - Multiplication
    - Division
- To share ways to support your child at home

Maths Curriculum

- Available on the school website under Curriculum and Maths



- Maths progression tracker which shows objectives in each area (e.g. number / place value / addition) from nursery to year 2

The Mead Infant & Nursery School –Maths Subject Progression Tracker

Maths Subject Progression Tracker				
	Nursery	Reception	Year 1	Year 2
Number – number & place value	• Recite numbers past 5. • Say one number name for each item in order: 1, 2, 3, 4, 5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). • Fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Show 'finger numbers' up to 5. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Compare quantities using language: 'more than', 'fewer than'. • Solve real world mathematical problems with numbers up to 5	• Count objects, actions and sounds. • Count beyond ten. • Subitise. • Link the number symbol (numeral) with its cardinal number value. • Link the number symbol (numeral) with its cardinal number value. • Compare numbers. • Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10. • **Verbally count beyond 20, recognising the pattern of the counting system.** • **Subitise (recognising quantities without counting) up to 5.** • **Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.** • **Have a deep understanding of numbers to 10, including the composition of each number.**	• 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.	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems.
Number – addition & subtraction		• Automatically recall number bonds for numbers 0-10. • Subitise. • Link the number symbol (numeral) with its cardinal number value. • **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.**	• 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	• solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100

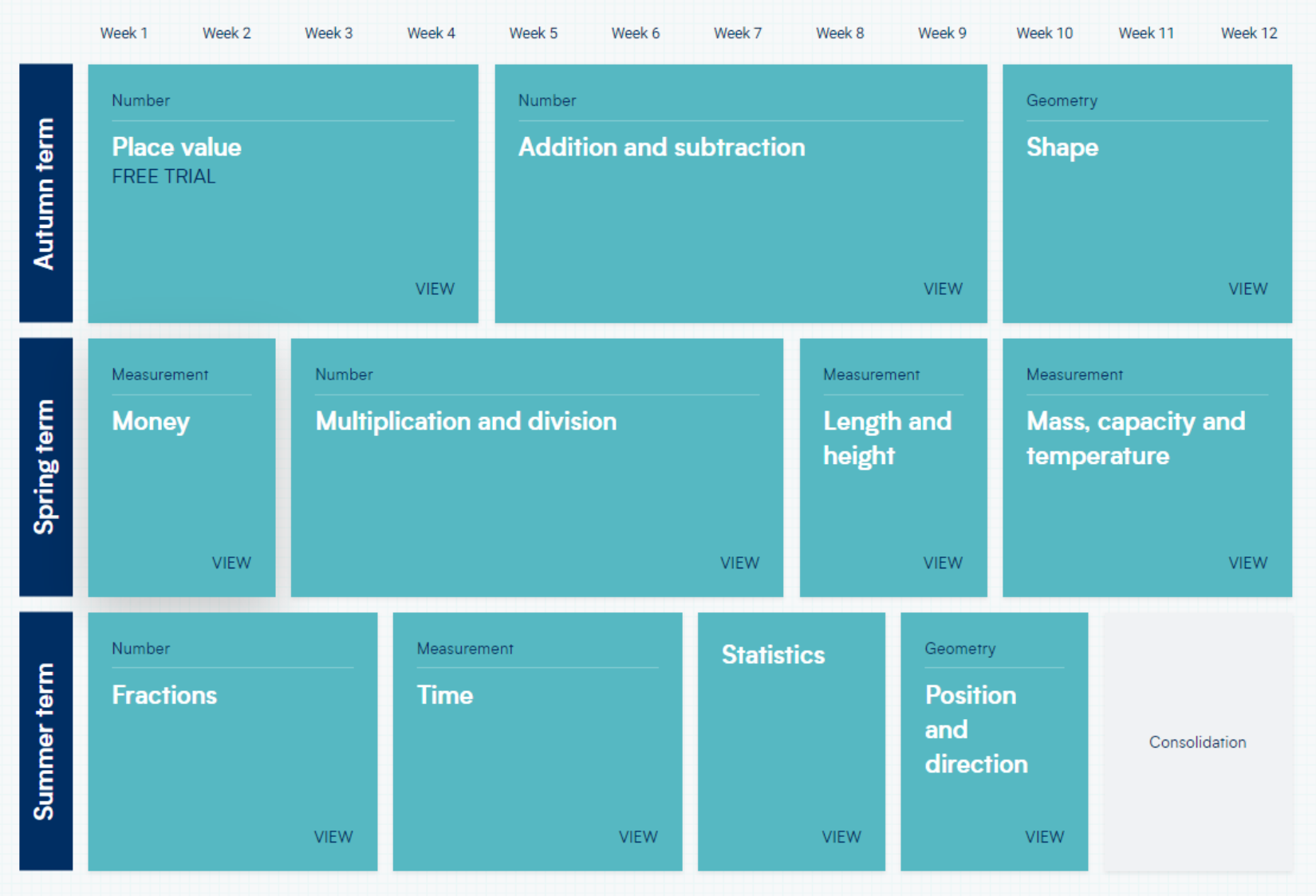
- Mathematical vocabulary document which highlights the key vocabulary used in each year group

Mathematical Vocabulary EYFS to Year 2

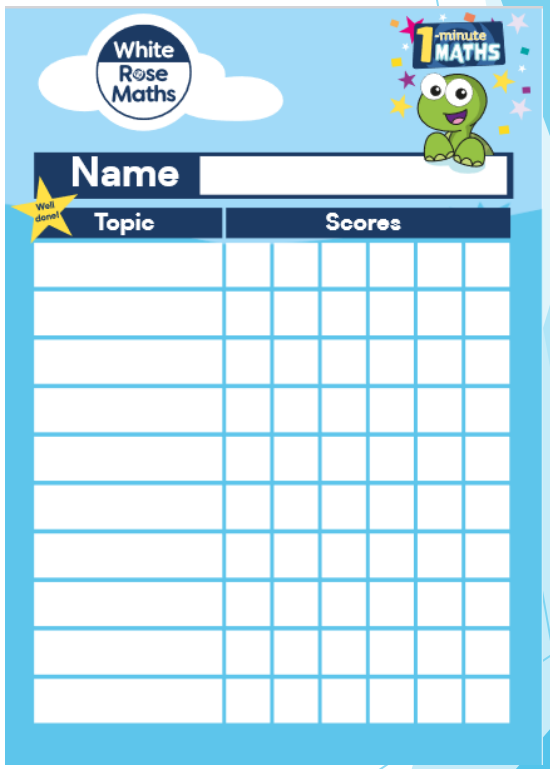
Using correct mathematical language is crucial for thinking, learning and communicating mathematically. At The Mead, we encourage children to explain what they are doing and why they are doing it. We offer children plenty of opportunities to use mathematical language through class discussions, paired activities, group discussions and games. Children are introduced to appropriate vocabulary at a time when it is relevant.

EYFS	Year 1	Year 2
number zero, one, two, three… to twenty and beyond teen numbers, eleven, twelve…. twenty none how many…? count, count (up) to, count on (from, to), count back (from, to) count in ones, twos, fives, tens is the same more, less odd, even how many times? pattern pair	number numeral zero, one, two, three… to twenty and beyond teen numbers, eleven, twelve…. twenty twenty, twenty-one… one hundred none how many…? count, count (up) to, count on (from, to), count back (from, to) forwards backwards count in ones, twos, fives, tens equal to equivalent to is the same more, less most, least odd, even multiple of how many times? pattern pair	number numeral zero, one, two, three… to twenty and beyond teen numbers, eleven, twelve…. twenty twenty, twenty-one… one hundred, two hundred…. one thousand none how many…? count, count (up) to, count on (from, to), count back (from, to) forwards backwards count in ones, twos, fives, tens, threes equal to equivalent to is the same more, less most, least odd, even multiple of sequence continue predict how many times? pattern pair, rule > greater than

White Rose Maths



White Rose 1 Minute Maths



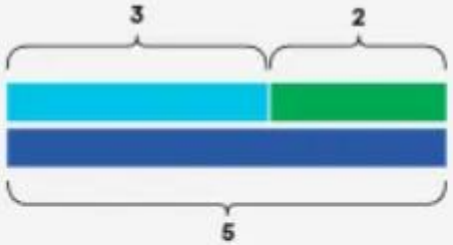
White Rose Maths app available – 1 minute maths games

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

Concrete, Pictorial to Abstract

This is an essential approach to learning maths and is used in all year groups. Children are introduced to new concepts using concrete items such as counters, dienes, pens, pebbles. 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

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

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

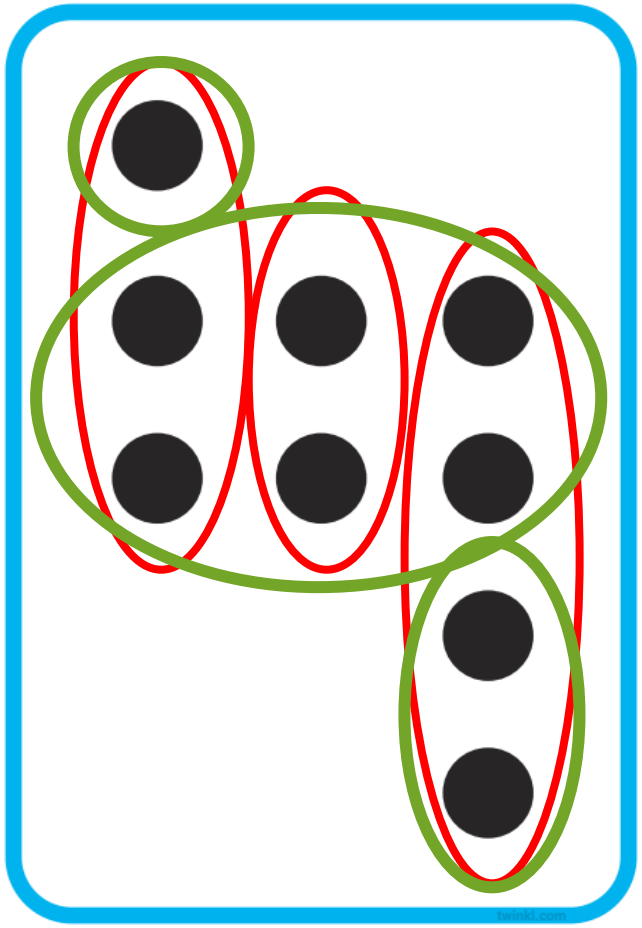
Uses numerals and symbols. It is imperative that children are not moved to this stage too quickly!

If a child is finding an area difficult – take a step back (e.g. if a child is finding written addition calculations difficult, use concrete objects to support) Children need to be secure in concrete before they can move on to pictorial and they need to be secure in pictorial before they can move on to abstract

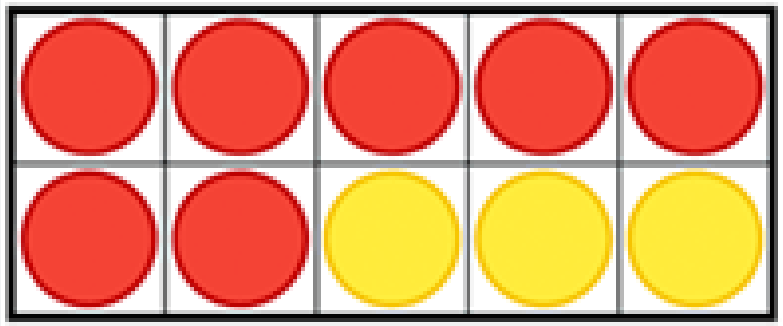
Subitising and Number bonds

Subitising is the ability to recognise how many without having to count.
Subitising helps to support number bond recall and understand the composition of numbers.

It does not matter how you subitise the dots as it will give you the same answer.

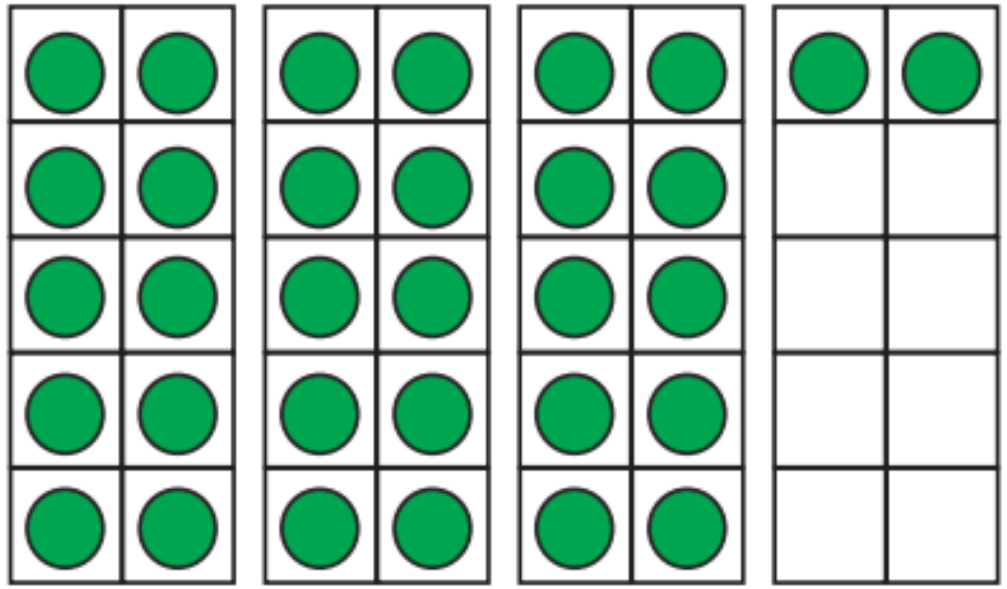


Subitising and Number bonds



We can see that there are 7 red counters in the 10s frame and 3 yellow counters.

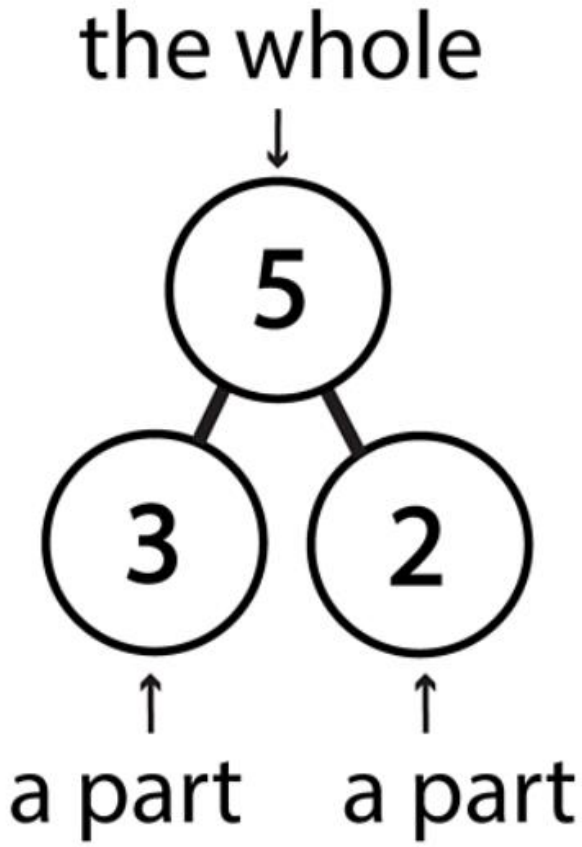
We can see that there are 3 groups of 10 and 2 more so there are 32.

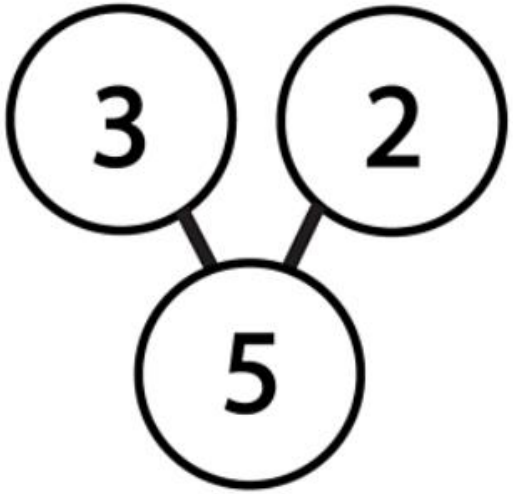


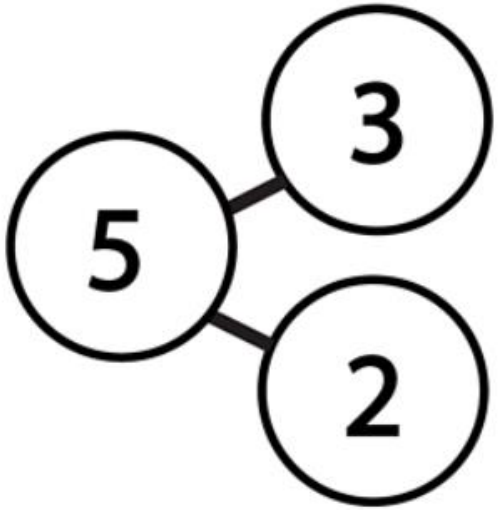
Children can understand that, for example, 5 is not just 5. It can be 4+1, 3+2, 2+2+1, and so on. This helps to support the learning of part-whole models and bar models as they move through KS1 and KS2.

Part whole models

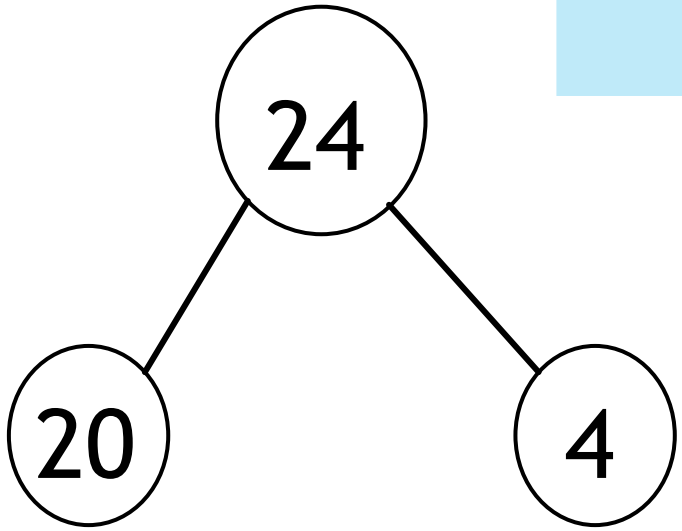
5	
3	2





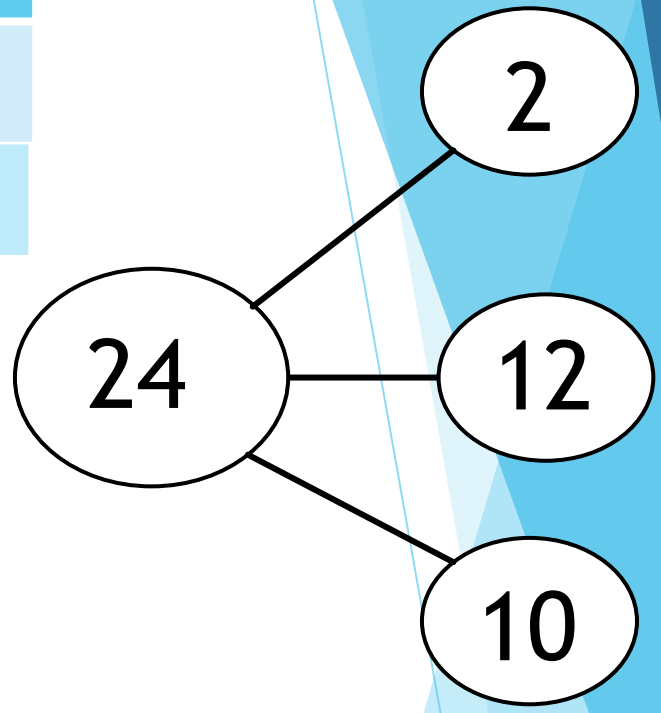


Part whole



24	
20	4
10	12	2

Bar model



Understanding and using part whole models supports children to see the associative law of addition, which simply means understanding that when adding or multiplying 3 or more numbers, it does not matter what order they are in as the total will be the same. This is not the case with subtraction and division.

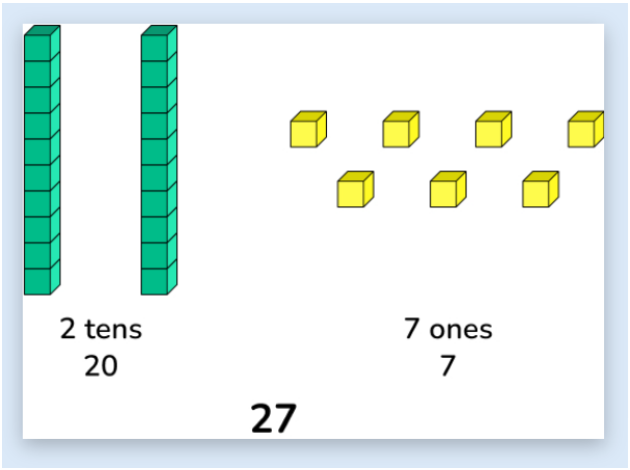
The part whole model supports mental methods where partitioning a number may be useful, such as measure, shape, and addition and subtraction with both whole numbers and decimals.

Number & Place Value

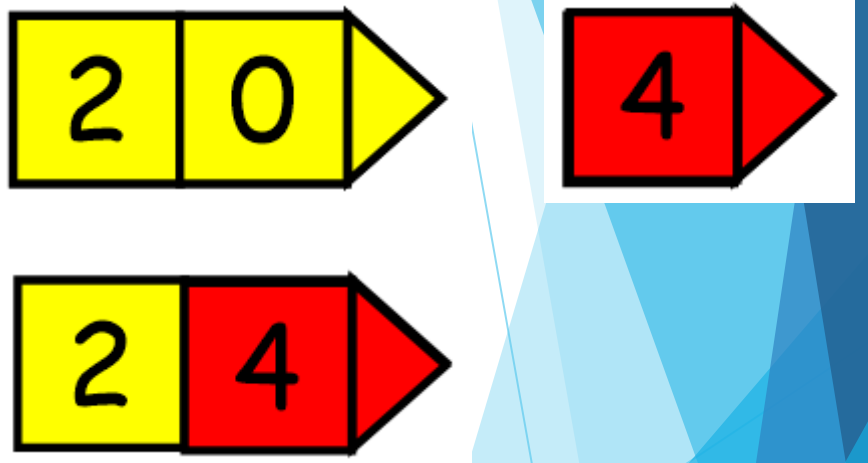
- count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
- recognise the place value of each digit in a two-digit number (tens, ones)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use <, > and = signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems.

Place value – the value of each digit in a number

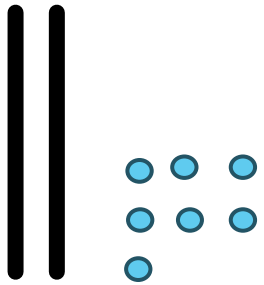
Dienes are proportionally correct so that 10 ones will be the same size as one 10.



Arrow cards



Jottings

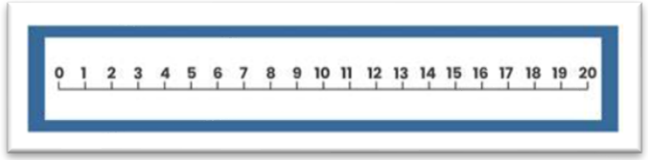


Resources

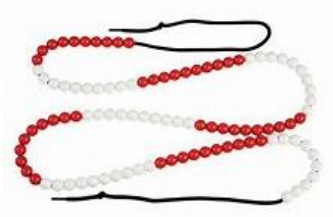
- Numicon

- Dienes (jottings - sticks and dots)

- Numberlines



- Beadstrings



- Multilink cubes

Addition and Subtraction

- solve problems with addition and subtraction:
- using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and ones
  - a two-digit number and tens
  - two two-digit numbers
  - adding three one-digit numbers
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

How we teach addition

- Resources (please see resources slide)
- Jottings
- Numbers that do not bridge 10

Can we solve it using jottings?

24 + 32 =

How we teach addition

- Resources
- Jottings
- Numbers that bridge 10 (adding two numbers whose total is greater than 10)

Exchange

Addition: Every time you have 10 ones, swap 10 ones for 1 ten stick

28 + 17 =

How we teach subtraction

- Resources
- Jottings
- Numbers that do not bridge 10

Can we solve it using jottings?

36 - 15 =

How we teach subtraction

- Resources
- Jottings
- Numbers that bridge 10

Exchange

Subtraction: Swap 1 ten stick for 10 ones

Can we solve it using jottings?

43 - 18 =

How we teach subtraction

- Blank number lines

Show me on a blank number line!

30 - 14 =

Multiplication and Division

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

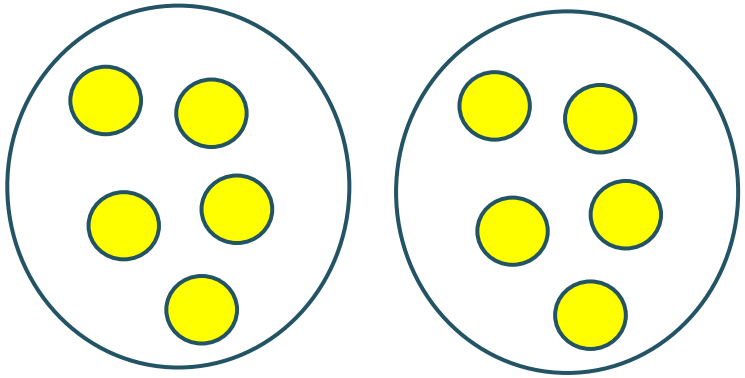
How we teach multiplication

What does 2 x 5 mean?

2 lots of 5 = 10

2 groups of 5 = 10

2x5=10

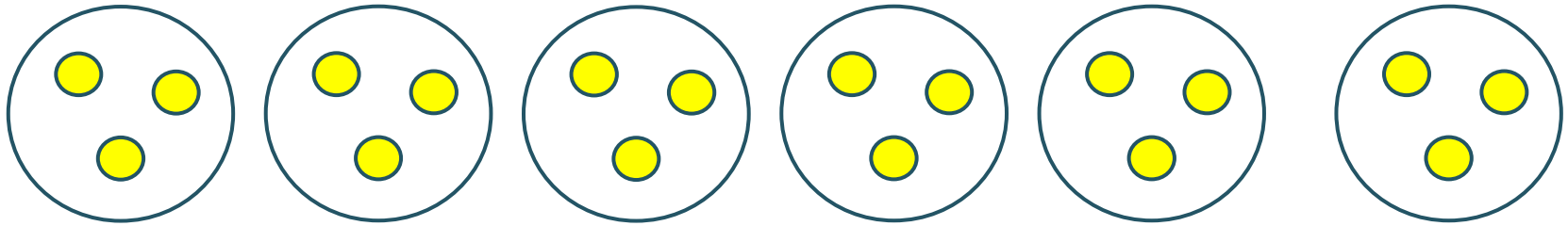


There are 10 pencils in a pack.
Sarah has 3 packs.
How many pencils are there altogether?

How we teach division

Dividing means sharing equally!

18 ÷ 6 =



Supporting your child at home / useful websites

Remember to have a positive attitude towards maths and problem solving!

Websites:

- Login | White Rose Maths (whiteroseeducation.com) - White Rose Maths website
- https://www.topmarks.co.uk/ - Maths games
- www.mathsisfun.com – Maths games and information
- KS1 Maths - BBC Bitesize
- Purple Mash by 2Simple – games and activities
- Games - Lower Primary (maths.org) – Nrich Maths
- National curriculum in England: mathematics programmes of study - GOV.UK (www.gov.uk)

Activities:

- Number games / board games / card games
- **Real life opportunities** – paying with money, working out change, adding 2 items together
- Baking and cooking

Questions