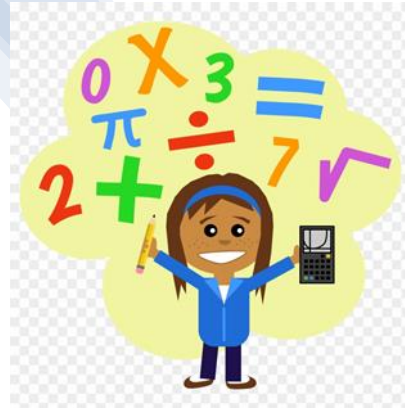




## Session Aims

- What does maths look like in KS1?
- How is maths taught at Earlsmead?
- How can children be supported at home?

# What does Maths learning look like at Earlsmead?



Our curriculum is based on the national curriculum and White Rose Maths and other materials that support the delivery of the curriculum (Classroom Secrets, Twinkl Mastery etc.).

These are used across KS1 and KS2 allowing children to be exposed to a variety of different types of learning and to ensure coverage of fluency, problem solving and reasoning in different formats to ensure that our maths curriculum is rich and varied.

# What are the National Curriculum Programmes of Study?

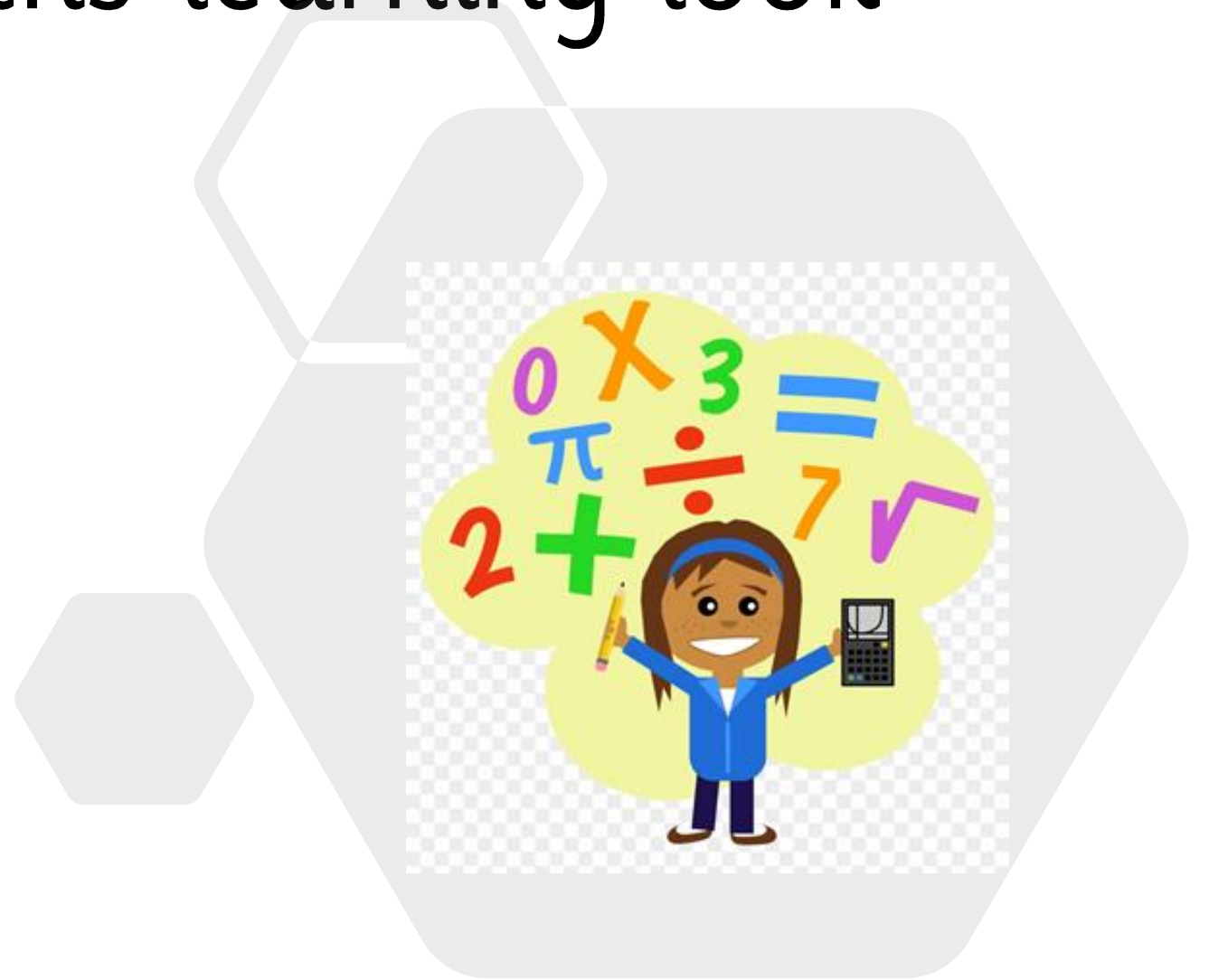


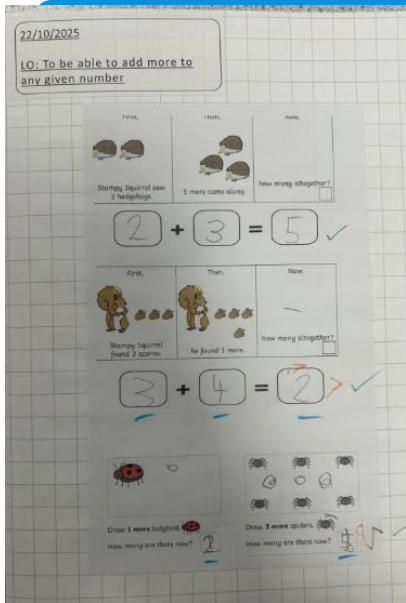
The link below will take you to the programmes of study for each year group. This shows you what your child will be learning when at school and what a child of that age is expected to achieve by the end of the year (Age Related Expectations).

[National Curriculum Programmes of Study for Key Stage 1 and Key Stage 2](#)

# What does Maths learning look like in KS1?

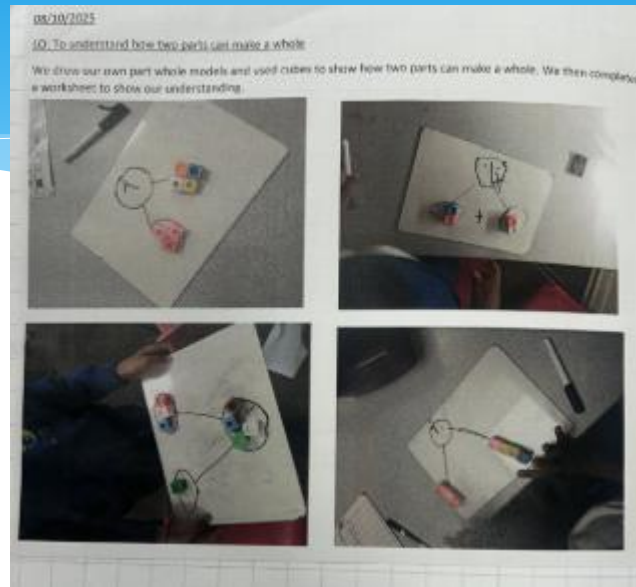
Here are examples of children's work in KS1.





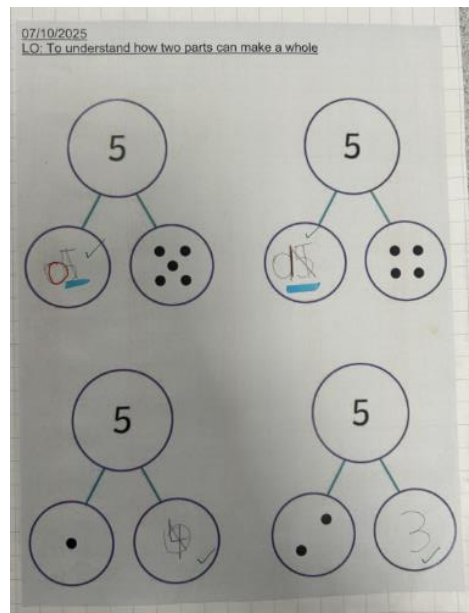
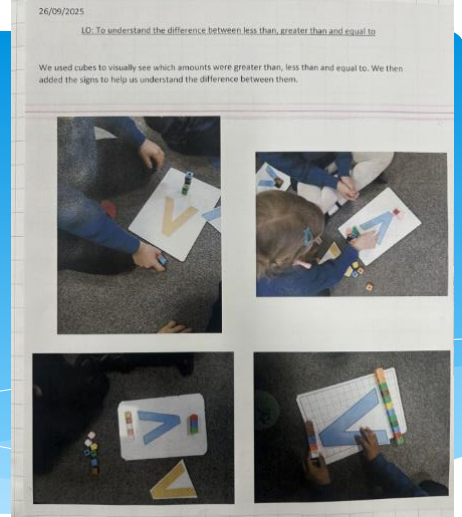
To read time to O'clock and Half Past.

Number bonds to 10 and within 10.



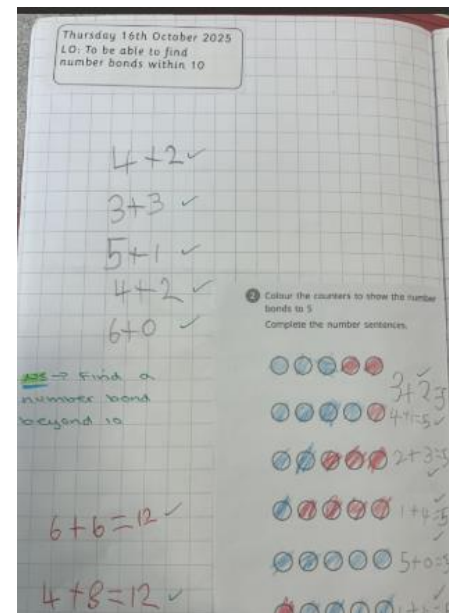
Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.

To double numbers to 10.



Count forwards and backwards in multiples of 2, 5 and 10.

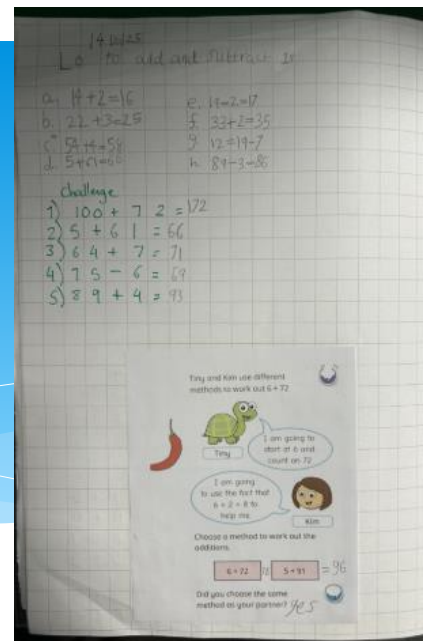
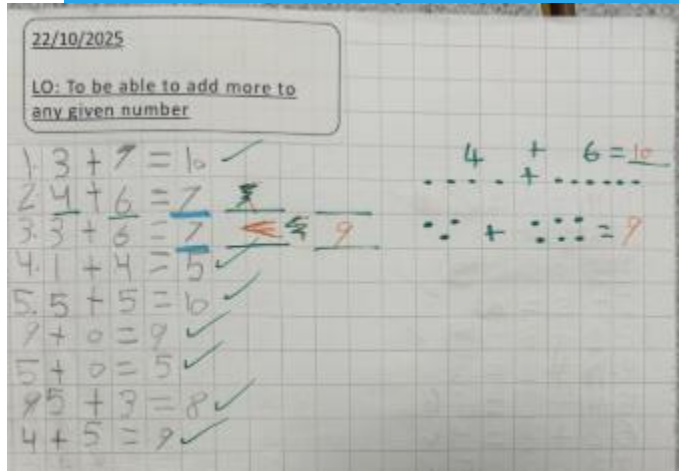
Count within 100, forwards and backwards, starting with any number.



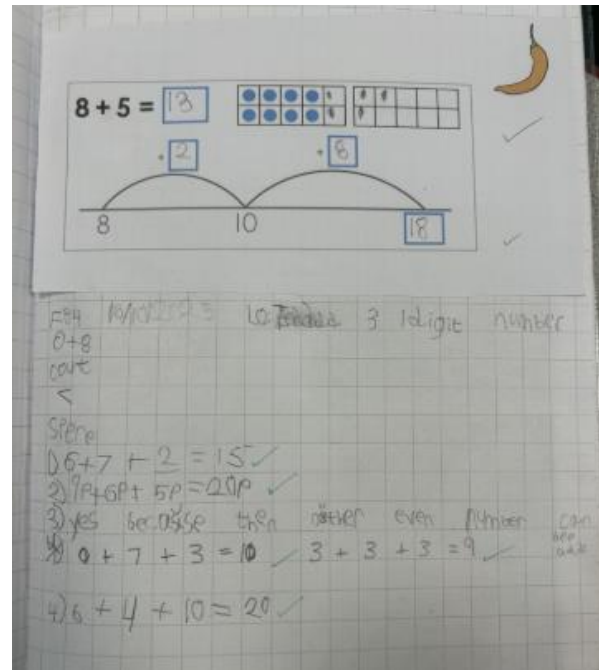
Read, write and interpret equations containing +, - and = symbols.

# What does Maths look like in Year 2?

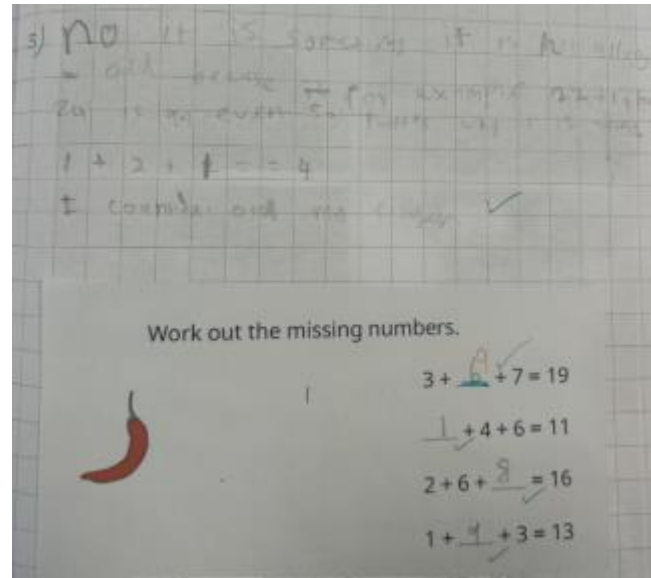
Add and subtract within 100 by applying one-digit addition and subtraction facts. To add and subtract any 2 two-digit numbers.



Practical learning using a variety of resources.



Recognise the subtraction structure of 'difference' and answer questions such as "How many more...?".



Recognise the place value of each digit in two-digit numbers.

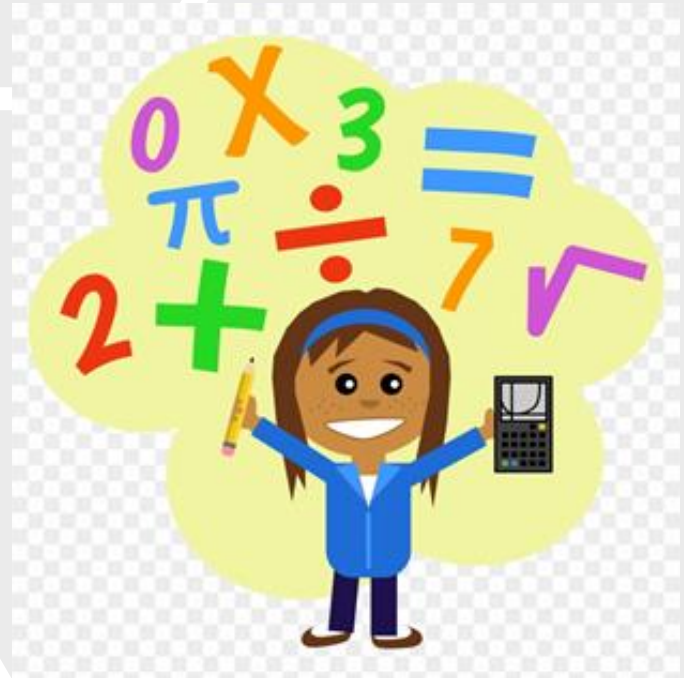
Secure fluency in addition and subtraction facts within 10.

# Calculation Policy

Our calculation policy is in line with the programmes of study taken from the National Curriculum for Mathematics (2014). It is designed to be challenging, focussing on essential core subject knowledge and skills. This document guides you through the **appropriate calculation methods within each year group** and the **progression of skills throughout the school**.

The content of this document is set out in year group blocks under the following headings: **addition, subtraction, multiplication and division**.

This can be found on our website, under the 'Maths' subject page.

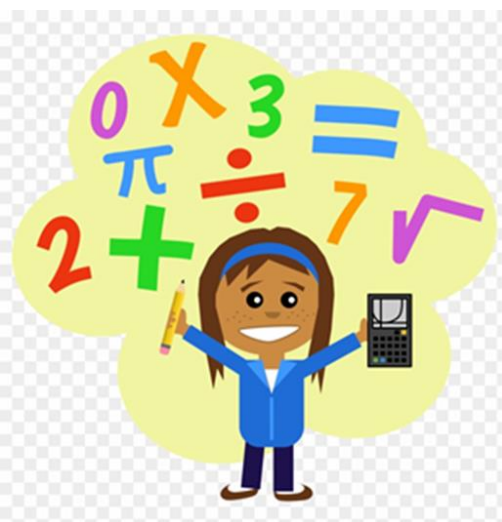


# Reasoning and Problem Solving

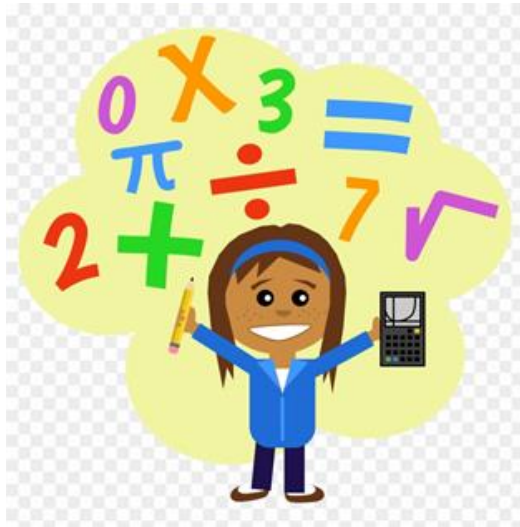
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The national curriculum for mathematics aims to ensure that all pupils:

- 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
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions



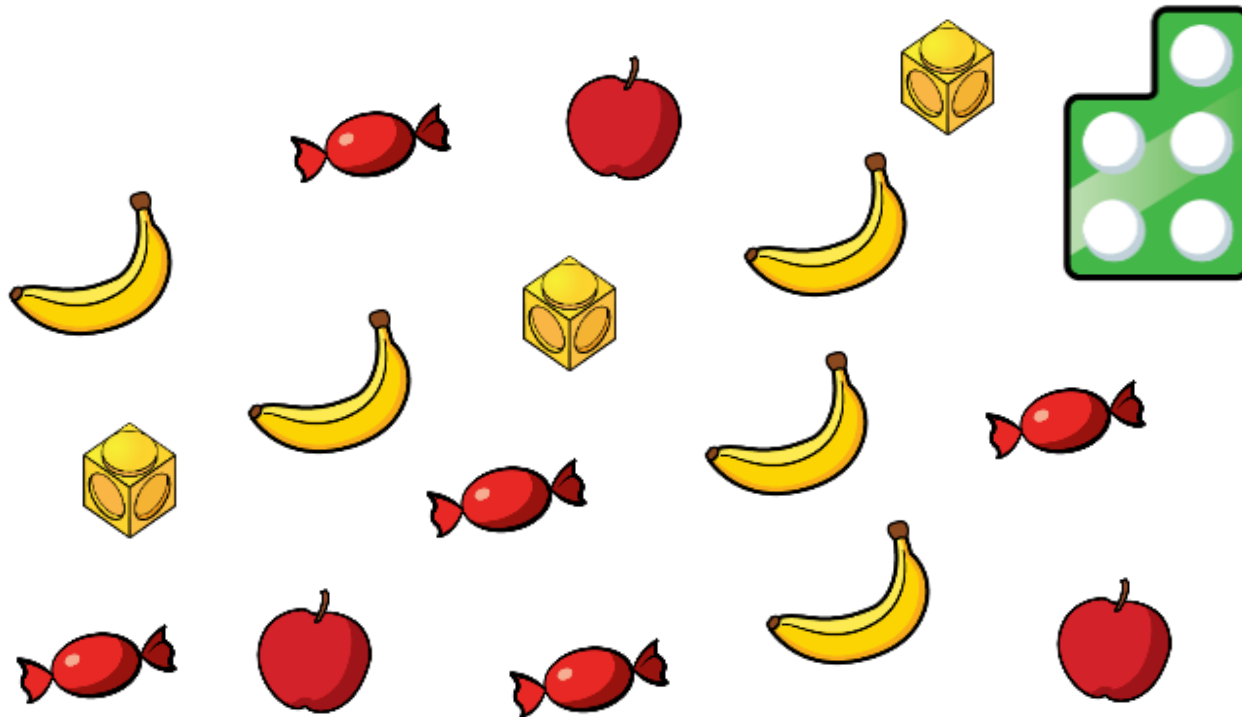
# Progression in Reasoning



<b>Describing</b>	Simply tells what they did
<b>Explaining</b>	Offers some reasons for what they did (may or may not be correct)
<b>Convincing</b>	Confident that their chain for reasoning is right (inductive reasoning)
<b>Justifying</b>	A correct logical argument that has a complete chain of reasoning
<b>Proving</b>	A watertight argument that is mathematically sound (deductive reasoning)

Reasoning: The action of thinking about something in a logical, sensible way

How many different ways can the objects be grouped?



What is the same? What is different?

How do you know...      Why do you know...

Explain why...

$$17 + 10 > 17 + 8$$

# Importance of Resources

Resources can be powerful tools to support sense making, mathematical thinking and reasoning skills.

They help our children to be able to practically engage with new learning and to support their ability to visualise new concepts and knowledge.

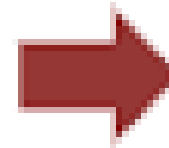
We apply a CPA approach to Maths learning which embeds the importance of using physical resources to support learning opportunities.

# CPA Approach

Concrete

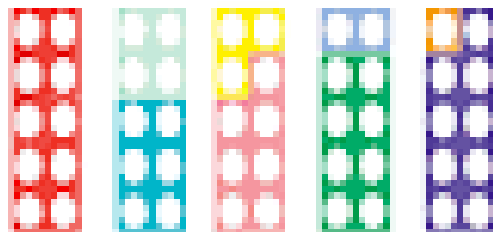


Pictorial



Abstract

$$2 + 2 = 4$$



5+5   6+4   7+3   8+2   9+1

$$4 + 6 = 10$$



- 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
- 0 + 10 = 10

# What is CPA?

**C is for concrete.** New concepts are introduced through the use of physical objects or practical equipment. These can be physically handled, enabling children to explore different mathematical concepts. These are sometimes referred to as maths manipulatives and can include ordinary household items such as straws or dice, or specific mathematical resources such as dienes or Numicon.

**P is for pictorial.** Once children are confident with a concept using concrete resources, they progress to pictorial representations. By doing this, they are no longer manipulating the physical resources, but still benefit from the visual support the resources provides.

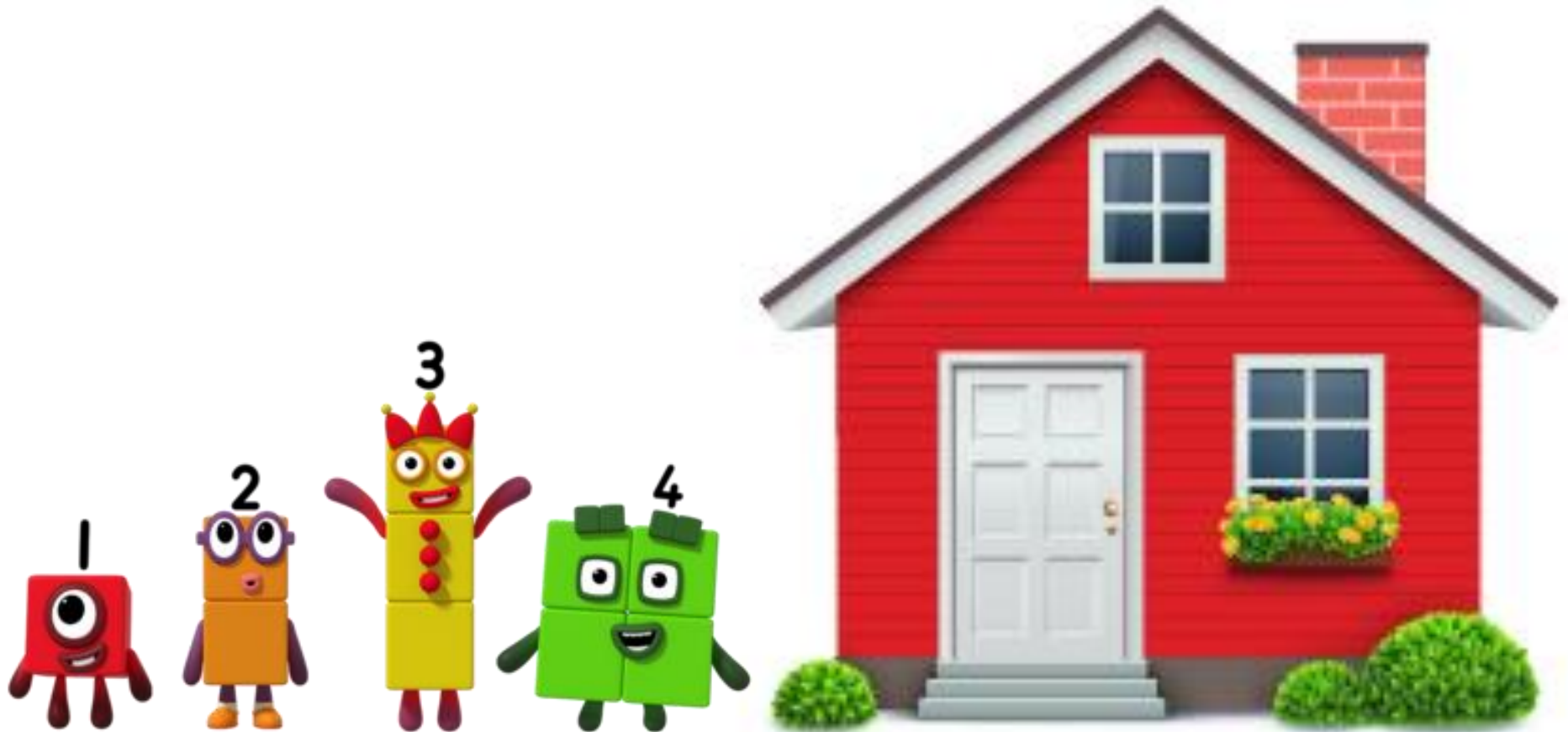
**A is for abstract.** Once children have a secure understanding of the concept through the use of concrete resources and visual images, they are then able to move on to the abstract stage. Here, children are using symbols to solve problems. To be able to access this stage effectively, children need access to the previous two stages alongside it.

# How can you help your child with Maths at home?

- \* Take away their fear.
- \* Reassure and praise whenever possible. Positive mindset!
- \* Let them see you using Maths in your everyday routines – portioning meals between the family, chopping vegetables into halves and quarters etc.
- \* Play with numbers and shapes through games.
- \* Seeing mistakes as an opportunity to learn and using them as a discussion point.
- \* Recognising the **importance** and value of Maths in our everyday lives e.g. managing money and telling the time.

- Count - steps up the stairs, money into a money box etc
- Ask children to say how many without counting (5 or fewer)
- Play games using dice/dominoes and encourage child to say how many spots without counting.
- Ask children to set the table with enough knives, forks and plates for everyone.
- Spot numbers in the environment – on phones, microwaves, clocks, registration plates, doors.
- Ask children to think of their own representations for numbers eg one of them, two hands, three bears, four wheels on a car, five toes, six sides on a dice, seven dwarves, eight legs on an octopus etc
- Deliberately make mistakes. Children need to understand mistakes are normal and everyone makes them eg get mixed up when counting, muddle two numbers when ordering them.
- Watch Numberblocks on Cbeebies. This programme is written by maths specialists to model maths concepts and represents number brilliantly. Also, Numberjacks is excellent for solving problems.
- Hide numbers around the house or garden for children to find.
- Play outdoor maths games like hopscotch and skittles. Even better, let children make up their own games and decide how to score points.
- Read books with maths concepts eg The Very Hungry Caterpillar, One is a snail, ten is a crab, What's the time, Mr Wolf? The doorbell rang.

# Resources you can use at home



# Alternatives to maths resources

Counters



or you could use.....

Smarties



3D shapes



or you could use.....

groceries



Counting Bears



or you could use.....

anything you have a lot of!



# You can use anything you have around the house

Pasta for counting



Cards for number recognition and counting



Chewits for counting



Toys to put in size order



Magnetic numbers for number recognition



# Don't Forget Outside!





# Numbers are all around us!



# Counting in 2s and 10s

Numicon

or you could use.....

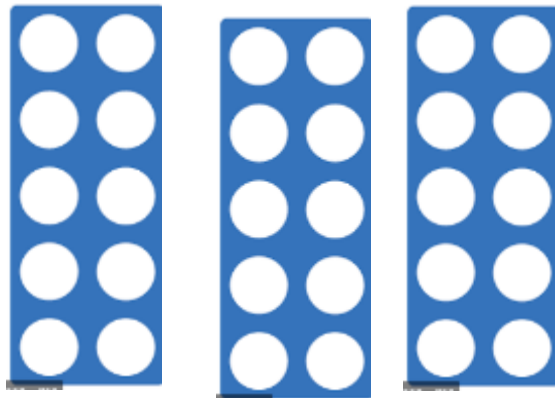
socks



Numicon

or you could use.....

gloves

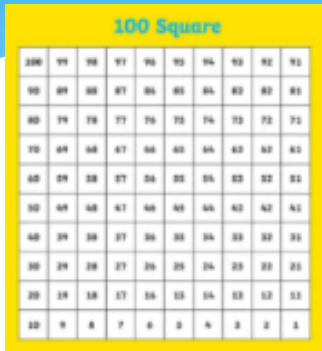


# Numbers

100 Square

or you could use

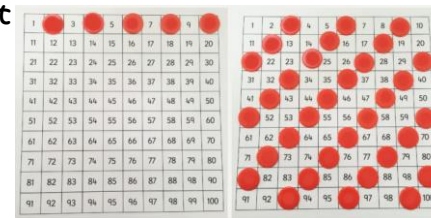
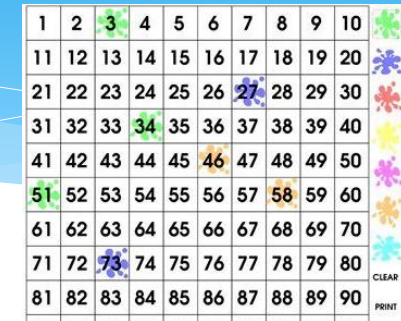
[100 square splat](#) online game



Games you could play:

**Cover Up:** Cover up one or more squares using counters. The child has to guess which numbers are hidden under the counter/s.

**Patterns:** Cover the multiples of 2, 3, 5 and 10 etc (one multiple at a time). Use the patterns to predict which numbers will be in the sequence.



Dice

or you could use an [Online Dice](#)



Games you could play:

Use dice to help your child recognise numbers at speed.

**Knock Out:** Each player chooses a “knock out number” – either 6, 7, 8, or 9. More than one player can choose the same number. Players take turns throwing both dice, once each turn. Add the number of both dice for the score. If a player throws a 6, 7, 8 or 9, they are knocked out of the game until the next round.

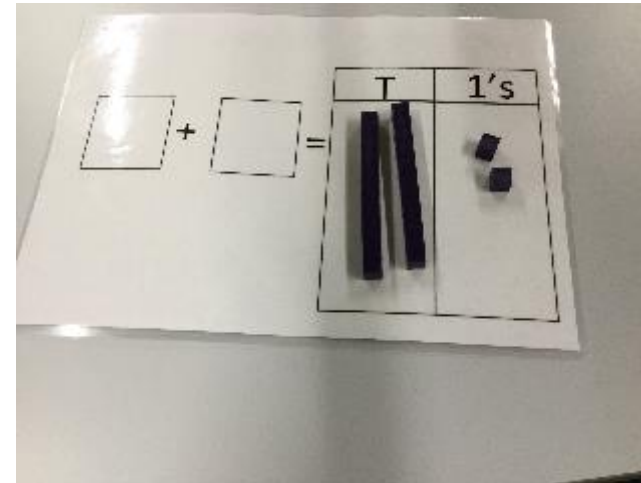
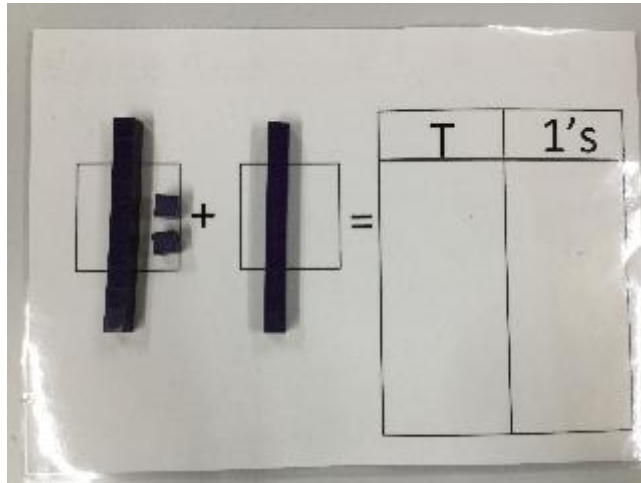
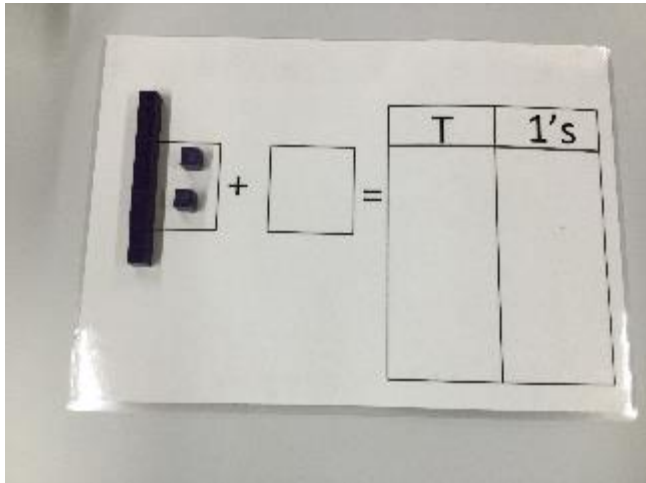
# Addition/ Subtraction using sweets instead of dienes



In Year 2 we use dienes for addition/ subtraction. Instead of tens and ones resource you could use sweets (such as Chewits). A whole pack of Chewits are the tens and individual Chewits are the ones. E.g. 18 = 1 tens and 8 ones

# An example of an addition word problem being solved using dienes. This could be solved using sweets (e.g. Chewits)

Big skeleton goes to the shop to buy cakes. He buys 12 chocolate cakes and 10 cream cakes. How many does he buy altogether?



You could also use sticks as tens and stones as ones.



For greater or less than you could use...



For money work or problems you could use your own coins/ notes.





Thank you for listening.  
We hope the workshop  
helps you understand how  
you can support your child  
at home.