Maths workshop

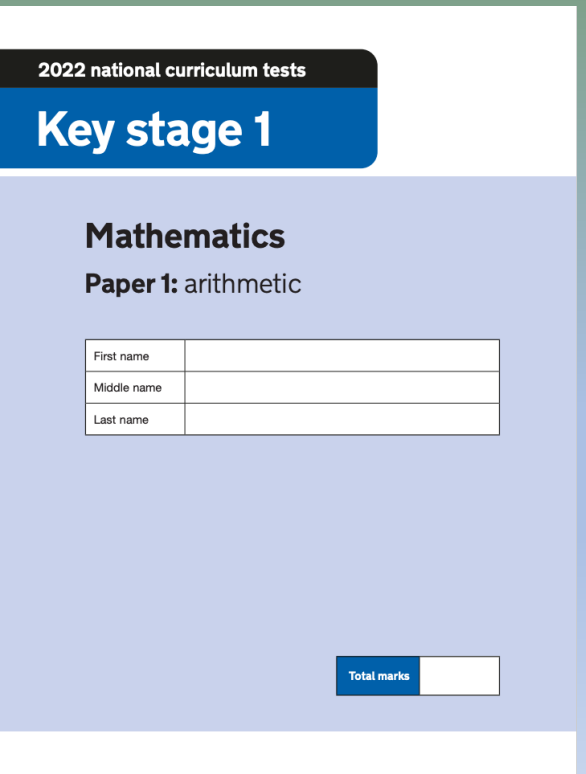
EYFS and KS1

What are the children expected to be able to do?

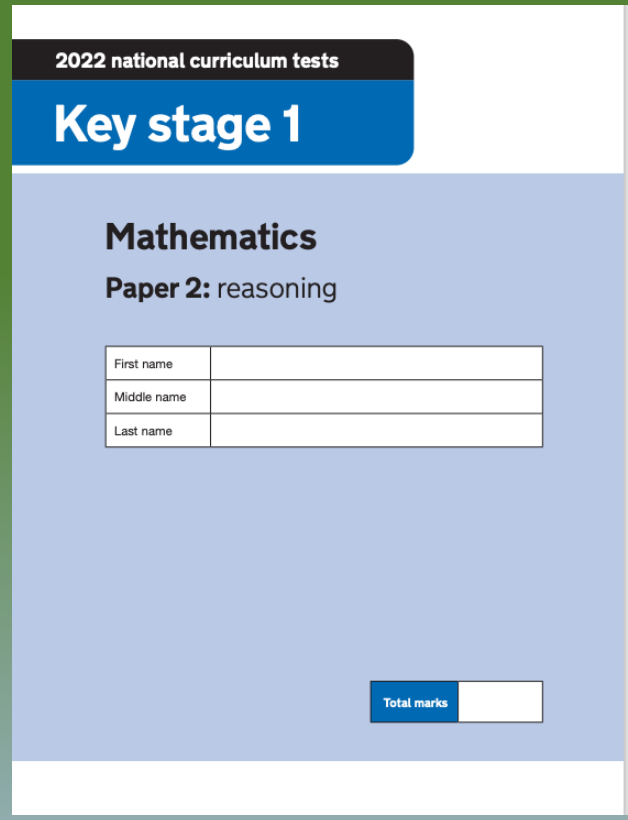
Let’s have a look at the Early Years Foundation Stage and the National Curriculum…

How is maths formally assessed?

- EYFS profile- assessment through a range of observations in a range of contexts. In addition any work produced can be looked at.



- Key Stage 1 SATS- formal assessment at the end of Year 2. Currently involves one arithmetic paper (25 questions) and a reasoning paper (31 questions).



11 $31 + 46 =$ ☐

1 mark

12 $\frac{1}{2}$ of 80 = ☐

1 mark

13 $67 - 40 =$ ☐

15 Draw a line to match each measurement to the correct unit.

One is done for you.

measurement	unit
___ the **length** of a pencil	kg
the **mass** of a bag of potatoes	°C
the **capacity** of a cup	cm
the **temperature** outside	ml

12 This number sentence equals 18

1	+	1	7	=	1	8	

Now write a **different** number sentence that equals 18

Write **one digit** in each empty box.

☐	+	1	☐	=	1	8	

1 mark

17 Look at these numbers.

36 42 6

Use these numbers to complete the number sentences below.

Use all three numbers each time.

☐ + ☐ = ☐

☐ − ☐ = ☐

14 Here are two number patterns.

There are **three** missing numbers.

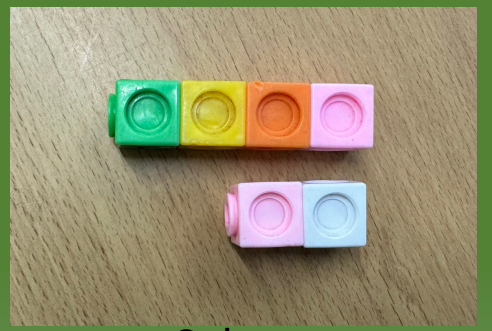
Write them in the empty boxes.

					15
					20
					25
☐	18	21	24	27	☐

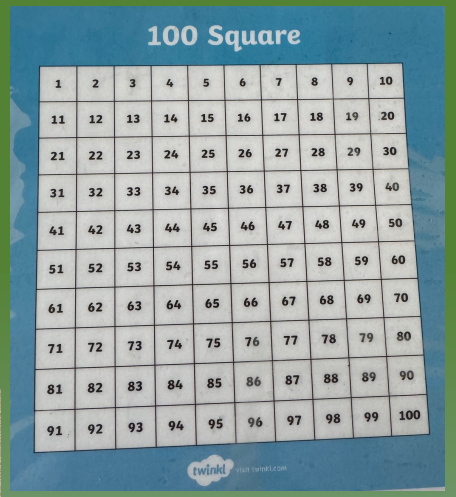
→

Manipulatives we use in school...

- plates and counters
- money

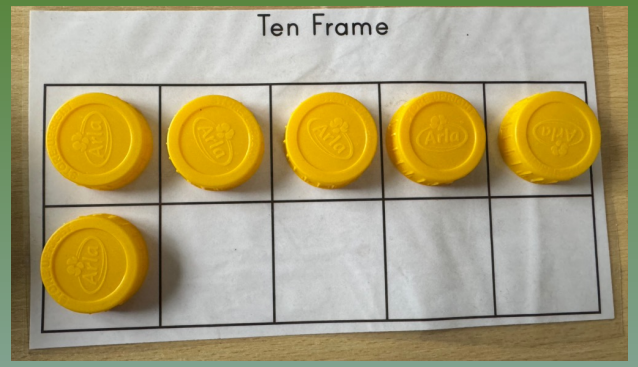


Cubes



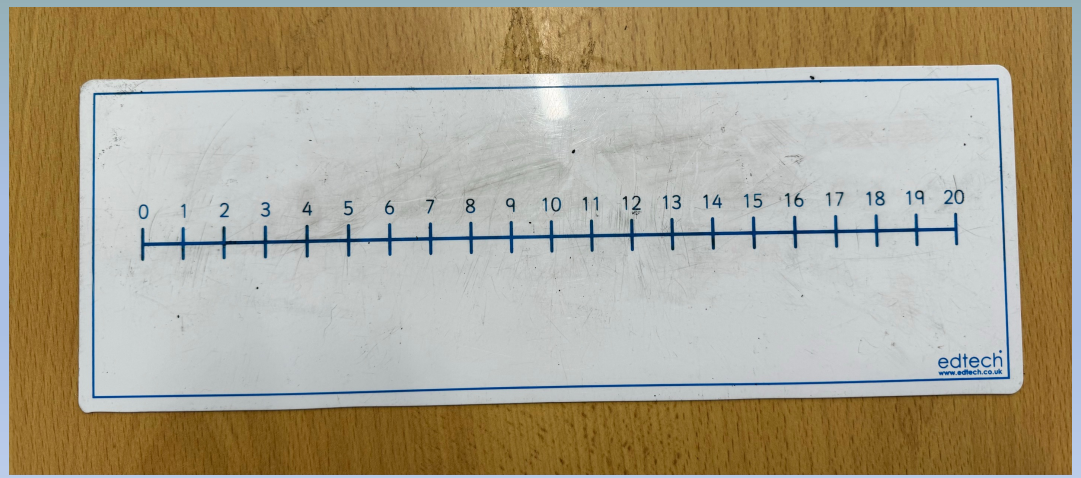
Hundred square

Bead strings

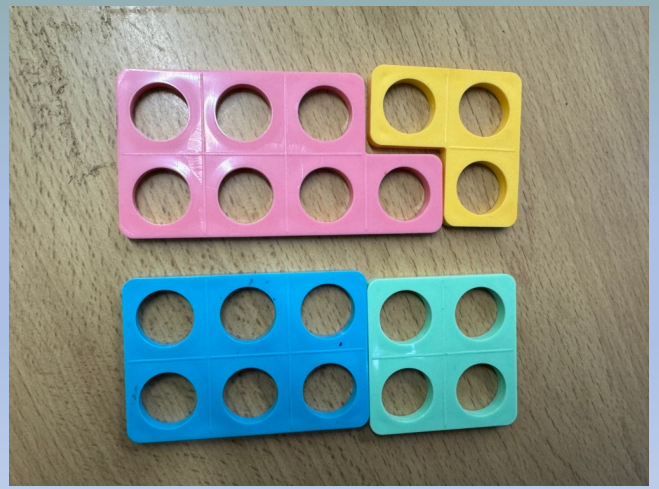


Ten Frame

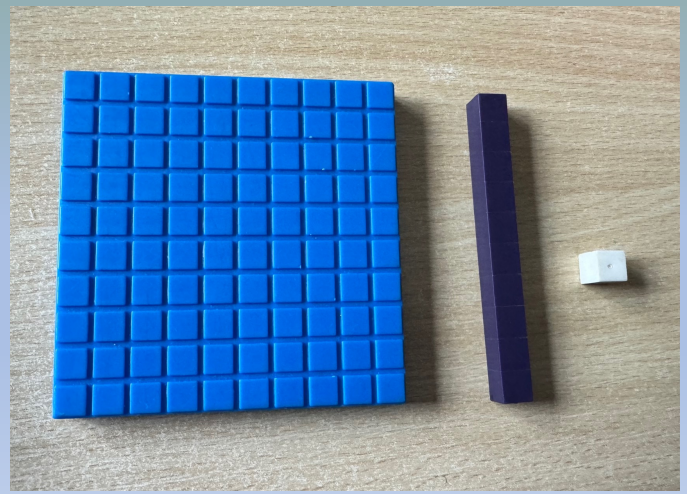
Straws



Numberline



Numicon



Dienes/ base 10

The calculations policies

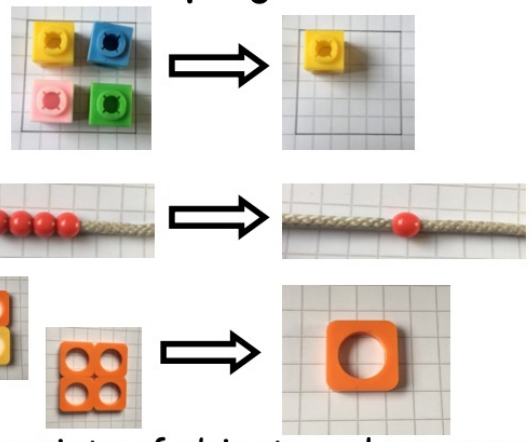
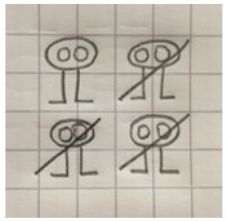
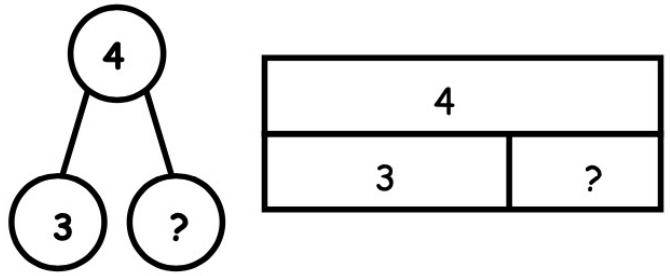
- Set out how we will teach the calculations specifically.
- It explains what manipulatives we will use when, and what strategies we will teach the children so that they understand what process is going on within the calculation.
- These can be found on our website- we'll walk through these in a moment.

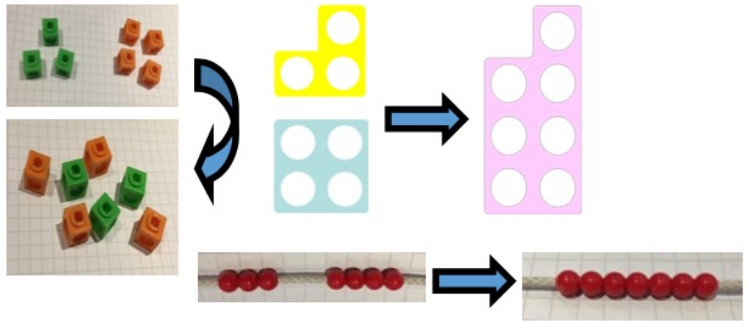
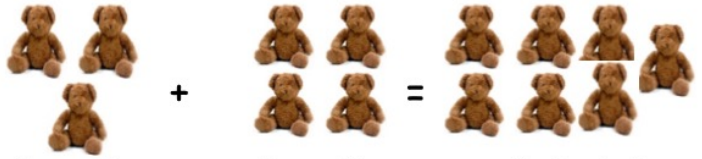
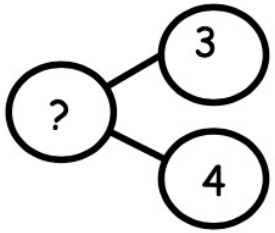
Concrete, Pictorial and Abstract

- Concrete objects help children to make sense of the concept or problem; this could be anything from cubes, counters, straws or anything else meaningful. These objects can be moved, grouped and rearranged to illustrate and support the child's growing understanding of the concept involved.
- As the child's mathematical confidence grows, they are able to draw symbols or simple pictures to represent the problem rather than needing physical objects to move around.
- The final step is to move to an abstract representation of the problem. It could involve giving values to rectangular bars (bar model), using a symbol or numbers themselves.
- These stages are a continuum and are not always worked through in a sequence. At times, children may use all three representations at once, other times they may need to recap the concrete in order to move onto the pictorial or ab- stract.
- At Hollingbourne we will ensure that a variety of representations are available for children in our lessons at all times. As they move through their mathematical journey our children will be directed less as to which representation they must use, it will be up to them to make their own choice as to how they represent their work.

What does this look like in reality?

Lets look at a couple of examples:

Concrete	Pictorial	Abstract
Physically taking away and removing objects from a whole **4 - 3**  Use a variety of objects and resources	**Pictures of concrete objects (provided or drawn by children) and cross out those being taken away**  **Use of the bar model** 	**4 - 3 = □** **□ = 4 - 3**  **Foundation Stage**

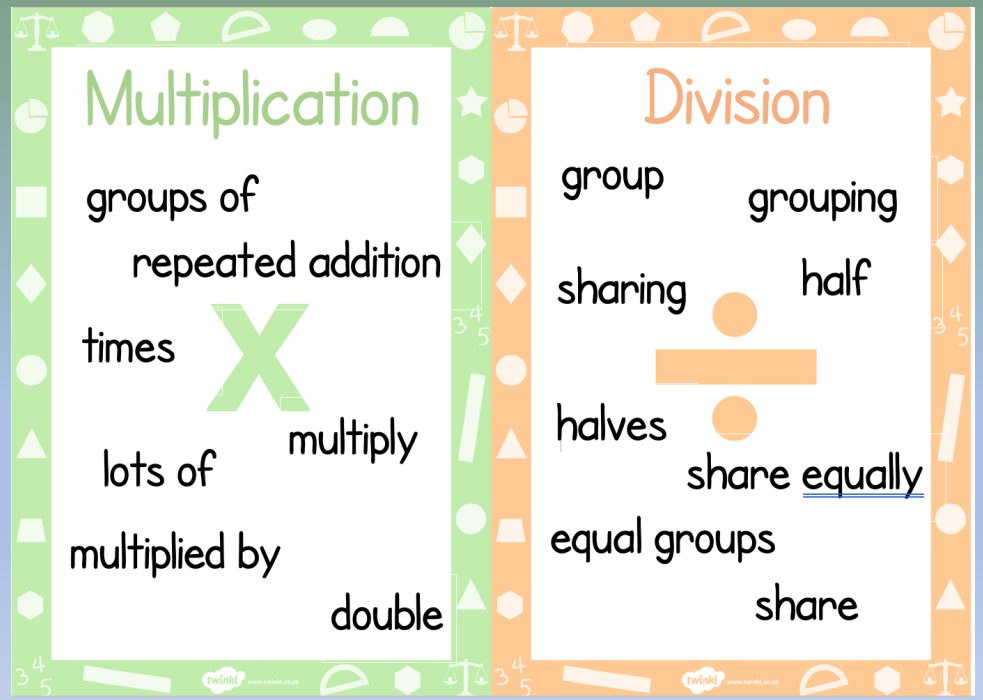
Concrete	Pictorial	Abstract
Combining two parts to make a whole  Use a variety of objects and resources	**Pictures of parts to make a whole**  (part) + (part) = (whole)	**3 + 4 = 7** (3 is a part, 4 is a part and the whole is 7)  **Foundation Stage**

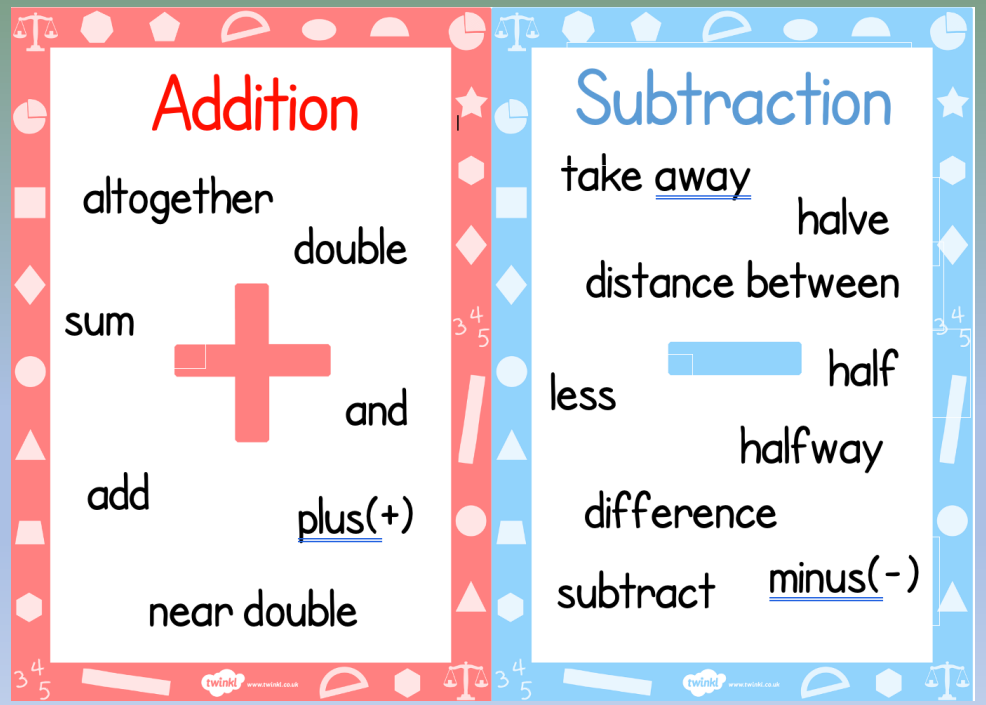
Fluency and problem solving

We use these terms a lot, but what do they mean?

The importance of vocabulary

- Children need to know the vocab to understand how to table a task/ problem





The importance of knowing and understanding mathematical language when solving a problem

18 Ben has **40** cards.

He shares them equally between **4** party bags.

How many cards does he put in each bag?

cards

Let’s have a look at the progression in calculations…

Calculate:
23+ 45=

What method did you use? How can we calculate this without column method?

Children have to be secure with place value to tackle this….

Calculate:
29+34=

This calculation is a good example of children needing to really understand the maths behind the method… why do we carry the 1?

We do not introduce formal written methods until year 3

What about if these were subtraction?

The importance of making connections and building efficiency

Adding three or more digits: 7+2+3=

19+11=

- Use of number bonds, using the nearest 10.

Manipulatives really help early on with this. Numicon in particular is a fantastic resource to use.

Confidence to subitise is also really important- understanding the ‘fiveness’ of 5 and not having to count each one individually!

Children understanding processes

Commutative laws in maths.

It doesn’t matter what order you add/ multiply, the answer will be the same.

This is not the case for subtraction/ division.

Division/ multiplication

So much rests in the children's understanding of the language.

We start with 'lots of' and 'groups of'- use of practical resources eg plates and counters and then drawings of groups.

We look at arrays.

We make connections eg repeated addition/ subtraction.

Fractions

- Start of with simple everyday language which might be used in class eg cutting an apple up- halves, quarters.
- Look at fractions of a shape- emphasizing ‘equal parts’
- Introduce language of denominator- that this tells us how many equal parts the whole has been divided into.
- This now means they can work out the fraction of a number.
- We always start with unit fractions, where the numerator will always be 1; but in Year 2 the children also learn to calculate non-unit fractions.
- Model method: ¼ of 12; ¾ of 12.- could use plates/ counters or arrays or drawing circles and dots

Any questions?