

Wootton Bassett
Infants School
Maths Presentation
For Parents
16/11/22



Teaching for Mastery

1. We ALL start the journey TOGETHER

2. Some children will need a little additional support along the way

3. Some children, who feel confident, will be let loose. They'll be able to explore deeper into the woods, before returning to the group to continue on with the journey.

5. Children will not be left behind alone and isolated.

4. Children will not be racing off ahead on a different journey.

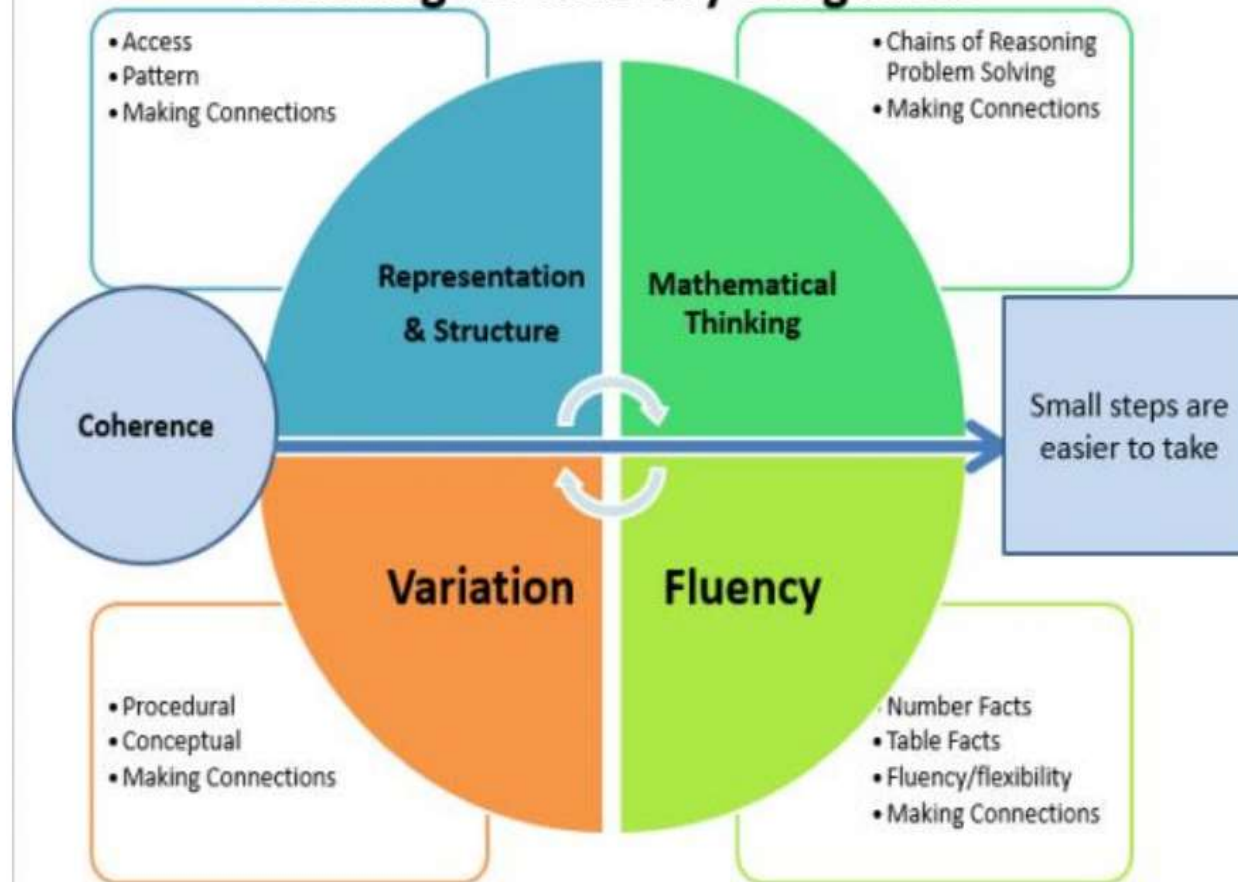


Martin Adsett
Mastery Specialist

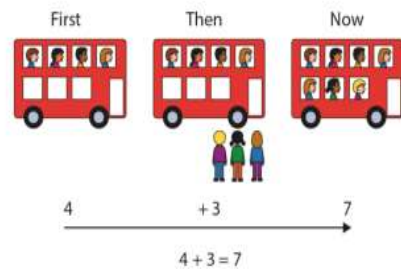
We're Going on a Maths Hunt

BACKGROUND OF MATHS MASTERY Pupils in South Asian schools are renowned for their academic prowess. In 2015, Shanghai, Hong Kong, Singapore, Japan and South Korea topped the rankings for English and maths test results, while the UK languished in 23rd place. But now, primary schools in England are adopting their method of teaching maths with the hope of improving pupils' performance.

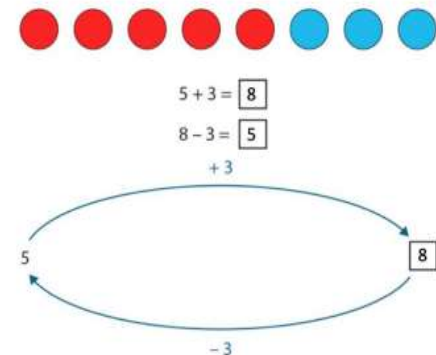
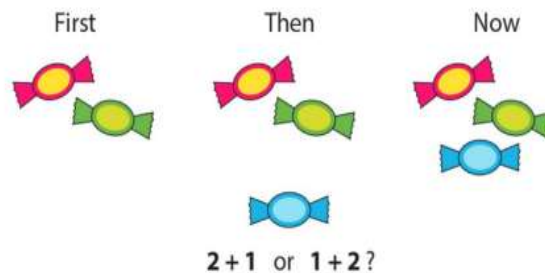
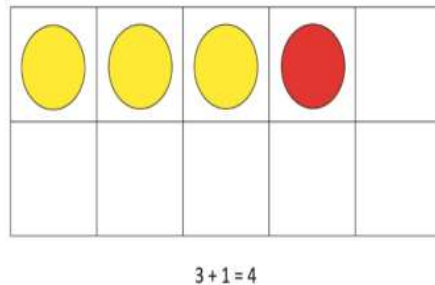
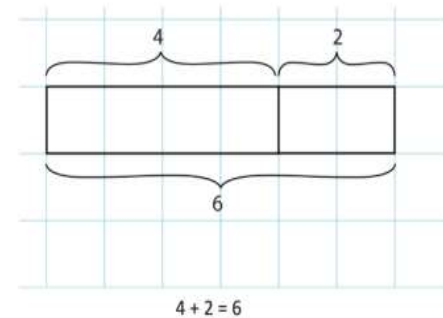
Teaching for Mastery 5 big ideas



REPRESENTATION AND STRUCTURE



Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation (NCETM, 2019).

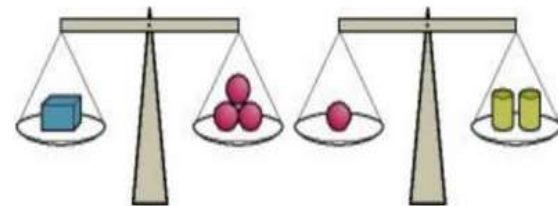


MATHEMATICAL THINKING

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others (NCETM, 2019).

▲	♣	▲	○	<input type="text"/>
♣	○	♣	▲	25
○	○	○	○	20
▲	♣	♣	▲	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	26

Each shape stands for a number. The numbers shown are the totals of the line of four numbers in the row or column. Find the remaining totals.

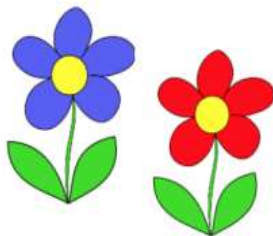


From the information shown on the scales, can you work out which object weighs the least?

VARIATION

Variation is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure (NCETM, 2019).

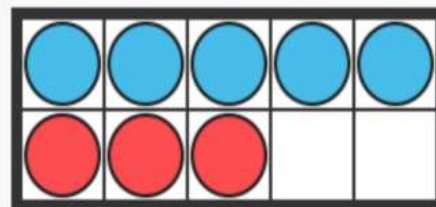
There are 3 red flowers and 5 blue flowers. How many flowers are there altogether?

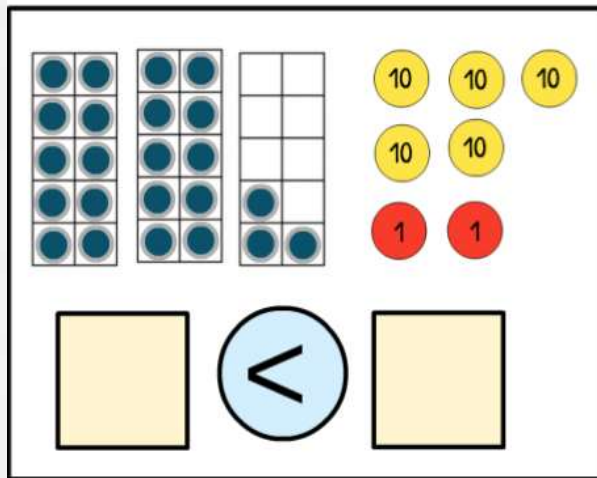


There are 8 flowers; some are red and some are blue. If three of them are red, how many are blue?



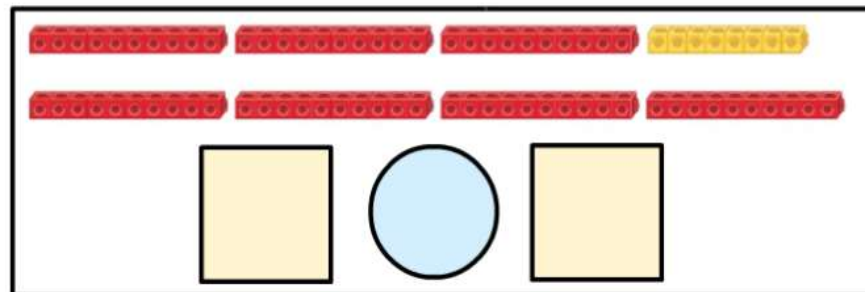
There are 8 flowers; some are red and some are blue. If there are two more blue flowers than red flowers, how many are there of each colour?



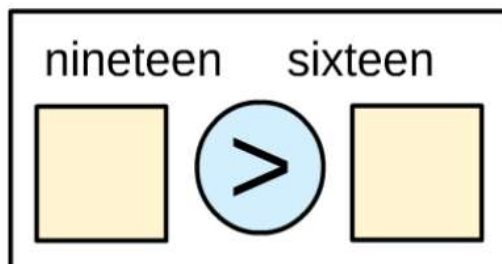


more than
30 > 20

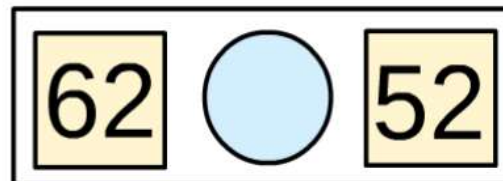
less than
12 < 15



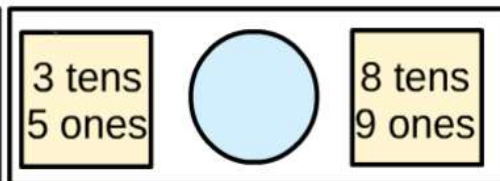
nineteen sixteen



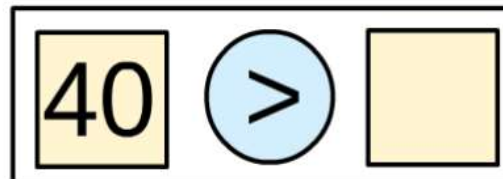
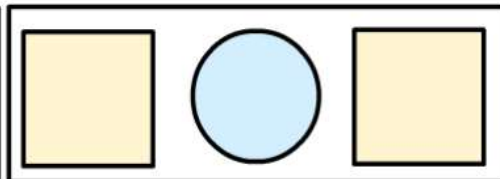
62 52



3 tens
5 ones 8 tens
9 ones



40

Times Tables Challenge:

Name: _____ Date: _____

x	5	9	2	11	8	1	12	3	4	6	10	7
8												
7												
11												
9												
12												
6												
2												
1												
4												
10												
3												
5												

			8 + 8		
		10 + 6	11 + 5	9 + 7	
7 + 9	12 + 4	3 + 3	16 + 2	5 + 11	
15 + 1	6 + 10	2 + 4	13 + 3	3 + 13	
	16 + 0	8 + 8	1 + 15		
		6 + 2			
		2 + 6			
5 + 3		1 + 7		3 + 5	
	8 + 0	4 + 4	6 + 2		
		7 + 1			

Name: _____
My 'Best Time' score was...

**BIG MATHS...
★ BEAT THAT!**

Year 1 - 30 seconds

17

9 + 9 =	8 + 8 =	2 + 8 =
3 + 7 =	6 + 2 =	6 + 6 =
5 + 2 =	7 + 7 =	7 + 2 =
6 + 3 =	4 + 3 =	1 + 9 =
9 + 2 =	5 + 5 =	4 + 2 =
4 + 6 =		5 + 3 =

Y1
1

FLUENCY

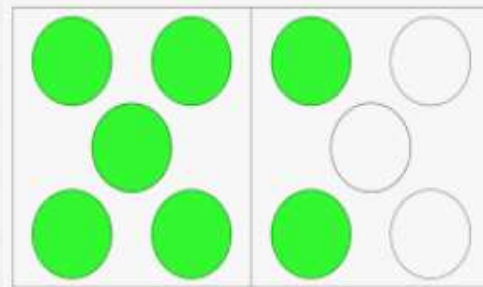
Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics (NCETM, 2019).

The National Curriculum states that pupils should become fluent in the fundamentals of mathematics through varied and frequent practice. While a part of this is about knowing key mathematical facts and recalling them efficiently, fluency means so much more than this.

Fluency gives pupils the ability to delve deeper into maths; to develop number sense and choose the most appropriate method for the task at hand; to be able to apply a skill to multiple contexts (Third Space Learning, 2019).

Mastering Number

This project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.



CPA

Children (and adults!) can find maths difficult because it is abstract. The CPA approach builds on children's existing knowledge by introducing abstract concepts in a concrete and tangible way.

It involves moving from concrete materials, to pictorial representations, to abstract symbols and problems (Maths No Problem, 2019).



CPA – CONCRETE STEP

Concrete is the 'doing stage'. During this stage, children use concrete objects to model problems.

Unlike traditional maths teaching methods where teachers demonstrate how to solve a problem, the CPA approach brings concepts to life by allowing children to experience and handle physical (concrete) objects.

With the CPA framework, every abstract concept is first introduced using physical, interactive concrete materials (Maths No Problem, 2019).

For example, if a problem involves adding paintbrushes, children can first handle paintbrushes. From there, they can progress to handling abstract counters or cubes which represent the paintbrushes.

SOME OF THE
CONCRETE RESOURCES
THAT WE USE IN
SCHOOL

MULTILINK CUBES



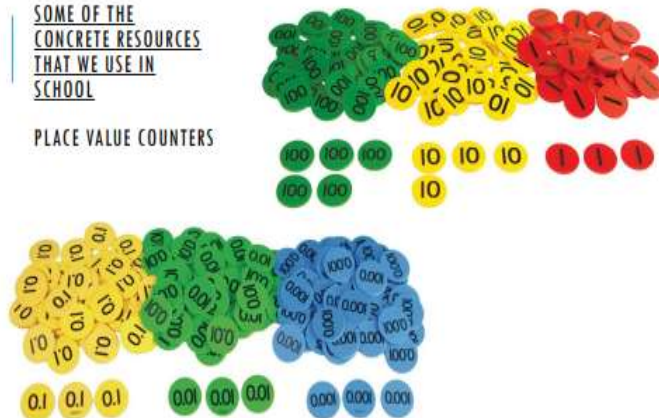
SOME OF THE
CONCRETE RESOURCES
THAT WE USE IN
SCHOOL

NUMICON



SOME OF THE
CONCRETE RESOURCES
THAT WE USE IN
SCHOOL

PLACE VALUE COUNTERS



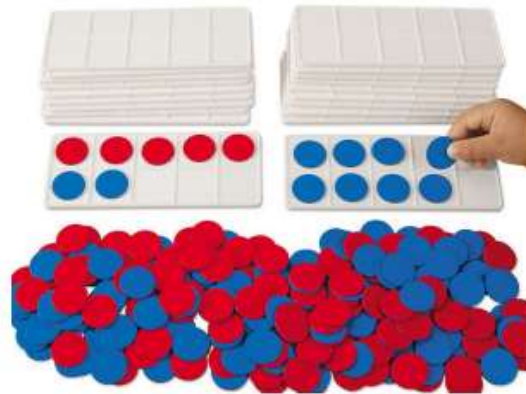
SOME OF THE
CONCRETE RESOURCES
THAT WE USE IN
SCHOOL

BASE 10 EQUIPMENT



SOME OF THE
CONCRETE RESOURCES
THAT WE USE IN
SCHOOL

TENS FRAMES AND
DOUBLE SIDED COUNTERS



SOME OF THE
CONCRETE RESOURCES
THAT WE USE IN
SCHOOL

BEAD STRINGS



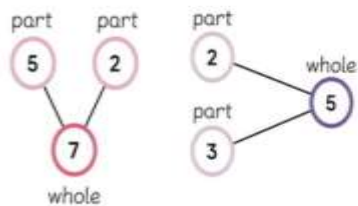
BUT REALLY THERE IS NO END TO THE
CONCRETE RESOURCES WE/YOU CAN YOU USE

CPA — PICTORIAL STEP

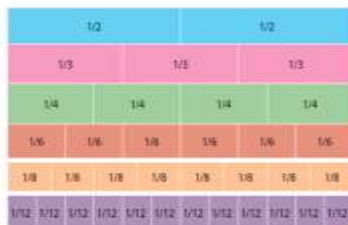
Pictorial is the 'seeing' stage. Here, visual representations of concrete objects are used to model problems. This stage encourages children to make a mental connection between the physical object they just handled and the abstract pictures, diagrams or models that represent the objects from the problem.

Building or drawing a model makes it easier for children to grasp difficult abstract concepts (e.g. fractions). Simply put, it helps the children visualise abstract problems and makes them more accessible (Maths No Problem, 2019).

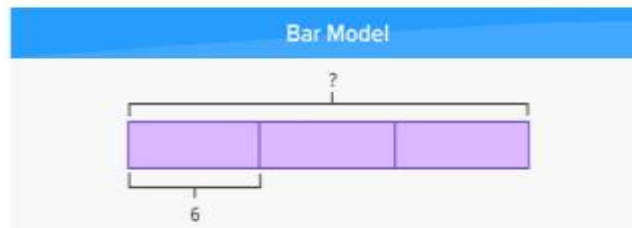
EXAMPLES OF MODELS AND DIAGRAMS



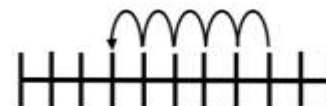
Part-whole model



Fraction wall

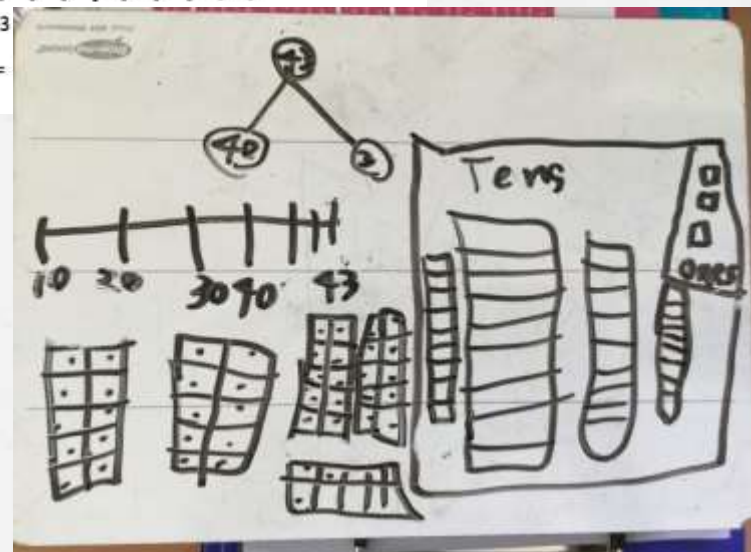


Question: What is 3 - 5?



Answer =

Showing the number 43



CPA – ABSTRACT STEP

Abstract is the 'symbolic' stage, where children use abstract symbols to model problems. They will not progress to this stage until they have demonstrated that they have a solid understanding of the concrete and pictorial stages of the problem.

The abstract stage involves the teacher introducing abstract concepts (e.g. mathematical symbols). Children are introduced to the concept at a symbolic level, using only numbers, notation, and mathematical symbols

(e.g. $+$, $-$, \times , \div) to indicate addition, subtraction, multiplication or division.

Top tips for parents and families:

Be positive about maths. Don't say things like "I can't do maths" or "I hated maths at school"; your child might start to think like that themselves.

Point out the maths in everyday life. Include your child in activities involving maths such as using money, cooking and travelling.

Praise your child for effort rather than talent - this shows them that by working hard they can always improve.

Teaching for Mastery



We're Going on a Maths Hunt

*We're **Not Scared***

