Maths Mastery

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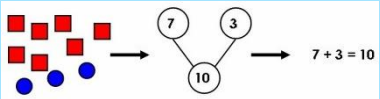
What are the issues that children face in Maths?



What is Maths mastery?

Teaching maths for mastery is a transformational approach to maths teaching which stems from high performing Asian nations such as Singapore.

When taught to master maths, children develop their mathematical fluency without resorting to rote learning and are able to solve non-routine maths problems without having to memorise procedures.

Maths Mastery

A mastery curriculum often involves whole-class teaching, with all pupils being taught the same concepts at the same time.

Small-group work typically involves challenge through greater depth for the more able and support with grasping concepts and methods for less-able pupils.

Maths Mastery

The essential idea behind the mastery teaching approach is that ***all pupils*** gain a deep understanding of the mathematics. This ensures that:

- *future* mathematical learning is built on *solid foundations* which do not need to be re-taught (less breadth but greater depth)

- Increasingly, there will be less *need* for separate catch-up programmes due to some children falling behind;

- pupils who, under other teaching approaches, can often fall a long way behind, are better able to keep up with their peers, so that gaps in attainment are narrowed whilst the attainment of all is raised.

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Levels of learning

Shallow learning: surface, temporary, often lost

Deep learning: it sticks, can be recalled and used

Deepest learning: can be transferred and applied in different context

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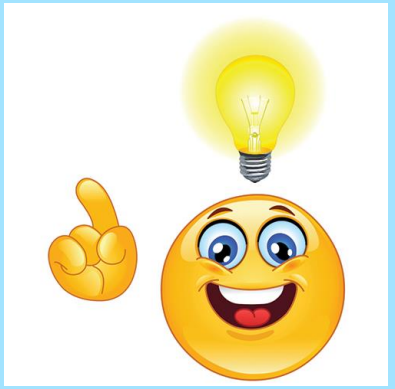

Activity 1

Using a white piece of paper – cut a whole in it so that everyone in your group can go through it.

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Never give up!

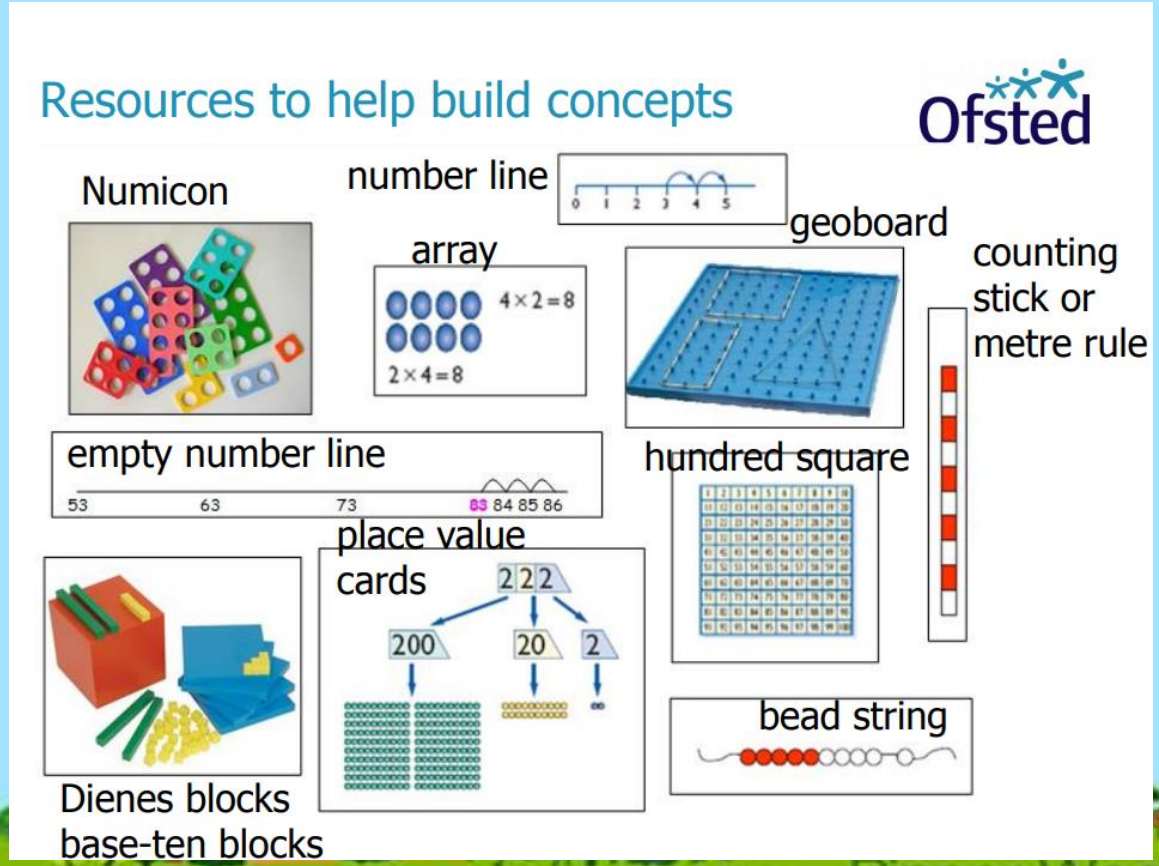
Perseverance

Resilience

Pinner Wood School

Maths Mastery

Supporting the Maths Mastery Curriculum



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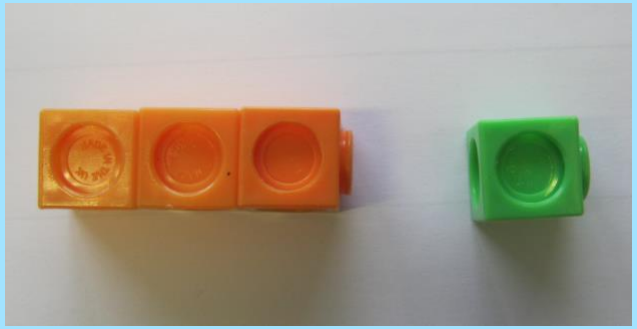
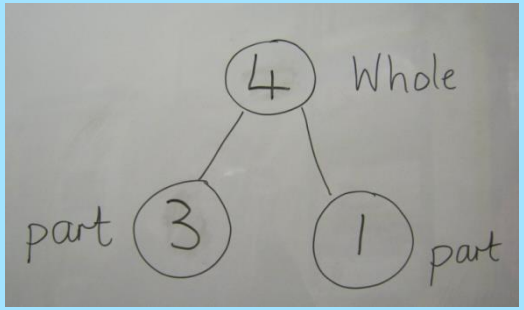
Concrete



Pictorial



Abstract

3 + 1 = 4

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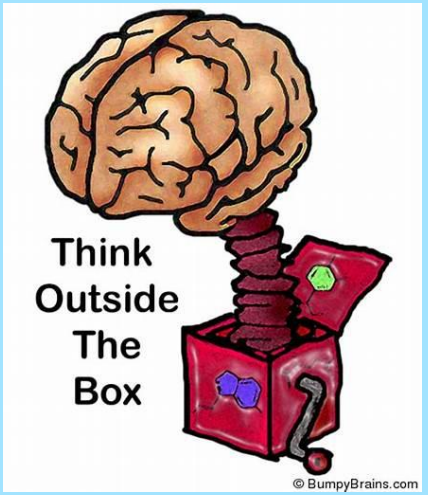
Activity 2



23, 20, 15, 25

Which number is the odd one out and why?
I am looking for 10 solutions.

Choose one solution that you think that no other group will have.

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Activity 3:

Give one fact e.g 3 x 8.

How many other facts can you find from this?

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‘It is better to have 5 ways of answering one question than one way of answering 5 questions!’
– Singapore Maths

Year 2

Maths Mastery

Activity 4:

Jamie selects four of these coins.

He can use the coins more than once.

What total could he make?

What is the lowest total?

What is the greatest total?

Open ended
Might have more then 1 solution

Activity 5:

Dan thinks he has £13.

Is he correct?

Explain why.

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Difference between mastery (accessible by all children) and mastery with greater depth.

Mastery	Mastery with Greater Depth
Calculate 36·2 + 19·8 ■ with a formal written column method ■ with a mental method, explaining your reasoning.	Jasmine and Kamal have been asked to work out 5748 + 893 and 5748 – 893. Jasmine says, '893 is 7 less than 900, and 900 is 100 less than 1000, so I can work out the addition by adding on 1000 and then taking away 100 and then taking away 7.' What answer does Jasmine get, and is she correct? Kamal says, '893 is 7 less than 900, and 900 is 100 less than 1000, so I can work out the subtraction by taking away 1000 and then taking away 100 and then taking away 7.' What answer does Kamal get, and is he correct? If you disagree with either Jasmine or Kamal, can you correct their reasoning?

Taken from: www.mathshubs.co.uk

Maths Mastery

A new way of thinking and teaching

Whole class moves through content at the same pace

When teaching maths for mastery, the whole class moves through topics at broadly the same pace. Each topic is studied in depth and the teacher does not move to the next stage until all children demonstrate that they have a secure understanding of mathematical concepts.

Time to think deeply about the maths

Students are given time to think deeply about the maths and really understand concepts at a relational level rather than as a set of rules or procedures. This slower pace leads to greater progress because it ensures that students are secure in their understanding and teachers don't need to revisit topics once they've been covered in depth.

Builds self-confidence in learners

In a traditional primary school maths lesson, children are put in different groups and given different content based on their anticipated ability. This means that from an early age children are classed as those who can and can't "do maths". Teaching maths for mastery is different because it offers all pupils access to the full maths curriculum. This inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils.

Activity 6

Magic Crosses

Age 7 to 14

Here are pictures of two crosses:

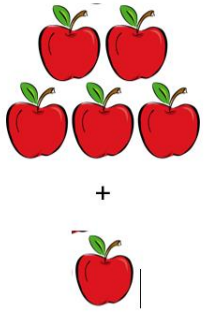
What do you notice about the two crosses?
What is the same?
What is different?

Maths Working Wall

Super 6!

5 + 1 =

Draw it



Story it

My mum gives John 5 sweets and his brother Bob 1 sweet. They have 6 altogether.

Explain it

I know the answer is...

because...

Prove it

6 = 5 + 1

1 + 5 = 6

6 – 1 = 5

6 – 5 = 1

Invent a new method

3 + 3 = 6

4 + 2 = 6

2 + 4 = 6

Act it

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There are many places to go for help. Lots of websites that offer Maths Mastery resources.

Twinkl

https://www.mathematicsmastery.org/

NCETM

NRICH

White Rose

Questions