Maths Workshop for Parents at Barlow Primary School

By Mrs Phipps, February 27th 2019

Aims:

1. **To make parents more familiar with the Mastery Curriculum for Mathematics** and our use of a Mastery Approach to teaching Maths.

2. **To enable parents to better support their child's mathematical development at home**. Increase understanding of mental methods, images used and how to enable your child (and you) to develop a 'Growth Mindset'.

The 2014 Maths Curriculum

- Mastery Curriculum- New Programmes of Study for each year group that a child has to 'master'.
- More Challenging- harder concepts at a younger age.
- Emphasis is on deeper understanding.

What is a Mastery Curriculum?
What is a Mastery Approach?

National Centre for Excellence in the Teaching of Mathematics

Mastery is something that we want pupils to acquire. **All pupils**. The Government has recommended that schools adopt a 'Mastery Approach' to teaching Maths for the 2014 curriculum

Mastery of Maths means a deep, long-term, secure and adaptable understanding of the subject. Three **elements of Mastery:**

1. **fluency** (rapid and accurate recall and application of facts and concepts)
2. a growing confidence to **reason** mathematically
3. the ability to **problem solve** (hypothesize, test, prove)

Implications of a Mastery Approach…

National Centre for Excellence in the Teaching of Mathematics

1. Move away from labelling pupils as ‘high ability’ or ‘low ability’ and instead giving the children tasks that follow ‘intelligent practice’ where questions become increasingly more in depth, offering them different ways of approaching the problem or finding a solution.

2. Children need to develop a Growth Mindset- curriculum is harder and all need to ‘master’ everything. Children need to develop: independence, perseverance, resilience and belief that they can grow their brains

3. Reduce the amount of mathematical topics but take longer over each one, so that early understanding is cemented more securely.

Just some of the things we do at Barlow Primary…

- Maths Mastery through White Rose soon to be 'Power Maths'
- Big Maths Weekly
- Individual focus homework in Reception, Maths mats in KS1 and Scofield and Sims arithmetic focus in KS2
- Quick Fire Facts 'Learn its' in KS1 and 'Fluency in Five' in KS2 daily
- Times table Rockstars and fortnightly awards
- Prodigy Maths online

Big Maths Beat That…

Shall we have a go?

Developing fluency in

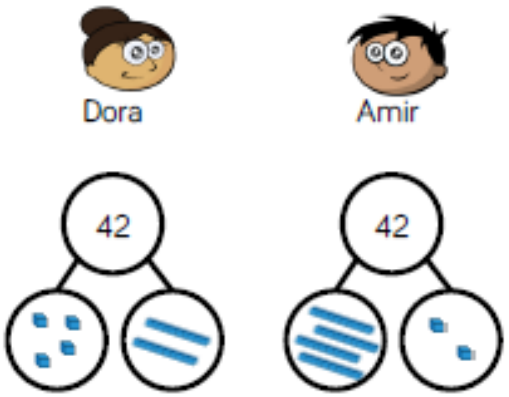
Addition and subtraction…

Multiplication and division…

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

An example of reasoning and problem solving…

Dora and Amir both try to build the same number.



Who is correct?

Can you explain the mistake that has been made?

Year 1, Spring WRM

Mo and Teddy are solving:

$$\frac{6}{13}+\frac{5}{13}+\frac{7}{13}$$

Mo

The answer is 1 and $\frac{5}{13}$

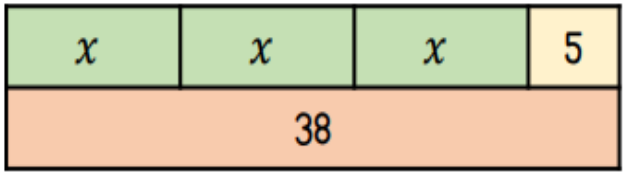
Teddy

The answer is $\frac{18}{13}$

Who do you agree with?
Explain why.

Year 4, Spring WRM

Nina uses a bar model to solve $3x + 5 = 38$



Solve the equation $3x + 5 = 38$

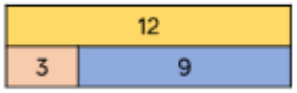
Year 6, Spring WRM Assessment

Mastery Approach to Teaching New Concepts

1. Concrete
2. Pictorial
3. Abstract

Using concrete apparatus, can you talk about the relationships between the different flowers?

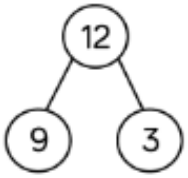
Which of the representations are equivalent to the bar model?



$12 = 9 + 3$

There are 9 cars in a car park, 3 cars leave.

$9 - 3 = 12$



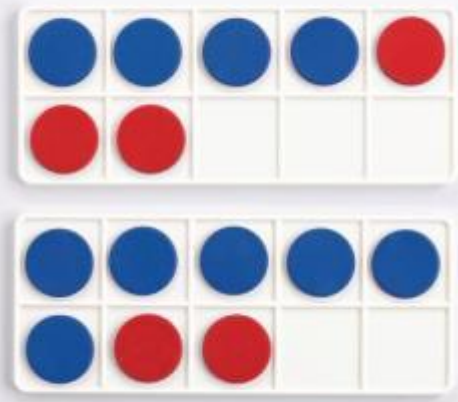
Both missing numbers are less than 10

$7 + \square < 7 + \square$

How many different possible answers can you find?

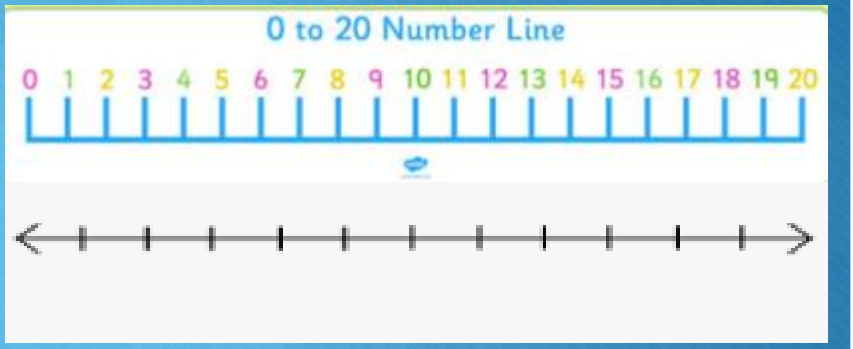
Just a few of the concrete tools we use to support children that you can use too…

Tens frames



Beads strings

Numberlines…

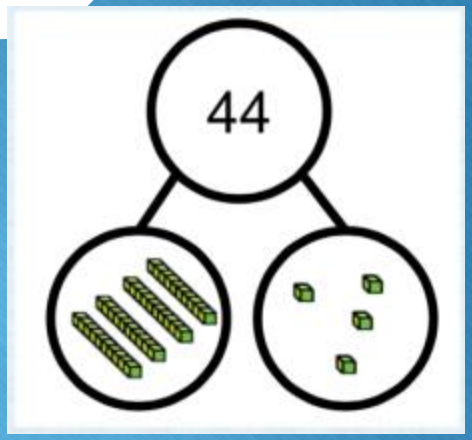


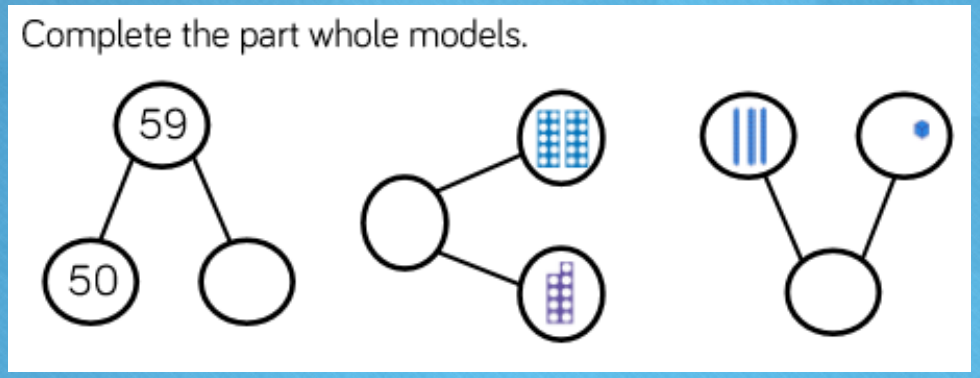
Double-sided counters

Numicon

A Pictorial Representation:

Part, Part, Whole…





It is a mathematical representation of a problem.. A way of modelling …

- the knowns and unknowns.
- the parts and the whole.

It is a representation that **reveals the relationship of the numbers.**

It is **not** a calculating tool.

A Pictorial Representation:

The bar model…

It is a mathematical representation of a problem.. A way of modelling …
the knowns and unknowns.
the parts and the whole.

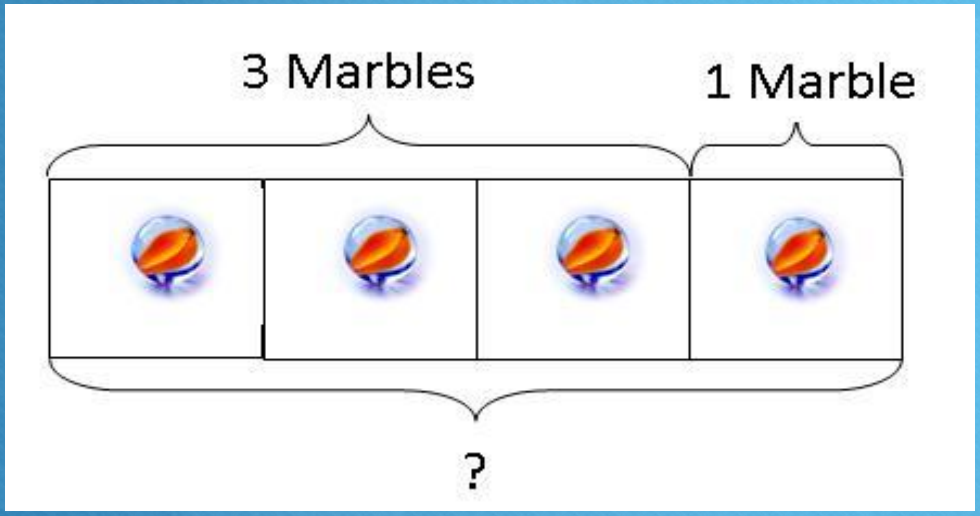
It is a representation that **reveals the structure** of a word problem.

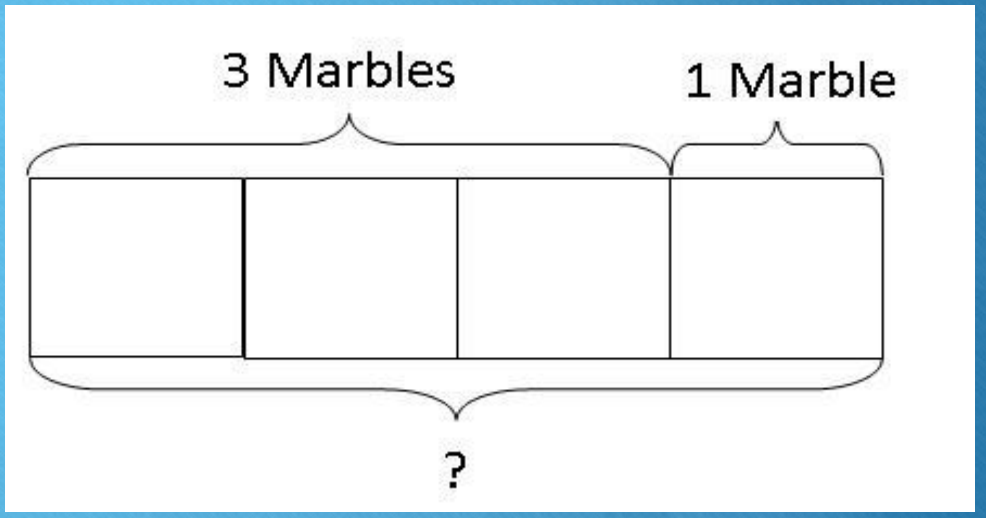
It is **not** a calculating tool.

Peter has 3 marbles.

Harry gives Peter 1 more marble.

How many marbles does Peter have now?

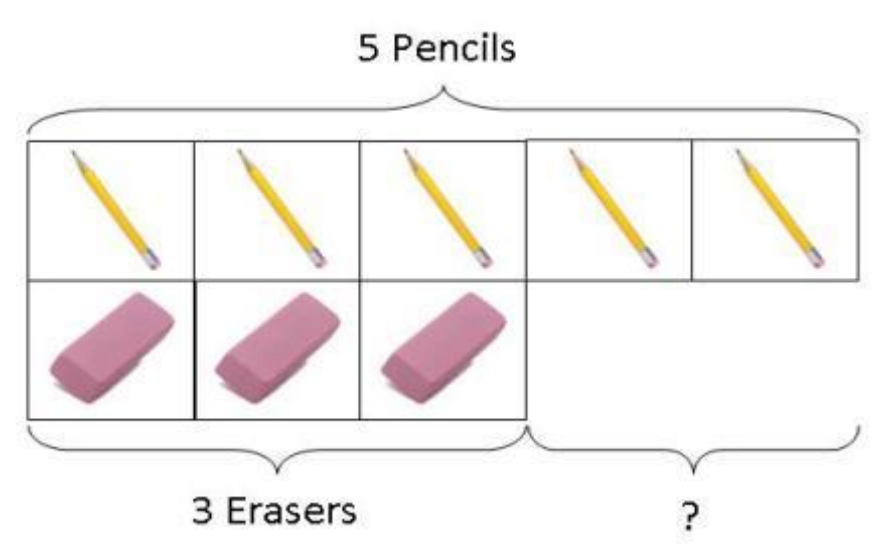


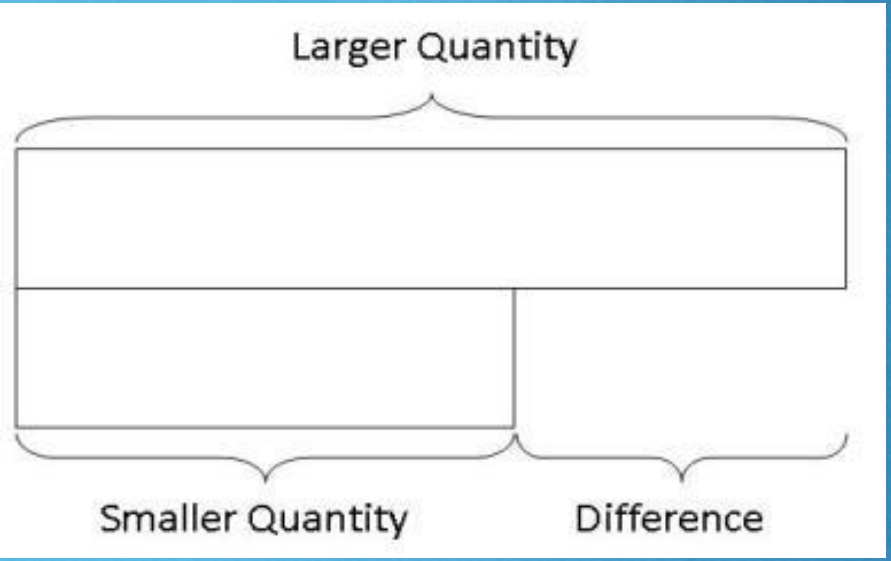


Concrete → Abstract

Peter has 5 pencils and 3 rubbers.

How many more pencils than rubbers does he have?





How can you help at home?

+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6	4 + 7	4 + 8	4 + 9	4 + 10
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5	5 + 6	5 + 7	5 + 8	5 + 9	5 + 10
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4	6 + 5	6 + 6	6 + 7	6 + 8	6 + 9	6 + 10
7	7 + 0	7 + 1	7 + 2	7 + 3	7 + 4	7 + 5	7 + 6	7 + 7	7 + 8	7 + 9	7 + 10
8	8 + 0	8 + 1	8 + 2	8 + 3	8 + 4	8 + 5	8 + 6	8 + 7	8 + 8	8 + 9	8 + 10
9	9 + 0	9 + 1	9 + 2	9 + 3	9 + 4	9 + 5	9 + 6	9 + 7	9 + 8	9 + 9	9 + 10
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10

ASHLEY DOWN SCHOOLS FEDERATION

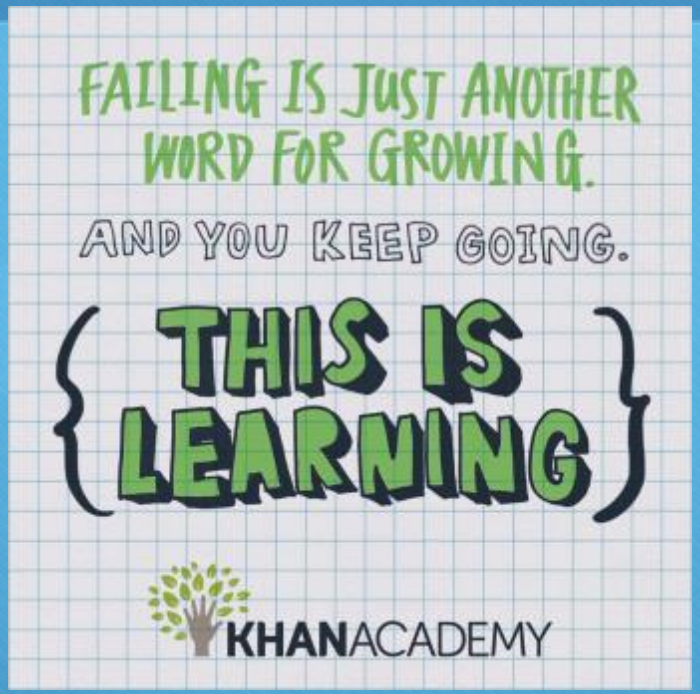
Learn the facts together – talk about strategies, talk about number and practise together. Always support practically – this should never go away (see packs)

Use games as a way to practise too, both family board games and online apps (see pack)- learning to subitise.

'Prodigy Maths' is free and fun, TT Rockstars 'little but often'

Develop a Growth Mindset

Developing a Growth Mindset…



DEVELOPING A GROWTH MINDSET

INSTEAD OF.....	TRY THINKING....
I'm not good at this	What am I missing?
I give up	I'll use a different strategy
It's good enough	Is this really my best work?
I can't make this any better	I can always improve
This is too hard	This may take some time
I made a mistake	Mistakes help me to learn
I just can't do this	I am going to train my brain
I'll never be that smart	I will learn how to do this
Plan A didn't work	There's always Plan B
My friend can do it	I will learn from them

A few websites you might like…

https://www.bbc.co.uk/cbeebies/grownups/help-your-child-try-new-things - cbeebies growth mindset

https://www.khanacademy.org/math/early-math - online maths help for everything.

https://www.mathplayground.com/thinkingblocks.html - more about bar models and fun problems

https://play.prodigygame.com/ - we've made them an account, it's free and motivational.

Are there any questions?

Thank you so much for coming!

Please leave me your feedback.