



Maths workshop

16.1.24



Has maths changed?

- ▶ <https://whiteroseeducation.com/parent-pupil-resources/maths/maths-with-michael#watch>
 - ▶ Further videos in this series will be on the school website after the workshop
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Ways not to overload working memory in maths

- ▶ Subitise – recognise number patterns/groups and **not** only use counting.
- ▶ Learn number bonds constantly even when you know them so that they are instantly remembered/pictured/represented in your long-term memory for recall.
- ▶ Learn times tables over and over for instant recall and understanding.
- ▶ Know equal parts of a whole number are fractions. Use the phrase ‘part of a whole’ in different ways e.g. a Lego brick is part of the whole model.
- ▶ Know place value and be able to partition numbers using ones, tens and hundreds.



What is maths mastery?

- Mastering maths means pupils gaining a deep, long-term, secure and adaptable understanding of the subject.
 - The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths.
 - Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material.
 - Concepts are taught in small chunks, and built on, to develop a secure understanding and not overload working memory.
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EYFS and KS1 Mastering number

➔ <https://www.youtube.com/watch?v=WFySD7xq06Q>

(First 4 mins)

Mastering Number

Year 1

Term 1

Week 6

Focus: Composition

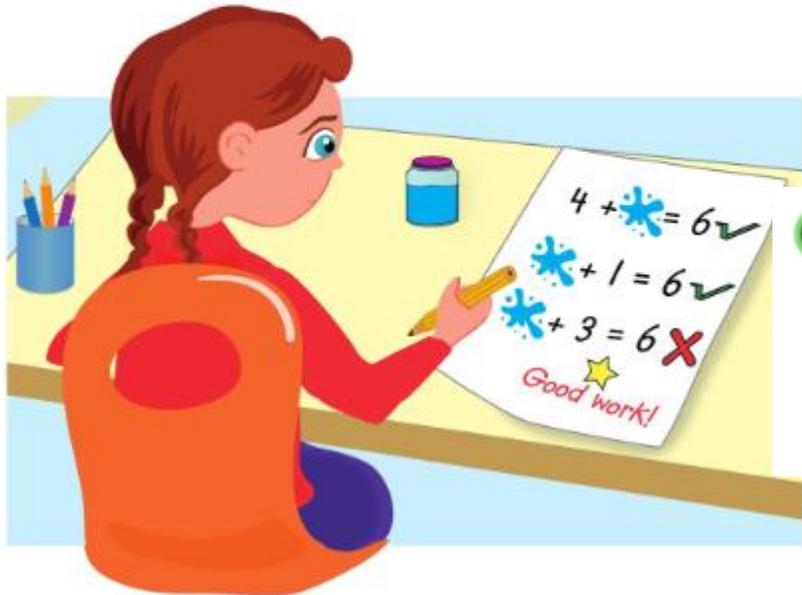
A mastery lesson using Powermaths

How do mathematicians solve missing number problems? (Year 1 Unit 7)

Children are asked what they notice about the picture.

Missing number problems

Discover



1 a) What is the missing number?

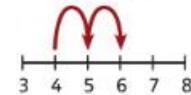
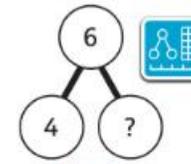
$$4 + * = 6$$

b) What is the missing number?

$$* + 1 = 6$$

Share

a) $4 + * = 6$

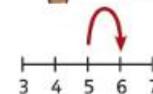
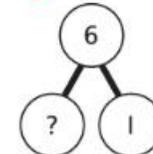


I thought about it as 4 add something is 6.

$$4 + 2 = 6.$$

The missing number is 2.

b) $* + 1 = 6$



I thought about it as something add 1 is 6.

$$5 + 1 \text{ more is } 6.$$

The missing number is 5.

The teacher then 'thinks aloud' the process for solving these problems, drawing attention to the representations and models that can be used when solving a problem.

Think together

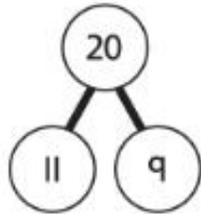
- 1 Use the part-whole model to work out the missing numbers.

$$11 + \square = 20$$

$$9 + \square = 20$$

$$20 - \square = 11$$

$$20 - \square = 9$$



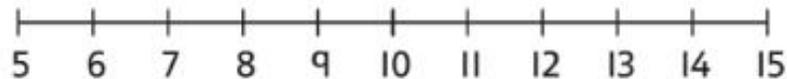
- 2 Use the number line to work out the missing numbers.

$$6 + \square = 9$$

$$6 + \square = 11$$

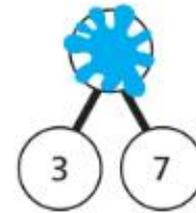
$$12 - \square = 8$$

$$12 - 8 = \square$$



Children complete 'Think together' questions as paired work. This is followed by whole class discussion and asking the children to explain how they found the answer.

- 3 a) Work out the missing numbers.

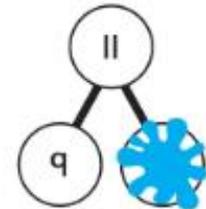


$$3 + 7 = \text{snowflake}$$

$$7 + 3 = \text{snowflake}$$

$$\text{snowflake} - 3 = 7$$

$$\text{snowflake} - 7 = 3$$



$$9 + \text{snowflake} = 11$$

$$\text{snowflake} + 9 = 11$$

$$11 - \text{snowflake} = 9$$

$$11 - 9 = \text{snowflake}$$

I can use counters or drawings to work out the missing whole or part.



- b) Now try these.

$$5 + \text{snowflake} = 9$$

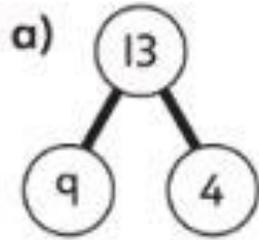
$$\text{snowflake} - 5 = 8$$

$$\text{snowflake} + 4 = 17$$

$$19 - \text{snowflake} = 10$$



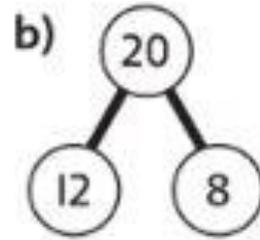
1 Complete the missing numbers.



$$9 + \square = 13$$

$$4 + \square = 13$$

$$4 + 9 = \square$$



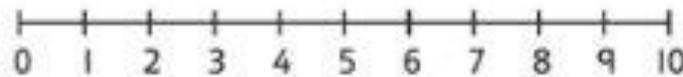
$$12 + \square = 20$$

$$8 + \square = 20$$

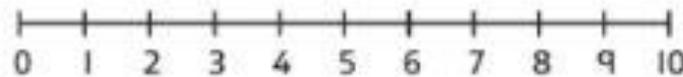
$$12 + 8 = \square$$

2 Complete the missing numbers.

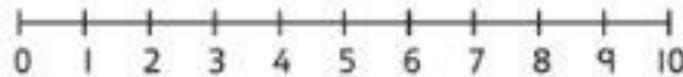
a) $3 + \square = 5$



b) $\square + 4 = 5$



c) $1 + \square = 9$



Children should now feel confident enough to complete the questions in the workbook independently.

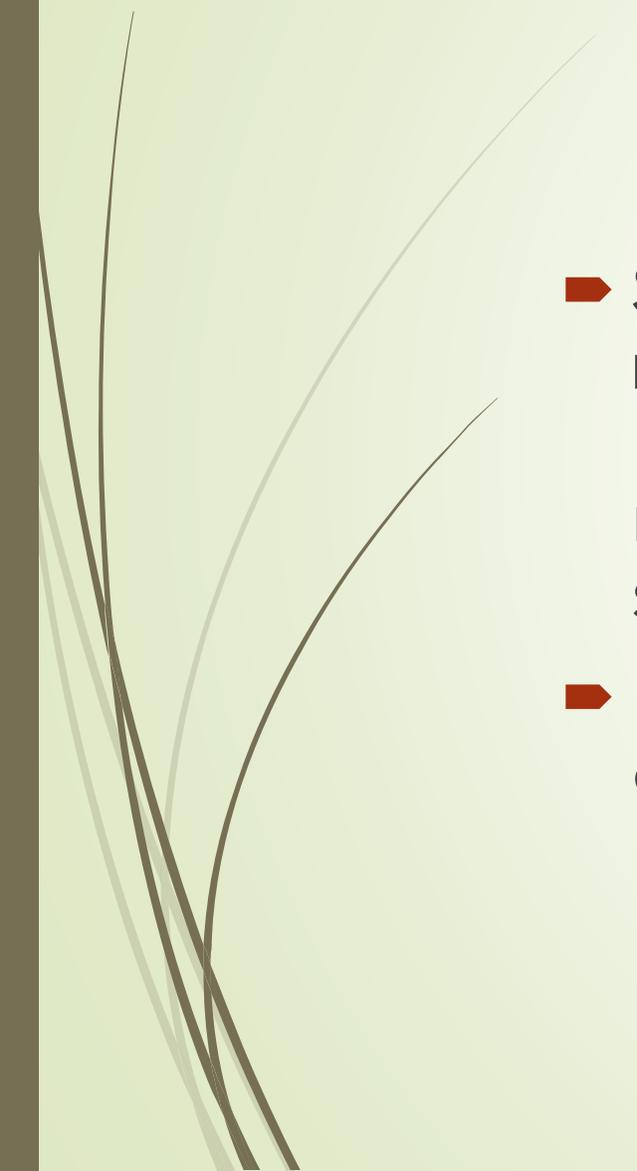


Representations/equipment

- Rekenrek
 - Subitise
 - Tens frame
 - Number lines
 - 100 square
 - Part whole model
 - Bar models
 - Base 10/dienes, ones, hundreds
 - Place value counters
- 



Maths home learning support

- Supporting and encouraging children with regular routines, setting goals e.g. counting forwards and backwards confidently, knowing number bonds....., managing time, working through problems step by step,
 - Using maths vocabulary with your child and encouraging them to use it in a sentence.
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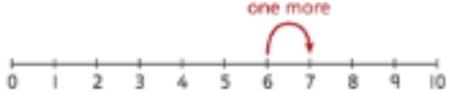
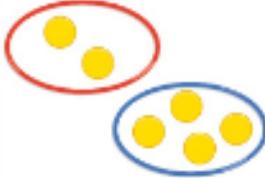
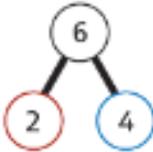
Vocabulary and using whole sentences

- Practise explaining, saying and using maths vocabulary. Key vocabulary lists for each year group, broken into relevant units, are available on the school website.

Key vocabulary list – Year 1

Textbook and unit	Key vocabulary highlighted in this unit	New vocabulary
1A Unit 1: Numbers to 10	sort groups one more one less count on count back count up smallest most greatest fewer fewest pattern less than (<) greater than (>) equal to (=) number line	sort groups count on one more pattern count up count back one less fewer greater than fewer than equal to most fewest smallest greatest number line
1A Unit 2: Part-whole within 10	group part whole number sentence part-whole model in total altogether plus	in total part whole part-whole model number sentence plus number bond altogether
1A Unit 3: Addition within 10	altogether in total add added missing part count on number stories	add added number stories missing part

Calculation policies can also be found on the school website.

Year 1			
	Concrete	Pictorial	Abstract
Year 1 Addition			
Counting and adding more	<p>Children add one more person or object to a group to find one more.</p>	<p>Children add one more cube or counter to a group to represent one more.</p>  <p><i>One more than 4 is 5.</i></p>	<p>Use a number line to understand how to link counting on with finding one more.</p>  <p><i>One more than 6 is 7. 7 is one more than 6.</i></p> <p>Learn to link counting on with adding more than one.</p>  <p>$5 + 3 = 8$</p>
Understanding part-part-whole relationship	<p>Sort people and objects into parts and understand the relationship with the whole.</p>  <p><i>The parts are 2 and 4. The whole is 6.</i></p>	<p>Children draw to represent the parts and understand the relationship with the whole.</p>  <p><i>The parts are 2 and 4. The whole is 6.</i></p>	<p>Use a part-whole model to represent the numbers.</p>  <p>$2 + 4 = 6$</p>

