

Mathematics Mastery Workshop

Thursday 8th December
2016

- To gain an insight into the Maths Mastery Programme of Study for Year 1 and 2.
- To gain an understanding of the National Curriculum Assessments
- To give ideas for supporting your child at home

National Curriculum Reform

In mathematics there will be additional stretch, with much more challenging content than in the current National Curriculum. We will expect pupils to be more proficient in arithmetic, including knowing number bonds to 20 by Year 2 and times tables up to 12×12 by the end of Year 4. The development of written methods - including long multiplication and division - will be given greater emphasis, and pupils will be taught more challenging content using fractions, decimals and negative numbers so that they have a more secure foundation for secondary school.

A Maths Mastery Curriculum

- ❖ High expectations for every child
- ❖ Few topics, greater depth
- ❖ Number sense and place value come first
- ❖ A research based curriculum
- ❖ The use of objects and pictures before number and letters
- ❖ Problem solving is central
- ❖ Language and Communication lead to understanding
- ❖ Challenge is provided through an increased depth, rather than acceleration of content

Concrete-Pictorial-Abstract (C-P-A) approach

Jerome Bruner - three steps (or representations) necessary for pupils to develop understanding of a concept.

Reinforcement is achieved by going back and forth between these representations.

Concrete- The DOING

A child is first introduced to an idea or a skill by acting it out with real objects. This is a 'hands on' component using real objects and it is the foundation for conceptual understanding.

Pictorial-The SEEING

A child has sufficiently understood the hands-on experiences performed and can now relate them to representations, such as a diagram or picture of the problem.

Abstract – The SYMBOLIC

A child is now capable of representing problems by using mathematical notation, for example: $12 \div 2 = 6$

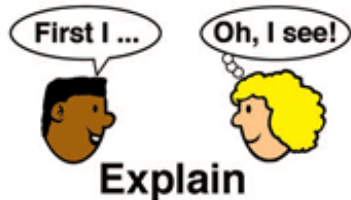
Abstract representation

- ❖ Symbolic stage
- ❖ Numbers, letters and symbols
- ❖ “I did it in my head”
- ❖ Most formal stage of mathematical understanding
- ❖ Efficient way of representing the maths

| Tens | Ones |
|------|------|
| | |

Maths Challenges!

'Reason it'



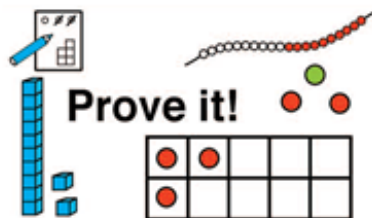
Explain how you know to your partner. Remember to use the star words!

'What's the question?'



If this is the answer, what could the question have been?

'Prove it'



Convince me that you are right.

'What's wrong with this?'



Can you explain what is wrong in the example below and correct the error?

'Find a pattern'



'Before and after'



What came before? What comes next? Can you explain how you know?

'Draw it'



Draw a picture to explain or demonstrate what you have worked out.

'Odd one out'



Find an odd one out and explain why it does not fit.

'Tell a story'



Make up a real-life story using your equation, numbers or shapes.

'Empty box question'



What goes in the empty box?

$$35 \div 5 = \boxed{}$$

$$\frac{1}{2} \text{ of } 30 = \boxed{}$$

$$\frac{3}{4} \text{ of } 40 = \boxed{}$$



2p



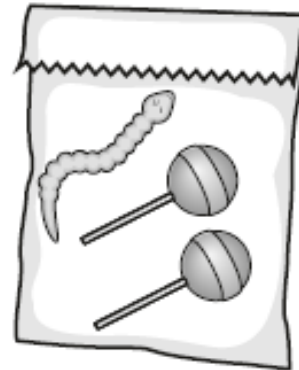
5p



10p

Abdul spends exactly **20p** on sweets.

Tick (✓) the bag of sweets he buys.



Amy makes **20** cakes.

She shares the cakes between **5** plates.

Tick the calculation that shows how many cakes are on each plate.



Tick **one**.

$20 + 5 = 25$

$20 - 5 = 15$

$20 \div 5 = 4$

$20 \times 5 = 100$

$$\frac{1}{2}$$

$$\frac{1}{3}$$

$$\frac{2}{4}$$

$$\frac{3}{4}$$

Circle the **two** fractions that are **equal**.

Complete the number sentence below.

$$3 \times 8 = 2 \times \square$$

How to support at home

- ❖ Mathematics home learning is issued every Friday to Year 1 and Year 2; whilst we want you to get involved and support your child, we don't want you doing the home learning *for* them.
- ❖ Use every opportunity to ask your child questions and to explain their **reasoning** to you.
- ❖ Look for maths around you. Telling the time, finding half or a quarter of something, number plates game, the days in a month, months of the year, talking about money or the coins needed to pay for items, how long things take to cook, amounts eg. quarter of the cake etc.
- ❖ GROWTH MINDSET – everyone of us can master mathematics given the opportunity.

Find Out More

- <http://www.mathematicsmastery.org/>
- <http://www.mathematicsmastery.org/our-programme/primary-resources/>
- **Mastering Mathematics – Teaching to Transform Achievement by Dr Helen Drury**

Other Useful Website Links

<http://www.gov.uk/government/publications/2016-teacher-assessment-exemplification-ks1-mathematics>

http://www.satspapers.org.uk/SATs_Papers/KS1_Maths

Other Useful Resources

- **Inspire Books**
- **Maths in Focus**
- **CGP SATs Practice Papers**