

Mathematics teaching at Greenway

‘The Mastery Approach’

Aims of this evening

- * Mathematics teaching – the national and local context
- * What is ‘Mastery’?
- * Practical taster sessions
- * What a Maths lesson might look like
- * What your children think
- * Questions

Practical Session 1



A little bit of history

- * Procedural vs. conceptual learning (the difference between the way we learned Maths at school and the way Maths is taught now)
- * The National Curriculum and how it has changed (1995, 2006, 2014)
- * Michael Gove's vision (not just the headlines but the good stuff too)
- * Greenway's response to the changes (making connections within Maths, cross-curricular links, growth mindset, no ceiling on learning)

The fleas metaphor

* <https://www.youtube.com/watch?v=GlpjA-QgmQM>

Practical Session 2



The New Curriculum 2014

The 2014 national curriculum for mathematics has been designed to raise standards in maths, with the aim that the large majority of pupils will achieve mastery of the subject. The mathematics programme of study states that:

- * All pupils should become fluent in the fundamentals of mathematics, including through varied and frequent practice, so that pupils develop conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.
- * The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. When to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage.
- * Pupils who grasp concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content. Those pupils who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

The New Curriculum 2014

The 2014 national curriculum for mathematics has been designed to raise standards in maths, with the aim that the large majority of pupils will achieve mastery of the subject. The mathematics programme of study states that:

- * All pupils should become fluent in the fundamentals of mathematics, including through varied and frequent practice, so that pupils develop conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.
- * The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. When to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage.
- * Pupils who grasp concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content. Those pupils who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

What is a 'Mastery Approach'?

- * Whole class learning
- * Belief that all can achieve
- * Exploration of concepts
- * Use of CPA - Concrete, Pictorial, Abstract
- * Effective communication
- * Children are able to represent a concept in multiple ways – 'Teach, Practise, Confuse'
- * Time is taken to ensure children's learning is secure
- * Consolidation through repetition in a variety of contexts
- * Challenge through greater depth

Practical Session 3



Mastery and the tests...

The screenshot shows a math test question on a computer screen. The question is labeled '18' and asks for the result of the subtraction $122,456 - 11,999 =$. The student's handwritten work is shown, including a crossed-out version of the numbers and a correct vertical subtraction. The correct answer, 110,457, is boxed. A mark of 1 is awarded for this question, and it is worth 1 mark. A barcode is visible at the bottom of the page.

18 $122,456 - 11,999 =$

~~$122,456$~~

$$\begin{array}{r} 122,456 \\ - 11,999 \\ \hline 110,457 \end{array}$$

$110,457$

1
1 mark

18 $122,456 - 11,999 =$

$$\begin{array}{r} \\ \\ 122456 \\ - 11999 \\ \hline 110567 \end{array}$$

110567

0
1 mark



21

$$5,542 \div 17 = 326$$

Explain how you can use this fact to find the answer to 18×326

The image shows a screenshot of a Google Chrome browser window. The address bar shows the URL: https://www.gradusabot.gov.uk/9_5034/Refers/Dummo4/402/110801060.pdf. The browser title is "C. Cruzar". The main content area displays a math problem with the number "21" in a black rounded square, followed by the equation $5,542 \div 17 = 326$. Below the equation is a grey rounded rectangle containing the text "Explain how you can use this fact to find the answer to 18×326 ". The Windows taskbar is visible at the bottom, showing icons for Internet Explorer, Firefox, and other applications. The system tray shows the date and time as 10:18 on 1/11/2018.

21

$$5,542 \div 17 = 326$$

Explain how you can use this fact to find the answer to 18×326

You can't find the answer of 18×326 from this calculation but you can find 17×326 because all you are doing is swapping the numbers around to make a different calculation so the answer would be the only number that is left which is 5,542.

1 mark

Practical Session 4



Differentiation within the Mastery Approach

- * Skilful questioning to promote conceptual understanding
- * Identify and rapidly act on misconceptions through same day urgent interventions
- * Challenging, through rich and sophisticated problems the ‘rapid graspers’
- * Using concrete, pictorial and abstract representations linked to different levels of conceptual understanding

Beech Class – Place Value



Pupil Voice



Any questions?

