

Year Two Maths Workshop

*November
2017*





Agenda

1. *Welcome*
2. *The Curriculum, including 'Mastery Curriculum'*
3. *Greater Depth*
4. *Growth Mind-set*
5. *Concrete manipulatives*
6. *Lesson Structure*
7. *Sample lesson (Chilli Challenges)*
8. *How You Can Help*
9. *Questions*



National Curriculum

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non- routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.





Mastery Curriculum

'Mastery Curriculum'

Recently, there has been a lot of national research into 'mastery' and the success of this approach in other countries.

The essential idea behind 'mastery' is that all children need a deep understanding of the mathematics they are learning.



Teaching for Mastery

Mastery is an inclusive way of teaching that is grounded in the belief that all pupils can achieve in maths therefore the large majority of pupils progress through the curriculum at the same pace.

Differentiation is achieved by emphasising deep knowledge, (rather than acceleration) and through support and intervention as needed.





Teaching for Mastery

Mastery is not about just being able to memorise key facts and procedures.

This can lead to superficial understanding that can easily be forgotten





Teaching for Mastery

A concept is deemed 'mastered' when learners

can **represent it in multiple ways**

can **communicate solutions using mathematical language**

can **independently apply the concept to new problems**

There is an emphasis on deep knowledge
sometimes called 'Greater Depth'

Streetsbrook maths lessons aim to support this idea



Growing Mathematicians

*What makes a good
mathematician?*





Growing Mathematicians

- Number sense - a flexibility to work with numbers
- Use & apply skills and knowledge
- Think and reason mathematically
- Conceptual understanding
- Generalise & find patterns
- Mathematical Vocabulary
- Problem solvers
- Estimate
- Fluent calculators - Number facts
- Perseverance/resilience
- Risk-takers
- Positive responses to challenge

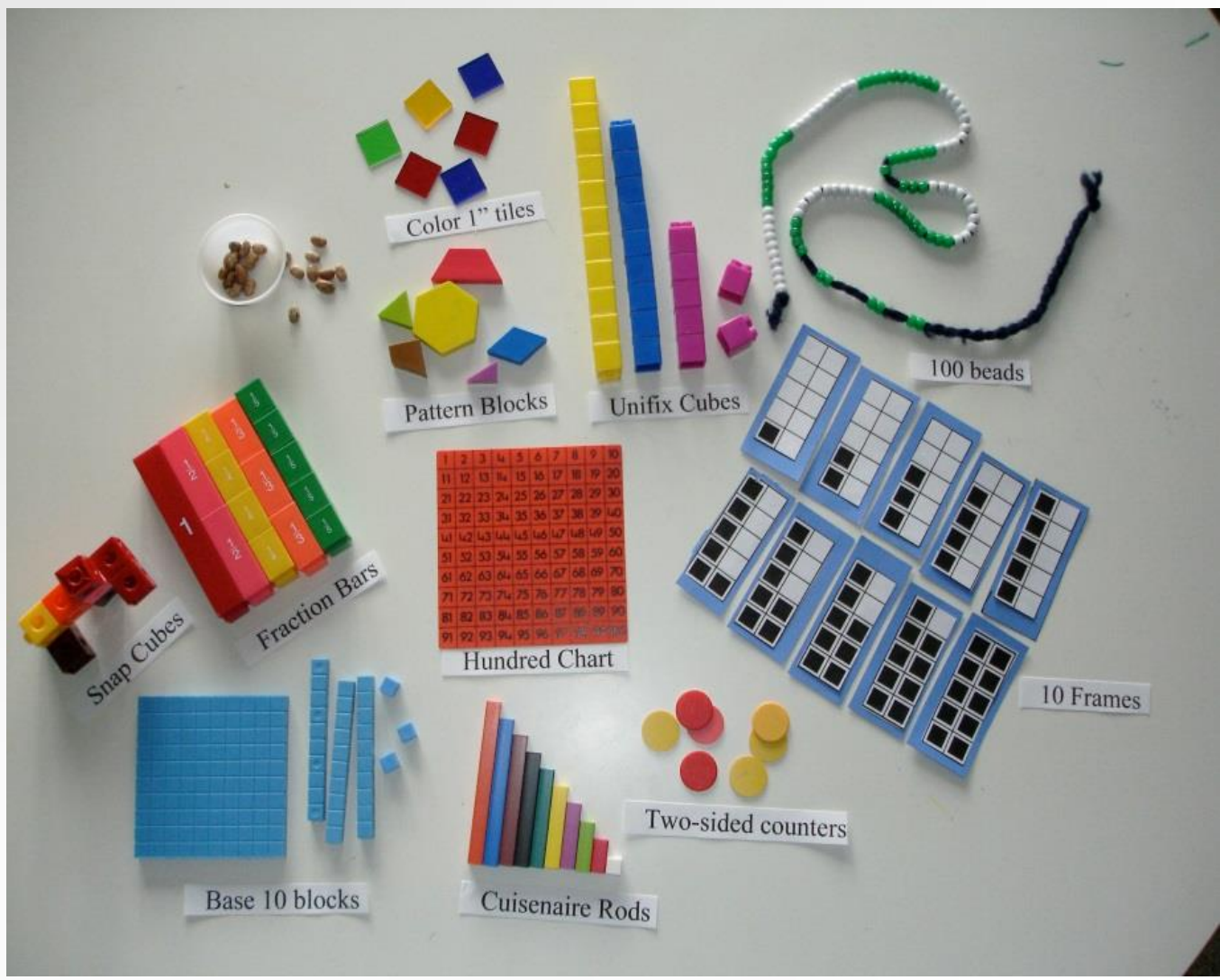


Growing a Growth Mind-set

- Use puzzles and games – anything with a dice (these build number sense)
- Be encouraging , even if they are wrong (Oh I see what you are thinking... rather than... no, that's wrong)
- Don't associate maths with speed (this can lead to maths anxiety, especially in girls)
- Never share the idea that you were bad at maths at school or you dislike it (maths achievement has been shown to drop, particularly when mothers share this with daughters)
- Encourage number sense – a flexibility to work with numbers ($29 + 56$)
- Think about the praise you give (I like how you worked that out... rather than... You are so clever at maths)
- Remind children that 'mistakes' grow their brain

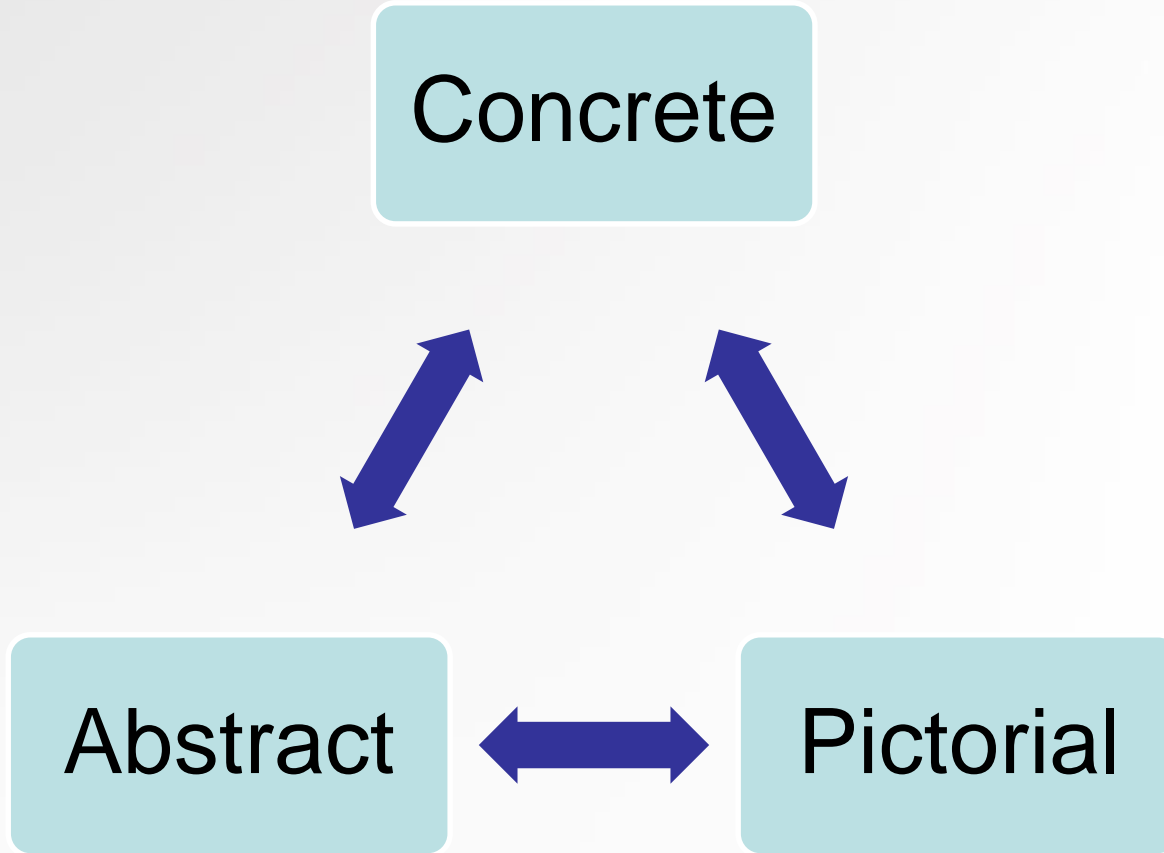


Concrete manipulatives





CPA Approach Why?





CPA Why?

- NOT just as an aid to help less able students to work out answers
- NOT as way to find answer quickly



CPA Why?

- Concrete resources allow children to 'see the maths'
What does 43 look like? How does it relate to 34 / other numbers etc.
- Concrete resources support transition to /aids understanding of abstract questions
 $(43 + 21)$ $(23 - 19)$
- Concrete resources promote deep knowledge
“A pupil, who has worked out the answer using an abstract method, can be challenged to use concrete manipulatives to convince others that they are correct.”



CPA Why?

‘Maths lessons shouldn’t be about teaching tricks; they are about giving pupils the tools to understand the problem in front of them’





Sample Lesson

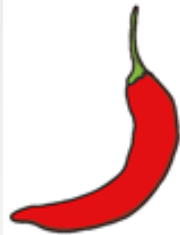
- **Problem Starter**
- **Practical Phase** (Concrete/Pictorial)
- **Recording Phase** **(Chilli Challenges)**
(Differentiation, including Greater Depth)
- **Reflection Phase**
(Questioning and Reasoning)



Chilli Challenges

Chilli Challenge

Choose your challenge:



Flaming
Hot



Hot



Mild





Sample Lesson





How can you help?

As previously discussed...

- Puzzles and games – especially anything with a dice ...Have fun!
- Be encouraging , even if they are wrong (encourage resilience when challenged)
- Don't associate maths with speed
- Never share the idea that you were bad at maths at school or you dislike it
- Encourage number sense – a flexibility to work with numbers
- Think about the praise you give
- Remind children that 'mistakes' grow their brain

In addition ...

- Support children in learning and understanding number facts and times tables
- Ask them to explain their ideas, thinking, working out
- Value the process as well as the answer
- Make the most of real maths – money, time, measurement ...





Questions?

Thank you for coming!

