

Maths at Eden Primary



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Mastery approaches

- **New curriculum** introduced in 2015, based heavily on ideas for the China and Singapore
- Every child expected to '**master**' every aspect taught
- Moving **away** from labelling pupils as high ability or low ability and then giving them entirely different tasks
- Using **manipulatives** (concrete apparatus) and pictures
- **Conversation** between pupils

What is mastery?

“Mastery of maths means a deep, long-term, secure and adaptable understanding of the subject.”

National Centre for Excellence in the Teaching of Mathematics (NCETM)

- **Fluency** – rapid and accurate recall and application of facts and concepts
- **Reasoning** – a growing confidence to reason mathematically
- **Problem solving** –the ability to apply maths to solve problems, to conjecture and to test hypotheses
- Tool for life; use **real life examples** wherever possible.

Mastery in greater depth

- Higher ability children will not move on to the next year's curriculum early, as in the past
- Once the basic curriculum has been mastered, children will be given opportunities to reason, solve complex problems, make connections, offer proofs –this is mastery at greater depth
- Children may move on to greater depth quickly or after some time
- Others may have mastered all the requirements of the curriculum but not at greater depth

What an Eden maths lesson looks like

- Whole class teaching with clear and progressive modelling of concepts and procedures with sequences of varied examples
- Consistent use of apparatus and pictures to support ability to access learning and to deepen children's understanding (Concrete-Pictorial-Abstract) even in the older classes
- Frequent rehearsal of core facts and strategies to develop fluency
- Rich mathematical talk is given high status and supported by the learning environment and teachers' questioning: taught vocabulary
- Emphasis placed on learning through reasoning, developing multiple strategies, sharing and checking strategies
- Struggle, thinking further, developing resilience
- Challenge for pupils grasping concepts quickly is provided through depth and breadth of experience
- Daily opportunities to reason and solve problems in real life contexts
- Making connections and applying learning to new situations: "If we know...then we know..."

Fluency – the counting stick

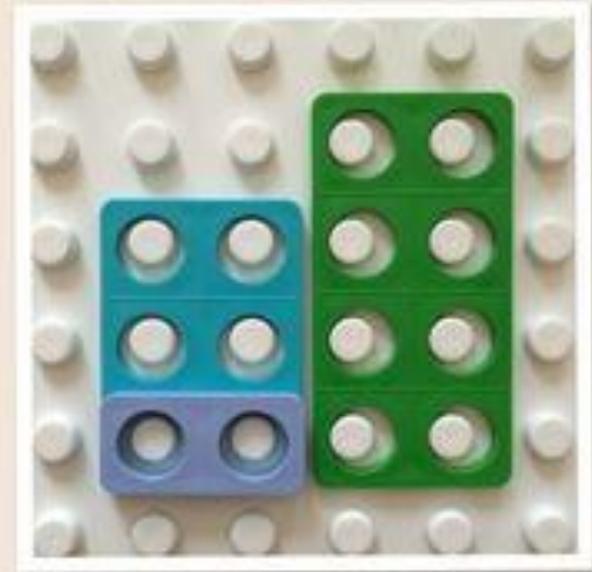


One is a snail, ten is a crab and
other books about maths

<http://www.slideshare.net/ismes/one-is-a-snail-ten-is-a-crab>

Numicon

Difference as a proportion of the original?



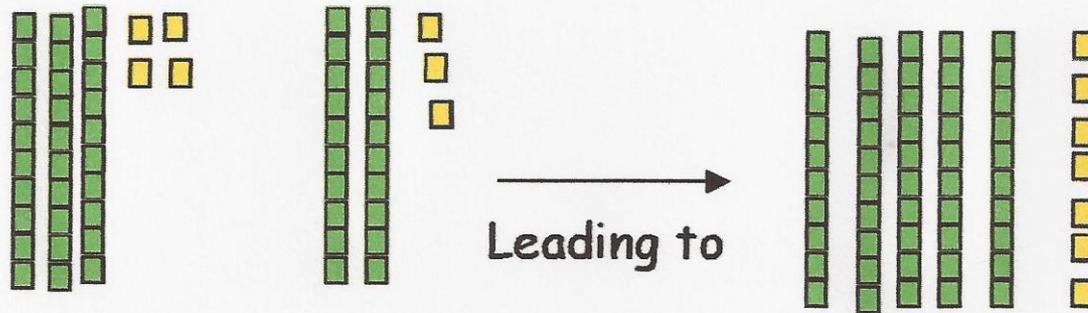
$\frac{1}{3} = 33.3\%$
increase

Pegs

Multiplication by 6

Dienes blocks

Dienes model: support the children in partitioning the numbers.



Begin to use an informal method to support, record and explain methods.

$$\begin{array}{ccccccc} 30 & + & 4 & + & 20 & + & 3 = \\ \underbrace{\hspace{1.5cm}} & & \underbrace{\hspace{1.5cm}} & & \underbrace{\hspace{1.5cm}} & & \\ & & 50 & & 7 & & \\ & & \underbrace{\hspace{2.5cm}} & & & & \\ & & 57 & & & & \end{array}$$

Problem Solving

- Nrich
- NCETM

websites

Calculation Policy

- This is available on our website
- Follows the steps in teaching from pre-reception through to Year 6 (though these do not exactly match the mastery curriculum)
- Counting, addition, subtraction, multiplication, division, place value
- Moves from using concrete apparatus through pictorial representation to formal written methods of calculation

Presentation of work in books

- Children are encouraged to set out their own work rather than fill in worksheets
- Layout of written methods is taught and practised
- Children need to explain their thinking through writing
- Children encouraged to represent their thinking pictorially or using jottings to support their thinking
- Informal jottings are encouraged to show how something has been done
- Work may be done with a partner

Ways to help your child

- Fluency – practising number facts
- Telling the time on an analogue as well as a digital clock face
- Using money and measures (shopping for small items with cash, cooking)
- Board games – being the banker
- Encouraging your child to talk about numbers and calculations, reason, explain, see things in different ways, make connections

Further reading

- <http://www.mathematicsmastery.org/what-we-do/information-for-parents/>
- The Elephant in the Classroom: Helping Children Learn and Love Maths by Jo Boaler
- Maths for Mums and Dads by Mike Askew
- Look at the links appearing on the school website

THANK YOU!

Thank you for listening and for supporting your children.

Please continue your evening in your child's classroom.

Please complete an evaluation sheet in the classroom before you leave or take one away with you.