



An Introduction to Mastery in Maths

November 2017

Think of a Number

- 1) Double it**
- 2) Add 10**
- 3) Halve it**
- 4) Subtract your original number**
- 5) Discuss**

Your Answer

5

The National Curriculum

A significant change!

The expectation of the National Curriculum is that the majority of pupils will move through the programmes of study at broadly the same pace.



Aims

The national curriculum for mathematics aims to ensure that all pupils:

- 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.

<http://www.tewkesbury-primary.co.uk/parent-information/school-curriculum-information/maths/>

Growth Mindset

The latest research of expert educational thinkers (Jo Boaler and Carol Dweck) shows that this approach is crucial to enable success for all children in maths.

Jo Boaler's research has uncovered and highlighted several key areas:

- Everyone can learn maths to the highest levels
- Mistakes are valuable
- Questions are really important
- Maths is about creativity and making sense
- Maths is about connections and communicating

Key Messages

“In a growth mindset, people believe that their most basic abilities can be developed through dedication and hard work. Brains and talent are just the starting point.”

- The power of yet – I cannot do it...YET
- Power of praise – praising the effort, not the outcome
- Talking about Maths and asking questions
- Mistakes are valuable – they cause the brain to grow
- Parents’ beliefs about Maths change their children’s achievement
- Depth is more important than speed – understanding is crucial

Further information can be found at www.youcubed.org

and

www.tewkesbury-primary.co.uk/parent-information/school-curriculum-information/maths/

The Principles of Mastery

- Reflects the principles of the 2014 National Curriculum
- Based on the Singapore method of teaching, which has been developed and altered by experts to fit the UK education culture
- Time given to think deeply about mathematical concepts and gain a real understanding, rather than a reliance on rote learning methods

Just add a zero!

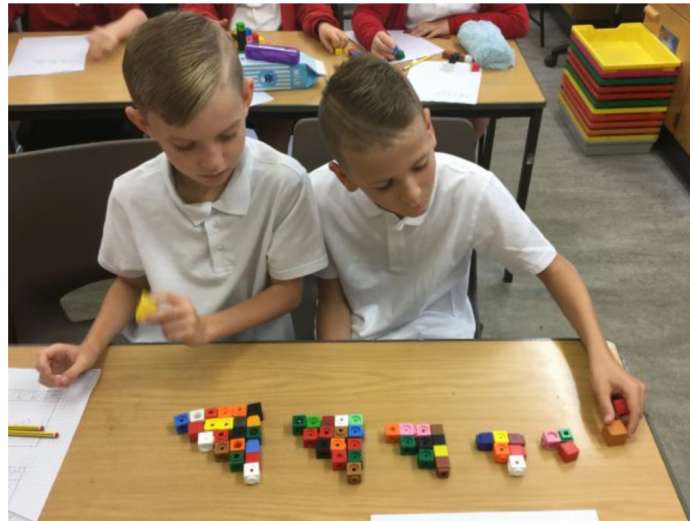
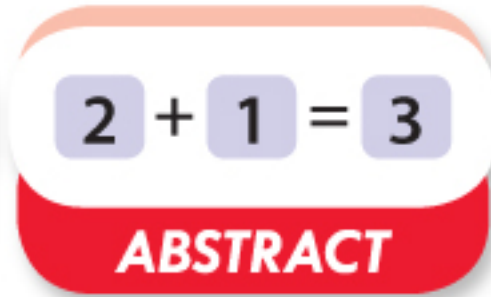
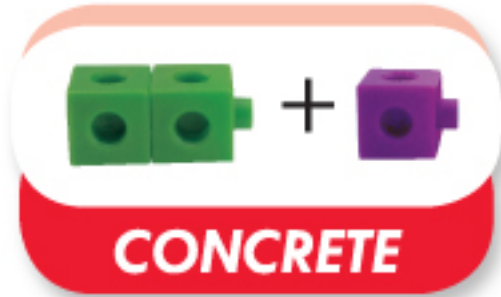
**3 divided by 15?
You can't do that!**

- Builds self-confidence in learners
- Whole class moved through content at the same pace
- Children are challenged through depth and problem solving
- Promote number sense
- Children are taught that there is more than one way to solve a problem


$$5000 - 2179?$$

**Think about ways to find the
difference between:
 $5000 - 2179$.**

Mastery in the Classroom



- A focus on the use of concrete and pictorial resources throughout every year group

Mastery in the Classroom

- Lessons are slightly shorter and focus on practical tasks, guided practice and then independent practice for the majority of children
- Practice is intelligent; children complete fewer questions but have a wider range of opportunities to demonstrate the depth of understanding

Intelligent practice?

Multiplying and dividing

Multiplication and division **A2**

Multiply each number by 10.

1. 378 × 10 = 3780

1	378	2	251	3	975	4	628
5	486	6	563	7	374	8	652
9	100	10	58	11	191	12	763

Now multiply each number by 100.

Intelligent practice!

[1]

1
10
100

 × 378 =

[2] 251 ×

1
10
100

 =

[3]

1
100
10

 × 975 =

[4] 628 ×

10
1
100

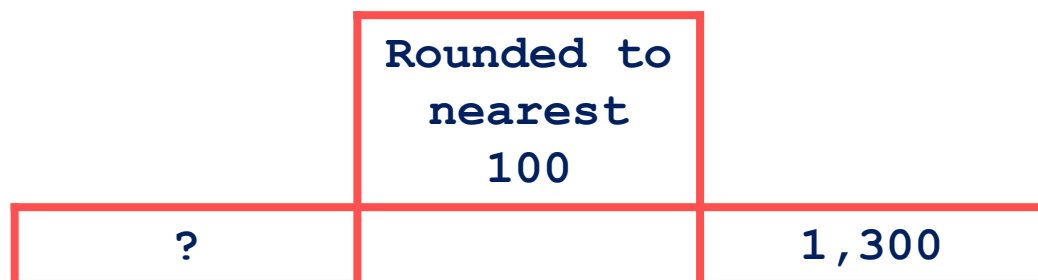
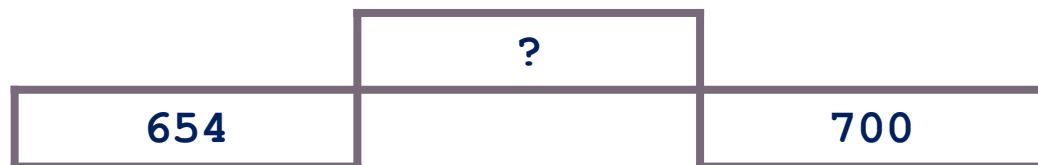
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Mastery in the Classroom

- The teacher does further intervention work with children who need more support to grasp the concept



Rapid graspers are challenged to “Solve it” and “Deepen it”



Solve it:

Miss Armstrong has 5 packets of biscuits with 4 biscuits in every packet.

Mr Rylatt has 3 packets of biscuits with 10 biscuits in every packet.

Who has the most biscuits? Explain your answer.

Deepen it:

True or false?

$$4 \times 5 = 5 \times 4$$

$$4 \times 5 = 2 \times 10$$

$$4 + 5 = 5 \times 4$$

$$2 \times 10 = 2 + 10$$

$$4 \times 5 = 2 \times 10$$

Mastery in the Classroom

- Children are seated with their "Learning Partner"

A Maths lesson at Tewkesbury C of E

Step 1: Start with a problem – how would you solve it?

Step 2: Discuss the problem with your learning partner.

Step 3: Whole class discussion of methods and solutions.

Step 4: Introduce Key Learning Point – whole class teaching.

Step 5: Guided Practice.

Step 6: Independent Practice and Teacher-Led Intervention.

Step 7: Deepen It!



Mastery at Home

- Growth Mindset
- Home Learning
- DoodleMaths - including the new Doodle Tables app!
- Fluency - number bonds, times tables, addition and subtraction facts etc.
- Maths in the real world

YesUCan!

DoodleMaths - 17.11.17
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DoodleMaths
DoodleStar Class Champions

Class	Stars Earned
Class 14 - Mr Shaw	6247
Class 9 - Miss Davis	4323
Class 5 - Miss Armstrong	4194
Class 3 - Mrs Green	4058
Class 8 - Mrs Meadows & Mrs Yennan	3186
Class 10 - Miss Jarczyk	2642
Class 7 - Mr Stanton	2637
Class 4 - Mrs Inghs	1927
Class 11 - Mrs Rouse	1902
Class 6 - Mr Ryall	152

