

# Parents' Maths Workshop

20<sup>th</sup> January 2015



Aim: Understand the changes in the curriculum for Years 1 and 2 and to explore how we deliver this.

We will achieve this by:

- Looking at the significant changes in the Maths curriculum
- Explain and experience the strategies we use for written and mental calculations
- Suggested activities

Please DO stop me and ask questions at any time

# WHAT DOES MATHEMATICS LOOK LIKE IN KEY STAGE 1?

## What the government says:

- The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and **mental fluency** with whole numbers, counting and place value.
- At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary.
- By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. **An emphasis on practice at this early stage will aid fluency.**
- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

# THE NEW CURRICULUM

The three main aims of the National Curriculum are:

- **Fluency-** The ability to recall and apply fundamental knowledge rapidly and accurately.
- **Reasoning-** the ability to explain their learning, justify and prove their line of enquiry to others.
- **Solve Problems-** the ability to apply their learning to a variety of problems with increasing difficulty.

General changes-

- Children should be fluent in the fundamentals of mathematics; should be able to recall number facts efficiently.
  - Problem solving with increased sophistication- every lesson should have a problem solving aspect to it. Designed to encourage children to use a strategy/ skill they have learnt and apply it to other areas.
  - Inverse operations- are able to check answers by using the inverse for all 4 calculations.
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# NOTABLE CHANGES

## By the end of Year 1 children should:

- be secure and fluent in number bonds to 20
- be able to count, read and write numbers up to 100 from any given number
- Be able to write numbers up to 20 in words
- Solve one step problems that involve addition and subtraction such as missing number problems,  
e.g.,  $7 = ? - 9$
- Be able to make whole, half, quarter and  $\frac{3}{4}$  turns in both directions and connect turning clockwise with movement on a clock face

## By the end of year 2 children should:

- Counting in steps of 3 (as well as 2 and 5) from any number forward and **backwards**.
- Compare and order numbers up to 100 and use  $<$ ,  $>$  and  $=$  signs
- To be able to read and write numbers to at least 100 in numerals and words.
- To be able to add 2 two digit numbers using **concrete apparatus and pictorial representations**
- Secure in the understanding that addition and multiplication can be done in any order (commutative) but subtraction and division cannot.
- To be able to choose and use appropriate standard units to estimate and measure temperature (introducing negative numbers)
- Compare and order measurements using  $<$ ,  $>$  and  $=$
- Tell and write the time to 5 minutes



# WHEN WILL THIS START TO HAPPEN?

- In year 1 and 2 we have already started to incorporate elements of the new curriculum in our lessons.

Why not fully yet?

- At this point the children are still assessed against the old curriculum
  - All year groups will teach solely from new curriculum as of September 2015, ready for the new assessment tools being released in Spring/ Summer 2016
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# WHAT DOES MATHS LOOK LIKE IN YEAR 1 AND 2?

- Using the CPA model is an effective way to teach any new skill- regardless of age/ year group.

## CONCRETE... THE ENACTIVE STAGE...



- This stage is the foundation for their understanding
- Using resources- cubes, counters, sweets, scarves...
- Understanding what a number “looks like”

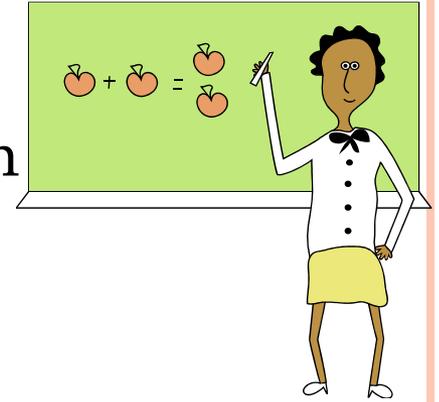
Have a go at a concrete method of teaching division:

*Count 12 cubes... Now share them between yourself and the person next to you.*

# PICTORIAL ... THE ICONIC STAGE...

- Comes once the children have had the opportunity to experience the physical experiences of maths.

- Drawing pictures to support the calculation



- May/ may not need the concrete resources at this stage

Have a go at a pictorial method of teaching division:

*Draw 12 triangles... Now draw a circle around groups of  
3.*



# ABSTRACT...

## THE SYMBOLIC STAGE...

- The final stage, the children are now ready to represent their work working with numerals and symbols.
- Moving onto counting on in our heads
- Using number lines
- We can support this by checking our answers using the previous 2 strategies

The abstract method of teaching division:

$$\textit{Solve } 12 \div 2 =$$



## TEACHING THE 4 CALCULATIONS:

- Introduction of vocabulary:
- Addition- *more than / add / plus / sum*
- Subtraction- *less than / subtract / take away / difference\**
- Multiplication- *lots of / times / multiply*
- Division- *groups of / share / divide*

Encourage discussions about misconceptions- where might they have heard these words before? *Volume, take away, mass*

\* *Difference- comes under the same “umbrella” as subtraction but is taught slightly differently.*



# ADDITION & SUBTRACTION

- Let's have a go:
- $7+5=$ 
  - Using counters (Concrete)
  - Using pictures (pictorial)
  - On a number line (abstract)
- $7-4=$ 
  - Using counters (Concrete)
  - Using pictures (pictorial)
  - On a number line (abstract)
- *Finding the difference between 12 and 3...*



# MULTIPLY AND DIVIDE

- Children are initially taught that multiplication is repeated addition and division, initially as sharing, moving onto repeated subtraction.
- Let's have a go:
  - $5 \times 2 =$  (five lots of two)
    - Using counters (Concrete)
    - Using **arrays** (pictorial)
    - On a number line- (abstract)
  - $10 \div 2 =$  (ten shared by 2)
    - Using counters (Concrete)
    - Using pictures (pictorial)
    - On a number line (abstract)



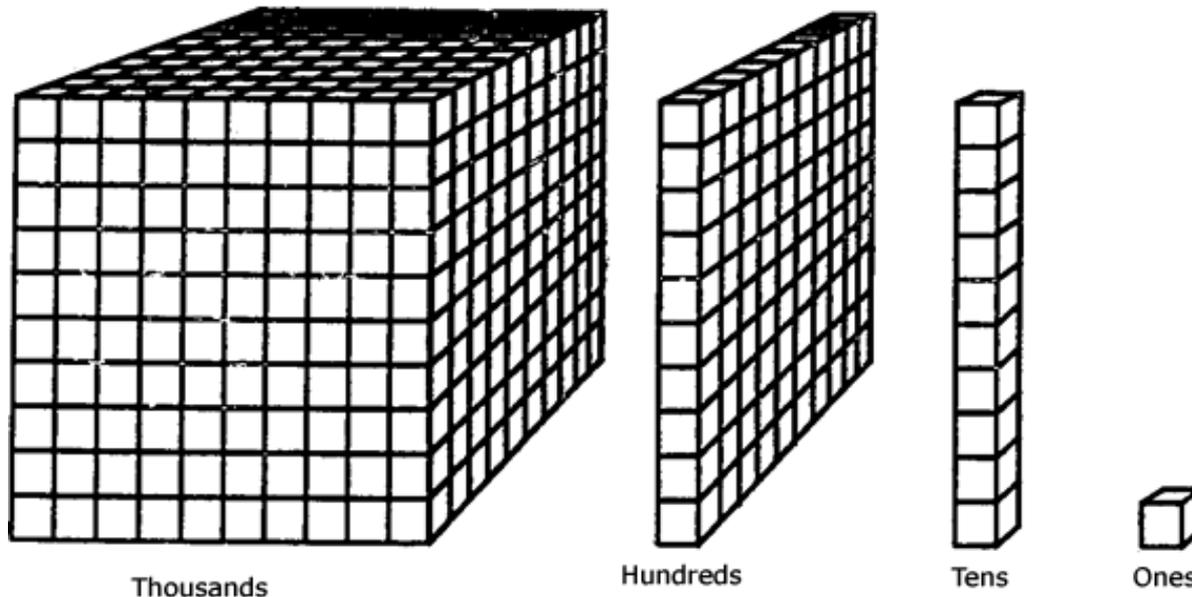
# USING BLANK NUMBER LINES

- Allows us to work with greater numbers
- Only uses the numbers we actually need
- Children must have a solid grasp of numbers before they begin
- Being able to add/subtract multiples of 10 and having a secure grasp of number bonds supports this method



# PARTITIONING

- Splitting numbers into hundreds, tens and units to make them more manageable
- Supports mental strategies
- Ensures children have a thorough understanding of place value before moving on to column addition





## PARENTS' PROBLEM...

- There are 34 wildebeest in the herd. Another 21 join them. Now how many wildebeest are in the herd?
- There are 86 cakes on the cake stall and 47 get eaten. How many cakes are left?
- Can you use a blank number line to solve these problems?



# Mental strategies

The children apply confidently, efficiently and accurately strategies that they have learned throughout school.

Mental strategies are reinforced, practised and refined so that the children can begin to manipulate numbers with confidence, involving more than two numbers and they can complete mental maths calculations under pressure and time constraints...



*NB: when a child feels under pressure / stressed they will always resort to a method they feel confident in using - whether it is the most efficient or not.*

# HOW CAN YOU SUPPORT AT HOME?

- My Maths <http://www.mymaths.co.uk/>
- Number hunts around town; *house numbers, bus numbers etc.*
- TV programmes such as *Strictly Come Dancing, Bargain Hunt, Flog it, Storage Hunters*
- Shopping- *“this loaf of bread is £1, how much would 2 loaves cost? What would half the loaf cost?”, “the time is now 2:30pm, we will be 20 minutes in Sainsbury’s, what time will it be when we leave?”, “can you spot the cheapest/ most expensive?”*
- Walking to school- *“if we do 2 strides in 1 metre, how many strides will we do in 50 metres?”*
- Ask open ended questions- *“what if...”, “prove it!”, “how do you know?”*
- Cooking/ baking- *“we’ve cooked 12 potatoes, we are going to share them equally between the 3 members of our family, how many potatoes will we have each?”, “the recipe says 100g flour, 2 eggs and 50g butter but we need to double it. How much will we need?”*
- Times tables- *in the bath, shower, driving.*

IT' S QUESTION TIME!

