Year 2 Maths Workshop

Tuesday 19th November 2019

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Questions

- How do you feel about Maths?

- What were your experiences and confidence levels in Maths at school?

- What are your experiences and confidence levels in Maths now?

- Are you presenting Maths in a positive way?

- Do you encourage Maths to take place at home?

- Do you promote its importance and explain why it is important?

Areas of Mathematics

- **Number**
- **Calculation**
- Measurement
- Fractions
- Geometry

Whilst all 5 areas of Maths are equally important with regards to SATs; number and calculation form the key foundational knowledge and skills which underpin every other area in Maths.

Concrete and Abstract

▶ ## Concrete

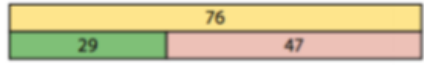❖ Physically counting and manipulating objects or equipment to see, understand and work with numbers.

▶ ## Abstract

❖ Working with numbers mentally or as written numerals on a page. Understanding the context of a number without the need for a physical representation.

▶ ## Important things to remember:

❖ Always start with the concrete

❖ Don't try and rush to abstract

❖ It's not cheating to use resources – it's the first step in our Maths scheme of work

❖ Working with written numbers is abstract

Maths Scheme of Work

REPRESENTATION (show)	FLUENCY (do)

Representing Addition Problems
 • Representing addition word problems using the bar model or a part-part-whole model
 	
 Representing Subtraction Problems:
 • Representing subtraction word problems using the bar model or a part-part-whole model
 	
 Checking Calculations
 • Reversing a calculation to check an answer by adding or subtracting to see if this gives the original value
 • Rounding numbers to nearest 10 to estimate the value of the calculation first
	Recognise, represent and solve simple addition and subtraction problems
	  One-step worded problems with trigger words and given structure for representation (e.g. blank bar model/part-whole model)
	  One-step worded problems with trigger words without any structure
	  One-step worded problems with subtle references to addition and subtraction
	
	 Check a calculation using inverse operations
	 • recap: state the fact family for a calculation e.g. 63 + 24
	 • estimate the answer to a calculation by rounding
	 • check an addition calculation
	 • check a subtraction calculation

| PROBING QUESTIONS (think)	FURTHER EXTENSION (explain)	RICH AND SOPHISTICATED (solve)
Show me 2 numbers that have a sum of 48. Give me 3 different examples. Show me 2 numbers that have a difference of 13. Give me 3 different examples. Always, Sometimes, Never? Addition is commutative i.e. the order doesn't matter Always, Sometimes, Never? Subtraction is commutative i.e. the order doesn't matter	Using the bar model complete the four number sentences. ☐ + ☐ = ☐ + ☐ = ☐ - ☐ = ☐ - ☐ =	**Dicey Addition** Roll the dice twice to make the starting 2-digit number. Each player rolls the dice dice twice again to make their own 2-digit number. Each player adds their own 2-digit number to the starting number. Whoever gets the total value closest to 100 gets a point.

Solve the following worded problem by using both a bar model and part-whole model.

Ceira baked some delicious cookies. In the first batch there were 11 cookies and the second batch had 15. How many cookies die she make altogether?
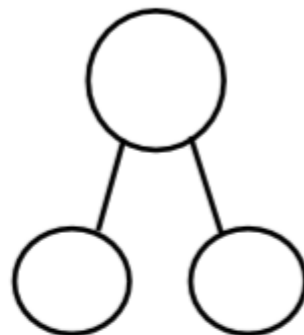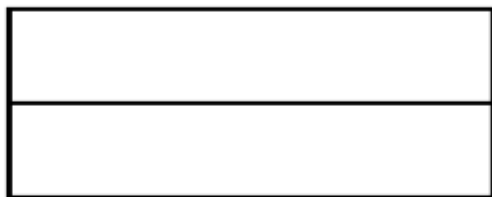
Solve the following worded problem by using both a bar model and part-whole model.

Sai loves collecting toy cars. He had 16 cars in his collection and decided to increase his set by 6. How many cars does he have now?
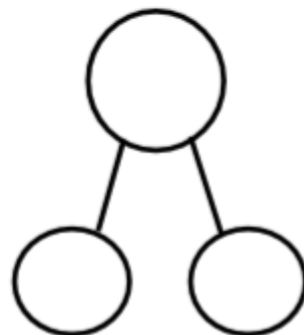
Complete the number sequences by showing what comes next.

Write the whole sequence in your book.

25, 30, 35, _____, _____, _____

60, 70, 80, _____, _____, _____

42, 52, 62, _____, _____, _____

Fill in the missing numbers for the sequence below.

68		64	62			56

Can you describe what is happening in this number sequence?

Which statement describes this number sequence?

33		twenty-three	10 + 8	13	eight

a)   It is counting backwards in 2s.

b)   It is counting backwards in 5s.

c)   It is counting forwards in 5s.

Always, Sometimes, Never

If I find 10 more than a number, it will end with the same digit as the number I started with.

Convince me the 53 is an odd number.

Think of an even number that is more than 30 and less than 50. And another. Can you find them all? How many are there?

Ellie thinks of a number.
- it is an even number
- it is between 20 and 25
- it has two different digits

What is her number?
Explain your thinking.

End of Year 2 National Curriculum Expectations

▶ Using materials and a range of representations, pupils practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency.

▶ They become fluent and apply their knowledge of numbers to reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers. They begin to understand zero as a place holder.

Place Value and Problem Solving

▶ In Year 2 children gain a solid understanding of place value. It underpins almost every Mathematical concept.

▶ In order to be able to compare numbers, the children must know and understand the value of each numeral.

▶ We mainly use Dienes and Numicon counters to demonstrate and represent place value. This year we have introduced the children to place value counters too. When working in the abstract, we work with the *tens* and *ones/units* columns.

How can this be achieved at home?

▶ Question your children often about the value of numbers that they see in the real world.

▶ Place this into real life contexts. Money is especially useful when discussing place value. Perhaps you can discuss your shopping total and how you will pay.
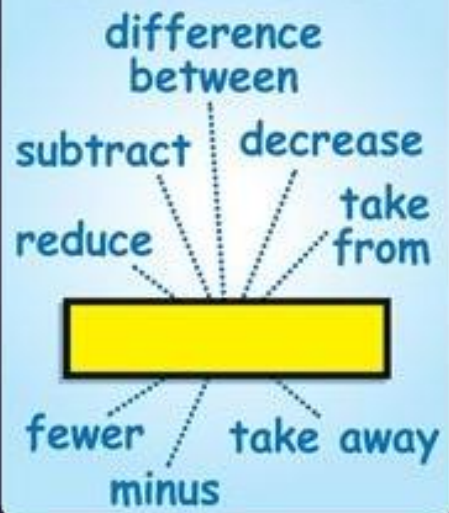
Maths Language

▶ Use a range of language for each operation to get your child used to associating the symbols with all the key words/phrases associated with each operation.

   ▶ This is particularly useful when they are completing worded problems. We teach them to first identify the key information (including the numbers involved) before attempting to solve the problem.
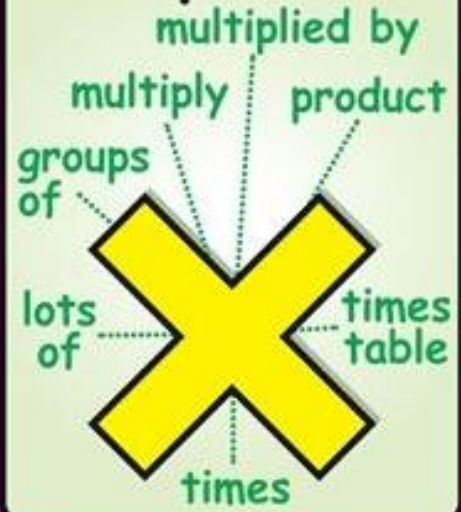
Numeracy Vocabulary

addition
increase
together
and
more
sum
plus
add
total

subtraction
difference between
subtract
decrease
reduce
take from
fewer
take away
minus

multiplication
multiplied by
multiply
product
groups of
lots of
times table
times

division
divided by
share
share equally
divisible by
divide
divide into
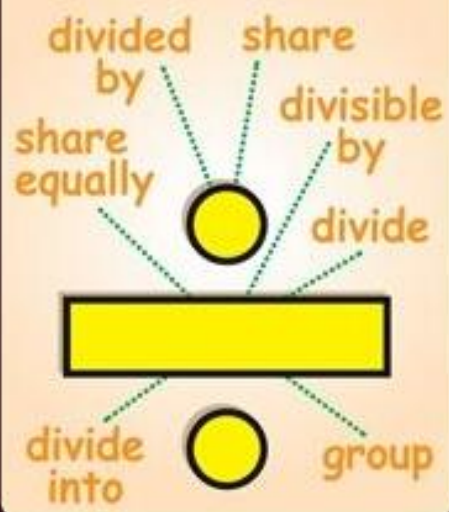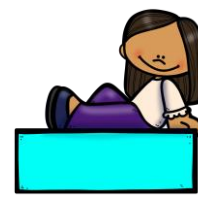group

Addition and Subtraction

▶ Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using:

3 + 7 = 10;   10 – 7 = 3   and   7 = 10 – 3   to calculate
30 + 70 = 100;   100 – 70 = 30   and   70 = 100 – 30.

▶ They check their calculations using the inverse operation.

The inverse of addition is subtraction and the inverse of, multiplication is division. This establishes the commutativity and associativity of addition.

Example: 5 + 7 = 7 + 5   and 1 + 3 + 5 = 3 + 5 + 1

▶ Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers and using the column method to calculate both addition and subtraction problems.

How can this be achieved at home?

Addition and Subtraction at home

- Practise addition by counting on from a given number. Hold the biggest number in your head and count on. Children often find it hard to count on from the number.

- Practise subtraction by counting backwards from a given number. Children often become confused and begin counting forwards. To overcome this, ask your child to use their fingers (concrete).

- Move on to adding/subtracting tens and ones/units separately. At first we would do this with the Numicon, then Dienes. Most children then learn to do it mentally (abstract) for calculations not crossing tens.

- Practise number bonds to 20 as much as possible at home. Start with the concrete and move to the abstract. Write them out in order to show children the pattern. Use the number bonds cards.

- Remind them of how the number bonds to 10 can be related to number bonds to 100. Ask them to explain the value of the numerals to you.

Multiplication and Division
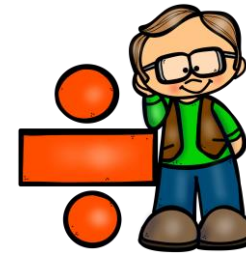
- They practise to become fluent in the 2, 3, 5 and 10 multiplication tables. They begin recall multiplication facts and use related division facts to perform written and mental calculations.

- Pupils work with a range of materials and contexts in which multiplication and division relate to grouping and sharing, to arrays and to repeated addition.

- They begin to relate these to fractions and measures (for example, 40 ÷ 2 = 20, 20 is a half of 40).

- They use commutativity and inverse relations to develop multiplicative reasoning (for example, 4 × 5 = 20 and 20 ÷ 5 = 4).

Counting in Multiples

▶ In Year 2 children begin to count in multiples of 2, 3, 5, and 10.

▶ Counting in multiples of 3 is usually the most difficult and takes the longest to learn.

How can this be achieved at home?

▶ Ask your child to count in multiples as often as you can. This will help them with addition and other contexts such as time (where we often count in 5s).

Multiplication and Division Facts
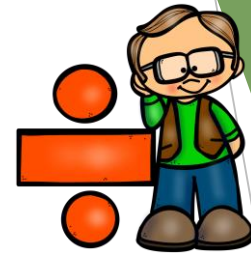
- By the end of Year 2 your child should know and be able to write the multiplication and related division facts for the 2, 5 and 10 times tables.

- They should be able to explain to you that multiplication can be done in any order (commutative), but division cannot.

- Use the language of double/halve. This vocabulary also relates to fractions.

Solving Problems

How to help at home:

- Play card and board games
- Play strategy games
- Encourage children to handle money at the shop
- Help them talk about time and ask them to read it
- Ask them to share/divide real life objects/food
- Ask them to explain their thinking. The more they talk about their thinking, the easier it becomes to express themselves. Please make sure that they use the correct vocabulary.

Resources

Internet resources-(that are free)

► http://www.bbc.co.uk/bitesize/ks1/maths/

► http://topicbox.net/mathematics/

► http://www.nationalnumeracy.org.uk

► http://nrich.maths.org/primary-lower

► http://www.topmarks.co.uk/Interactive.aspx?cat=8 -Great for practising number stories.

Book for your child

► KS1 Maths Targeted Study & Question Book - Year 2 (for the New Curriculum) by CGP Books.

Books for you

► Mathematics Explained for Primary Teachers by Derek Haylock

► Maths for Mums and Dads by Rob Eastway and Mike Askew