Maths Workshop KS1 17.10.19









Thinking is at the heart of Mathematics and therefore should be at the heart of Mathematical teaching and learning. At St Anne's we believe that all children can do Maths (and do it well).



Aims of today's meeting

- To get an insight into how Maths is taught at St Anne's.
- To gain an understanding of the National Maths curriculum and expectations.
- To take part in a variety of Maths activities.
- To take away some ideas to support your children at home.

Warm Up.....





Maths





When we plan a Maths sequence we always ensure children are exposed to correct mathematical language, symbols (+ - = x), an image and a context.

The Maths Curriculum

Children should:

- 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.
- Solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.



Progression of expectations

EYFS	Year 1	Year 2			
Count reliably up to 10 objects	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	Pupils count fluently forwards and backwards in 10s, starting at any 1 or 2 digit number			
Estimate how many objects they can see and check by counting	identify and represent numbers using objects and pictorial representations including the number line	Place and identity 2 digit numbers on a number line using their understanding of how close the numbers are to multiples of 10			
Use language such as 'more' or 'fewer' to compare two numbers	use the language of: equal to, more than, less than (fewer), most, least	Pupils recognise commutativity as the relationship between subtraction and addition. Subtraction meaning take away, difference, how many more.			
Recognise numerals 1-9	read and write numbers from 1 to 20 in numerals and words.				
Count aloud in ones, twos, fives or tens	count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	count in multiples of twos, threes, fives and tens from any given number			

Now it's your turn.....Using the resources, make the



Place Value



- Place value is at the heart of the number system. All digits have a value and a secure understanding of this will enable children to use and understand different calculation methods.
- We constantly ask our children to tell us what each digit in a number represents.
- E.g. 24 The 2 represents 2 tens, the 4 represents 4 ones.

Concrete, Pictorial to Abstract



23 - 12 = 11



Number Sense!

Children need to understand our number system, starting with counting numbers, building an understanding of how our numbers work and fit together. This includes exploring place value and comparing and ordering numbers then applying this understanding 44cm in different contexts.



How many different ways can you make 5?



Fluency

- It is important that children recognise number bonds, different pairs of numbers with the same total and that they are fluent in this.
- Children need to be secure on bonds to 10 by the end of Year 1.



Bonds to 10 & 20







Fluency

 Once children are secure on number bonds they are then able to apply this to derived number facts. Using known facts

Using known facts. What facts do you need to solve 7 + 5?





• This grid shows the number facts children should be secure on by the end of Year 1 and

2.

Ad	ding 1		Bonds to	<mark>o 10</mark>	A	dding 10		Bridg compen	ing/ sating			ſ
Ad	ding 2		Adding	g 0	Γ	Ooubles		Near do	oubles			_
+	0	1	2	3	4	5	6	7	8	9	10	
0	0+0	0+1	0 + 2	0+3	0+4	0 + 5	0+6	0 + 7	0 + 8	0 + 9	0 + 10	
1	1+0	1+1	1 + 2	1 + 3	1+4	1+5	1+6	1 + 7	1 + 8	1 + 9	1 + 10	
2	2+0	2+1	2 + 2	2 + 3	2+4	2 + 5	2+6	2 + 7	2 + 8	2 + 9	2 + 10	
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3+6	3 + 7	3 + 8	3 + 9	3 + 10	
4	4 + 0	4 + 1	4 + 2	4+3	4+4	4 + 5	4 + 6	4 + 7	4+8	4 + 9	4 + 10	
5	5 + 0	5+1	5 + 2	5 + 3	5+4	5 + 5	5+6	5 + 7	5 + 8	5 + 9	5 + 10	
6	6+0	6+1	6 + 2	6+3	6+4	6 + 5	6+6	6+7	6+8	6 + 9	6 + 10	
7	7+0	7+1	7 + 2	7 + 3	7+4	7 + 5	7+6	7 + 7	7 + 8	7 + 9	7 + 10	
8	8 + 0	8+1	8 + 2	8 + 3	8+4	8 + 5	8+6	8 + 7	8 + 8	8 + 9	8 + 10	
9	9+0	9+1	9 + 2	9 + 3	9+4	9 + 5	9+6	9 + 7	9+8	9 + 9	9 + 10	
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10	

2018 Arithmetic Paper – you have 1 minute Have a go!

74 - 47 =
$$+ 8 = 20$$

4 120 ÷ 10 = $\frac{1}{4}$ of 24 = $\frac{1}{4}$

End of KS1 SATs

- At the end of KS1 (Year 2) children will take their end of KS1 SATs.
- This is done in school, with their class teachers. Children are encouraged to do their best.
- The children are expected to complete 2 Reading papers, 2 Maths papers and 2 SPaG papers. This is spread out throughout the week.
- The Maths SATs consist of an arithmetic paper and a reasoning paper.
- The Arithmetic paper which contains 25 questions. Children will have 20 minutes to complete this although this is not strictly timed.
- The Reasoning paper consists of 35 questions which can be read out to the children. The children have 30 minutes to complete this, although this is not strictly timed.

ey stage 1 Mathematics

Have a look at the papers Any Qs? Surprises?

2018 Reasoning Paner



3

Use only these numbers to make a **different** number sentence each time.

One is done for you.



Write the missing number in the box.

$$13 + 6 = 10 +$$

A classroom has **6** tables.

Each table has **5** children sitting at it.

Complete the number sentence to show how many children there are **altogether**.



Write two numbers that are $\ensuremath{\textit{greater than 20}}$ to make this subtraction correct.

Year	NC Objectives	Examples	Models and Images	
EYFS	Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing. <u>Key Language</u> Add, plus More than One more double equal, total, altogether parts groups bigger smaller, (EXC greater than < less than >)	Adults to use age appropriate vocabulary with children, this includes a range of words such as add, plus, given. $\underbrace{Misconception}_{When counting on a number linethey do not jump to the nextnumber.2g, 3 + 2 = 40122g, 3 + 2 = 40123451111111111$	What is one more than 8? Can you still see the 8? Point to the 'one more'. What number do we have now? Show me 4 on your number line. Now jump forward two. What number have you landed on? Two more than four is six. 4+2=6 Children to use known items around them to count using 1-1 correspondence. How many dinosaurs are there? What about if I give you two more? How many are there now? There are 2 birds. Another bird flies in. How many are there altogether? Show me 1 more. Will this number get bigger or smaller?	ident te



Subtraction Calculation Policy

Year 1

Represent and use number bonds and related subtraction facts within 20 Recall doubles and halves up to 20.

Recall addition and subtraction facts up to 5.

Identify near doubles/halves using doubles already known.

Add and subtract one-digit and two-digit numbers to 20, including

Add more than two numbers.

Read and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs

<u>Key Language</u>

Subtract, take away, parts, whole, less than, inverse, bonds.

Teachers to introduce partitioning as a way of subtracting numbers that go beyond a boundary. Addition and subtraction should be taught together to enable children to see the link.

e.g. 11 - 4 = 11 - 1 - 3 = 7



Misconception

Subtraction means the number always gets smaller. Introduce adding zero.

There is no link to + or -/

Children should be give appropriate apparatus to subtract numbers beyond 20. Children to use resources and pictorial representation before moving on to the abstract. What does halving mean? Can you show me? It means subtracting part of the number. What numbers can we double?



(reinforce equal parts)

8 - 4 = 4 or 8

What does the 4 represent? What does the

8 represent?

Reasoning - An odd number - an odd number = an odd number. Is this always/sometimes/never true?

Start at the larger number on the number line and count back in ones or in one jump to find the answer. Children to progress to jump to the next multiple of 10.



the dark green.





Multiplication Calculation Policy

2



Division Calculation Policy

	DEVELOPING UNDERSTANDING OF DIVISION					
ar	NC Objectives	Examples	Models and Images			
(FS	Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.	Adults to use age appropriate vocabulary with children, this includes a range of words such as 'lots of 'equal' 'groups'. <u>Misconception</u> Children will not identify that groups should be equal.	If I have 6 wellies, how many children can wear a pair? Children experiment with objects they are familiar with. Doubling in practical contexts. E.g. adding spots to ladybirds. Using fingers and dominoes. Look at Numicon pieces for odd and even. Count groups of 2 and then count all objects to add them together.			
	Key Language Lots of, equal, groups, halving, total, altogether parts groups bigger smaller, (EXC greater than < less than >)	Misconception Children might not have a good sense of counting 1-1 correspondence.	How many 4s go into 8? How many 2s go in to 6? Double 4 is 8			

Times Tables Rock Stars





Activity ideas



- Draw a line. Mark 0 and 10 (or any number range needed). Roll a dice. Decide where that number would go and write it in. Repeat. This could also be played with playing cards. You can also start at any number and include whatever your child needs, eg decimals or fractions.
- Inbetweenies

39 39.4 40

50

67

Start by asking for a 2 digit number. Place it at the start of the line. Now ask for a higher 2 digit number and place at the end of the line. Now keep asking for numbers in between until you start having to think about decimals and then the fun begins!

Nice or Nasty!



Nice version! Have a target total and the winner is whoever gets closest to that target without going bust.

Nasty version! You are allowed to place digits on your partner's board to make it trickier for them.



This game can be played in a number of ways, including with decimals. Either play it by seeing who can end up with the highest (or lowest) number. You need to decide beforehand. Using a 1-9 dice, take turns to roll it. Whatever number you land on needs to be placed on one of your squares. If you are making a 3 digit number, for example, and you are seeing who gets the highest number then you would be hoping to place any larger numbers in the hundreds column and smaller ones in the ones column, but you never know what you will roll! You can also play a version where you add numbers and decide on your target total at the start of the game.



Questions



