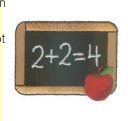


Tuesday 13th January
 LO: To be able to understand and adopt the policy of calculations as used throughout the Holy Cross Federation.

Welcome to our calculations morning. Our intention is to make you feel comfortable in understanding how your child learns to add, subtract, divide and multiply.

We have all learned differently, so the aim of this session is to ensure that we are not confusing children by presenting them with too many different ways of doing things!

We are not telling you how to do maths, we are showing you how we do things!

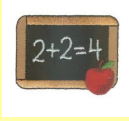


Sep 27-21:06

Tuesday 13th January
 LO: To be able to understand and adopt the policy of calculations as used throughout the Holy Cross Federation.

"The children are introduced to the processes of calculation through practical, oral and mental activities...

...over time the children learn how to use models and images, such as empty numberlines, to support their mental and informal written methods of calculations."




Sep 27-21:06

Addition...

The first stage of addition is to combine two groups...

For example: $3+2=5$



(Using fingers is ok!)

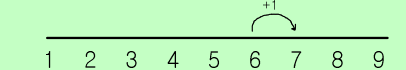
EYFS get a lot of practise with this in the activities that they partake in both inside and outdoors.

Sep 27-21:16

Addition...

Then, (and for the very able Reception children) we move on to counting one more, then several more, on a number line...

$6+1=7$



(We choose the biggest number first to get it out of the way)
 (Using fingers is ok!)

Sep 27-21:16

Addition...

At the beginning of KS1, the children learn that the equals sign means equality, so we use the calculation either side of the equals sign.

$12+8 = 20$
 $20 = 12+8$

This allows them to move onto sums with missing numbers...

$3 + 4 = \square$	$\square = 3 + 4$
$3 + \square = 7$	$7 = \square + 4$
$\square + 4 = 7$	$7 = 3 + \square$
$\square + \nabla = 7$	$7 = \square + \nabla$

Sep 27-21:16

Addition...

The next stage is for the children to continue to use a range of equations, but with larger numbers...

$14 + 5 = 10 + \square$ and $32 + \square + \square = 100$ $35 = 1 + \square + 5$

We will then teach them how to Partition into tens and one and recombine...

$12 + 23 = 10 + 2 + 20 + 3$
 $= 30 + 5$
 $= 35$

...then to count in tens and ones...

$23 + 12 = 23 + 10 + 2$
 $= 33 + 2$
 $= 35$

Sep 27-21:16

Addition...

As the children progress, we would move on to a blank number line, and we would bridge the 10...

$8+7=15$

8 _____

(We choose the biggest number first to get it out of the way)

Then we teach them how to add and adjust...

$35 + 9 =$


35 _____

Sep 27-21:16


Subtraction...

In the early stages, children will be taught to 'take away' one or two objects and find the new total.

For example: $5-3=2$



5 take 2 away is 3

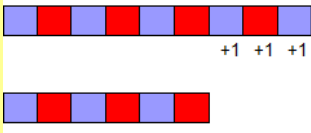


Oct 2-21:36

Subtraction...

Children are then introduced to the concept of difference and that subtraction can be worked out by counting on the difference.

For example: How much longer is this row of cubes than this one?
 $9 - 3 = 6$

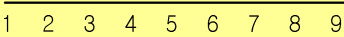


Oct 2-21:36

Subtraction...

This would be shown on a numberline as a counting down exercise.

For example:
 $9 - 3 = 6$



We would identify the 9 first and count down.

Oct 2-21:36

Subtraction...

The children would then practice using the equals sign to derive missing number problems, such as...

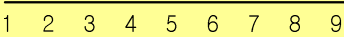
$7 - 3 = \square$	$\square = 7 - 3$
$7 - \square = 4$	$4 = \square - 3$
$\square - 3 = 4$	$4 = 7 - \square$
$\square - \nabla = 4$	$4 = \square - \nabla$

Oct 2-21:36

Subtraction...

They then learn subtraction as 'finding the difference between two numbers, so a number line can be used to count 'up'!

For example:
 $9 - 3 = 6$



We would identify the smallest number first, then count count up.

Oct 2-21:36

Subtraction...

Finally for KS1, we would move on to a blank number line, and we would bridge the 10...

By counting down...

$$15 - 7 = 8$$

(We identify the LARGEST number first to because we are counting back.)

OR by counting on...

$$15 - 7 = 8$$

(We choose the SMALLEST number first to because we are counting on.)

(Using fingers is still ok!)

The number of steps we do can be made smaller by jumping in bigger 'hops', and we can adjust if needed.

Oct 2-21:36

Multiplication...

First children are taught that multiplication is about counting groups of the *same size*.

For example

$$3 \times 2 = 6$$

$$3 \times 5 = 15$$

Oct 2-21:36

Multiplication...

Then we use lots of pictures and marks to give a practical experience of repeated addition...

For example

There are 3 sweets in one bag.
How many sweets are there in 5 bags?

Oct 2-21:36

Multiplication...

Then we move them on to number line jumps, showing the relationship between repeated addition and multiplication...

$$4 + 4 = 8$$

$$2 \times 4 = 8$$

$$4 \times 2 = 2 + 2 + 2 + 2$$

Oct 2-21:36

Multiplication...

$$13 \times 6 = 78$$

...and so on.

Oct 2-21:36

Multiplication...

Finally for KS1, we would move on to arrays and show this as repeated addition. (Teaching that multiplication can be reversed.)

$$4 \times 2 = 2 + 2 + 2 + 2$$

$$2 \times 4 = 4 + 4 = 8$$

$$5 \times 3 = 15$$

$$3 \times 5 = 15$$

Oct 2-21:36

Multiplication...

Partitioning...

Children need to be secure with partitioning numbers into 10s and 1s in different ways:
 $6 = 5 + 1$ so
 Double 6 is the same as double 5 add double 1

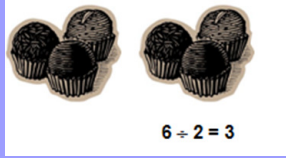
and double 15
 $10 + 5$
 $20 + 10 = 30$

Oct 2-21:36

Division...

In the early stages, children will be taught division as 'sharing'.

"6 cakes are shared between 2 people, how many cakes do they have each?"

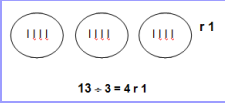


$6 \div 2 = 3$

Oct 2-21:37

Division...

...moving onto remainders once a firm understanding is in place...



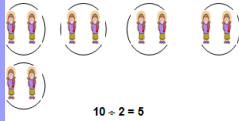
$13 \div 3 = 4 \text{ r } 1$

Oct 2-21:37

Division...

Children will then be taught division as 'grouping'.

10 children are grouped into teams of 2. How many teams will there be?



$10 \div 2 = 5$

Oct 2-21:37

Division...

Signs and missing numbers come in next...

$6 \div 2 = \square$	$\square = 6 \div 2$
$6 \div \square = 3$	$3 = 6 \div \square$
$\square \div 2 = 3$	$3 = \square \div 2$
$\square \div \nabla = 3$	$3 = \square \div \nabla$

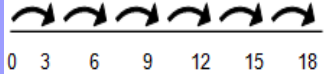
Oct 2-21:37

Division...

Finally for KS1, we would move on to division on a numberline.

A number line can be used to record grouping or sharing. It is also possible to record counting down in this way.

For example: $18 \div 3 = 6$.



This could be 18 chocolate eggs that are to be shared between three children OR 18 chocolate eggs that are to be packed (grouped) in boxes of 3.

Oct 2-21:37

Thank you...

...has anybody got any questions?

Oct 3-21:27