Wednesday $1^{\text {st }}$ November 2023 Maths Parent Workshop

## Maths No problem

## White Rose Maths

- New National Curriculum in 2014. Focus on 'mastery,' moving children away from procedural based understanding.
- Interest in high performing countries including Singapore, China and North Korea.
- Ensuring high expectations for all. No child left behind.
- Focus on challenge through rich and sophisticated problem solving activities.


## Mastery based progression approach: Concrete, pictorial and abstract learning.

- Develop children's conceptual understanding of number using:
- Concrete
- Pictorial

- Abstract



## Example:

## $6+3=$

Concrete - pictorial - abstract

## Bar modelling

## Concrete - modelling with real objects



Should we add or subtract to find the total number of flowers?

There are 8 flowers in the vase.
There are 2 flowers in Hannah's hand.
How many flowers are there in total?

$8+2=10$

There are 10 flowers in total.


## Example:

Jacqueline had 6 marbles, Jo gave her 5 more. How many marbles are there altogether?

We would represent this problem in a bar model, this helps children to visualise the calculation.

## Maths Learning by end of Year 1

- Count to and across 100, forwards and backwards. Beginning with 0 or 1, or from any given number. Find one more and one less than a number. Read and write numbers to 100 in numerals
- Understand the place value of two digit numbers
- Count in multiples of twos, fives and tens forwards and backwards
- Recognise odd and even numbers
- Represent and use number bonds and related subtraction facts within 20
- Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- Add and subtract one-digit and two-digit numbers to 20 , including zero
- Solve one-step problems that involve addition and subtraction, use concrete objects and pictorial representations, and missing number problems such as 7= $\qquad$ - 9
- Understand ' $=$ ' as a balancing sign

Place value is a very important concept for children to understand.

Place value explains what each digit in the number is worth, what is its value.

## Place Value

We use Dienes to make different numbers and to see the value of each digit. Firstly make the number 4.


Now add a 10 to make 14 .
Challenge: can we make 41? What is the value of the 4 ?
2) $5+0=$ ?

Number foritusevi. .-. -s.wsey

- 55559
ow many fingers are
being shown?
$55 \sqrt{5} 5$

Web $\quad$|  | $O$ | $O$ | $O$ | $O$ |
| :--- | :--- | :--- | :--- | :--- |

1. 

If and -5 make 6 .
2.

3.

|  | and make 6 |
| ---: | ---: |

4. 


o.


## Maths Learning by end of Year 1

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- Understand the place value of two digit numbers
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- Represent and use number bonds and related subtraction facts within 20
- Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- Add and subtract one-digit and two-digit numbers to 20 , including zero
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- Understand ' $=$ ' as a balancing sign

- Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher (grouping and sharing)
- Recognise, find and name a half as one of two equal parts of an object, shape and quantity to 20
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity to 20
- Recognise and name common 2D and 3D shapes
- Measure and begin to record the following:
- Recall language related to dates, days of the week, month, years
- Tell time to nearest hour
- Measure mass, height and capacity and compare using language 'heavier/lighter, longer/shorter, full/empty' etc

Let's write a repeated addition sentence.

We can also write a multiplication sentence.

Make an array for the number sentence:
$6 \times 3$ or 6 lots of 3 .
$3 \times 6$ or 3 lots of 6
Challenge: write some repeated addition and multiplication sentences for the arrays on your table.

## Maths Learning by end of Year 2

- Count in steps of 2,3 and 5 from 0 and any other one digit number, forward or backward and in steps of 10 from any number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Understand 0 as a place holder
- Compare and order numbers from 0 up to 200; use <, > and = signs
- Represent and estimate numbers to 200 using different pictorial representations
- Read and write numbers to 200 in numerals and to 100 in words
- Use place value and number facts to solve problems (e.g. using partitioning to add and subtract mentally,
e.g. $23=20+3$ and $23=10+13$ )


CHALLENGEI
Write the addition number sentences in your books


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e.g. $23=20+3$ and $23=10+13$ )


Mentally
$23+10=$
$103+10=$
$23+20=$
$120+24=$

- Add and subtract numbers mentally including *A two-digit number and ones *A two digit number and tens *Two, two digit numbers *Three one digit numbers
- Show that addition of two number can be done in any order (commutative) and subtraction of one number from another, cannot
- Recognise and use the inverse relationships between addition and subtraction and use this to check calculations and missing number problems
- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- Solve problems involving missing numbers

| 27 |  |  |
| :--- | :--- | :---: |
| 12 | 15 |  |



Use a rulen to draw bar models in your book to solve these addition and subtraction calculationst
5. $11+17=$
6. $22+26=$
6. $22+26=$

Fill in the bar models to solve these addition and subtraction calculations.
2. $23+14=$


Use a ruler to draw bar models in your book to solve these addition and subtraction calcula
5. $11+17=$
7. 19-7 =
6. $22+26=$
6. $22+26=$
4. $26-12=$



There can be some common misconceptions around bar modelling.



## - Fractions

- Recognise, find, name and write fractions $1 / 31 / 42 / 4$ and $3 / 4$ of a length, shape, set of objects or quantity
- Write simple fractions, e.g. $1 / 2$ of $6=3$ and recognise the equivalence of $2 / 4$ and $1 / 2$
- Order fractions and equivalence using models
- Understand tenths = ten equal parts
- Count up and down in tenths, over 1 whole
- Money
- Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

To find a fraction of an amount, we firstly divide it by the denominator.

Would you....
share?
use your knowledge of multiples? draw groups?

## $\frac{1}{4}$ of 12

The numerator tells us how many of these groups we want.


## Maths mastery

Can children apply their knowledge in other contexts. Can they use their subtraction knowledge to work out change? Can they solve two step word problems?

## Addition



Whitney has 3 jam tarts.


Tommy has 6 jam tarts.


Altogether they have 9 jam tarts.
$3+6=9$
So
$+\ldots=90$
What if all of the red jam tarts are eaten?
What if all of the purple jam tarts are eaten?

## Maths mastery

Can children apply their knowledge in other contexts. Can they use their subtraction knowledge to work out change? Can they solve two step word problems?

## Subtraction

Can you use inverse operations to check $5+12=17 ?$


How many possible inverse calculations are there?
Eva writes this calculation: $18-5=13$ Which of the following could she use to check her work?

$$
\begin{array}{ll}
13+5 & 13-5 \\
18-13 & 5+13
\end{array}
$$

## Maths mastery

Can children apply their knowledge in other contexts. Can they use their subtraction knowledge to work out change? Can they solve two step word problems?

## Multiplication

## -THANK YOU!

- Questions?
- Useful links:
- https://www.topmarks.co.uk/maths-games/5-7-years/counting
- https://nrich.maths.org/

