

## Maths

### Mastery Curriculum in Mathematics

At Lyppard Grange we use the glow project approach to maths. The children are encouraged to build up skills through whole class interactive teaching using concrete resources, where the focus is on all working together on the same content at the same time allowing all children to master maths skills and some to gain a greater depth of proficiency and understanding.

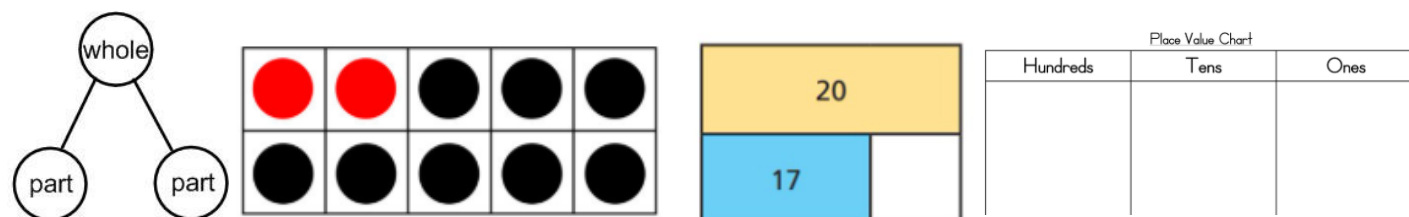
### Concrete

Using physical objects such as base ten, bead strings, counters, numicon and cubes to support with learning.



### Pictorial

Using drawings to solve maths problems



### Lesson Format-

**Teach it-** we start the journey together with the teacher modelling the maths skill.

**Practise it-** answering questions together using concrete resources to support the learning.

**Do it-** fluency based tasks to rehearse and secure (children complete a small task in books)

**Twist it task-** focus is on misconceptions and opportunities to reason.

**Deepen it task-** apply learning to solve problems

Do it

How many candles are there?



How did you count them?

There are \_\_\_\_\_ groups of 10 and \_\_\_\_\_ more.

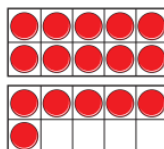
The number is \_\_\_\_\_.

2). How many balloons are there?



twist it

Tiny uses counters and ten frames to make a number.



I have made the number ten-six.

Do you agree with Tiny?

Talk about it with a partner.

deepen it

Jo writes a list of four 2-digit numbers.

The digits of each number add up to 5  
None of the digits are zero.



What are Jo's numbers?

Write the numbers in order, from smallest to greatest.

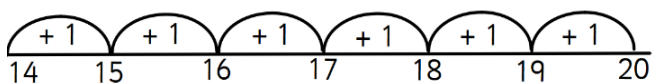
How did you do it?



**Calculation methods to solve the four operations:**

**Addition - blank number lines**

$14 + 6 = 20$

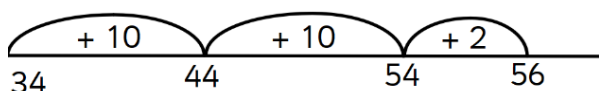


**Addition – Blank number lines** - Children continue to use blank number lines to solve addition problems in Year 2. Children jump on top when adding. Children will begin with single jumps until more confident to take larger jumps (as seen below).

**Larger jumps** - When adding 2 two-digit numbers together, children will be encouraged to use larger jumps. Children will add the tens before adding the ones. For example, when adding 22, children will add 2 lots of 10 before adding 2 ones.

**Encouraging larger jumps**

$34 + 22 = 56$



**Partitioning**

$54 + 23 = 77$

A diagram showing the partitioning of the numbers 54 and 23. The number 54 is written in purple, with arrows pointing down to 50 and 4. The number 23 is written in green, with arrows pointing down to 20 and 3. A plus sign is between them, followed by an equals sign and the number 77.

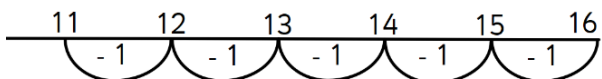
$50 + 20 = 70$   
 $4 + 3 = 7$   
 $70 + 7 = 77$

**Addition – Partitioning** – Another method the children will learn to use when adding 2 two-digit numbers together. Children will partition the numbers into tens and ones, add the tens together then add the ones together before recombining to give the answer. Children will then move on to calculations that bridge the tens.

**Subtraction – blank number lines** - Children continue to use blank number lines to solve subtraction problems in Year 2. Children jump underneath when subtracting. Children will begin with single jumps until more confident to take larger jumps (as seen below).

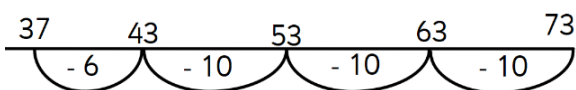
**Subtraction - blank number lines**

$16 - 5 = 11$



**Making larger jumps**

$73 - 36 = 37$

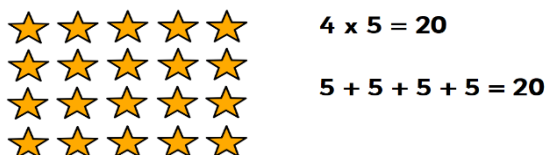


**Subtraction – larger jumps** - When subtracting with 2 two-digit numbers, children will be encouraged to use larger jumps. Children will subtract the tens before subtracting the ones. For example, when subtracting 37, children will take away 3 lots of 10 before taking away 6 ones.

**Multiplication – Arrays** - A multiplication array is simply an arrangement of rows and columns that matches a multiplication equation. You can make arrays out of objects or pictures, and you can use any sort of shape. For example, here is an array that that shows 4 x 5. Arrays help children make the link between multiplication and repeated addition.

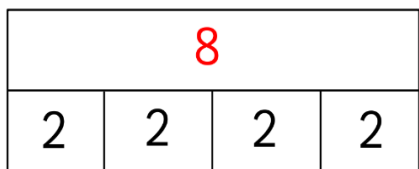
**Multiplication**

**Using arrays (pictorial representations) to show repeated addition.**



**Multiplication - Bar Models**

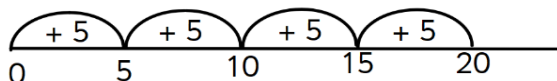
$4 \times 2 = 8$



**Multiplication – Bar models** – Children are taught how to use bar models to help them solve multiplication in Year 2. The top bar represents the whole number whilst the bottom bars represent

**Multiplication - Blank number lines**

$4 \times 5 = 20$



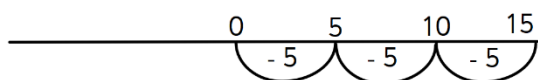
the parts. Children work out the number of parts they need based on the calculation. For example, for  $4 \times 2$  we need 4 lots of 2 so we need 4 parts, and in each part we have 2. Children will then count in their 2's using the bar model to guide them to find the whole number (8).

**Multiplication – Blank number lines** - Children begin to construct a blank number line in order to use a repeated addition method to solve simple multiplication. For example,  $4 \times 5 = 5 + 5 + 5 + 5$ .

**Division**

**Blank number lines to show repeated subtraction.**

$$15 \div 5 = 3$$

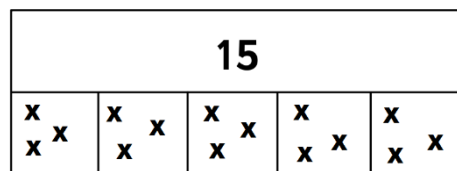


**Division – Blank number lines** - Children begin to construct a blank number line in order to use a repeated subtraction method to solve simple division. Children are taught that you subtract chunks or groups in order to divide. You then count up how many chunks of 5 you have subtracted to find the answer.

**Division – Bar models** – Children are also taught how to use bar models to solve division calculations. Children write the whole number that they are dividing in the top bar, then they carefully share out that amount of crosses EQUALLY across the parts, putting one cross in each box at a time. Children then count up how much crosses are in one part to find the answer.

**Division - Bar models**

$$15 \div 5 = 3$$



**Helping at home**

- Number bonds
- Counting in 2s, 3s, 5s, and 10s
- 2, 5 and 10 times tables
- Quick fire maths!

Practise on the way to school, in the car, in the bath!

**Other ways to use maths creatively**

- Measuring ingredients for baking or cooking
- Practise using money - adding up the cost of items, working out change, which combinations of coins could you use?
- Telling the time
- Recognising numbers and sequences when out and about (e.g. house numbers-odds and evens, bus numbers, car number plates etc.)
- Recognising shapes in everyday life (e.g. buildings, windows, food packaging etc.)
- Card games and counting games (e.g. Snakes & Ladders, Ludo and any dice games)

Many Thanks for your time,

Please do not hesitate to speak to your child's Class Teacher if you have any further questions.

Year 2 team