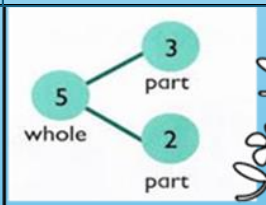
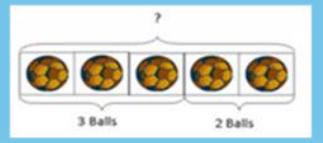
Maths at St Jude's

What is maths mastery?

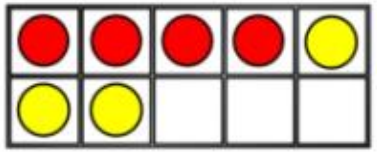
All children need a deep understanding of the mathematics they are learning. There is much more emphasis on reasoning, explaining, demonstrating and problem solving.

- Small steps
- Deeper learning
- More than memorisation and calculations
- Blocks of learning e.g. 3 weeks on place value.
- Revisiting previous learning and building on this.

	Concrete- physical resources	Pictorial- Pictures or visual representations	Abstract
Finds the total number of items in two groups by counting all of them.	  Use cubes to add two numbers together as a group or in a bar.	  Use pictures to add two numbers together as a group or in a bar. 	3 + 5 = 8 5 + 3 = 8 Use the part-part whole diagram as shown above to move into the abstract. 

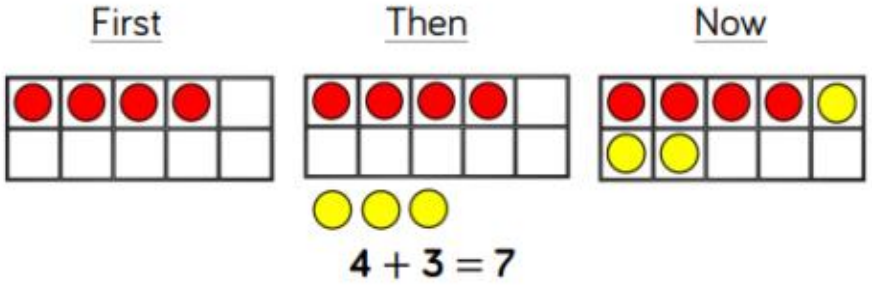
Resources and representations

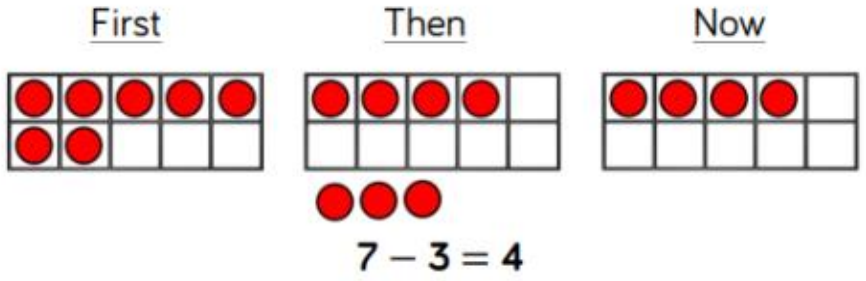
Ten Frames (within 10)



$4 + 3 = 7$
$3 + 4 = 7$
$7 - 3 = 4$
$7 - 4 = 3$

4 is a part.
3 is a part.
7 is the whole.





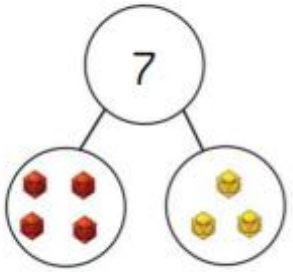
Benefits

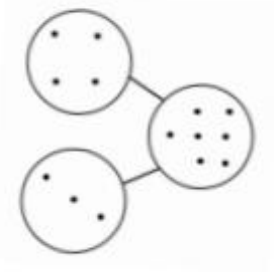
When adding and subtracting within 10, the ten frame can support children to understand the different structures of addition and subtraction.

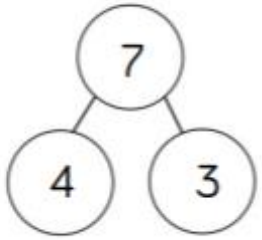
Using the language of parts and wholes represented by objects on the ten frame introduces children to aggregation and partitioning.
Aggregation is a form of addition where parts are combined together to make a whole. Partitioning is a form of subtraction where the whole is split into parts. Using these structures, the ten frame can enable children to find all the number bonds for a number.

Children can also use ten frames to look at augmentation (increasing a number) and take-away (decreasing a number). This can be introduced through a first, then, now structure which shows the change in the number in the 'then' stage. This can be put into a story structure to help children understand the change e.g. First, there were 7 cars. Then, 3 cars left. Now, there are 4 cars.

Part-Whole Model





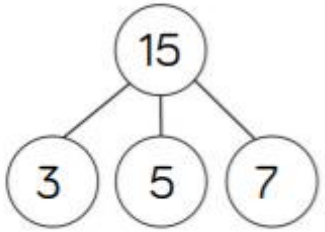


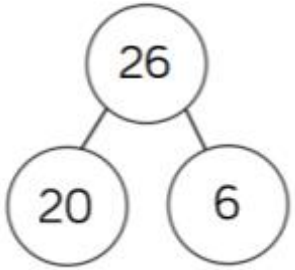
$7 = 4 + 3$

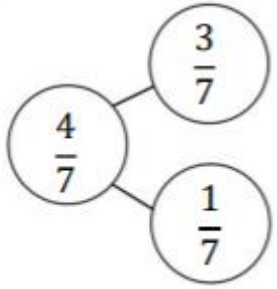
$7 = 3 + 4$

$7 - 3 = 4$

$7 - 4 = 3$







Benefits

This part-whole model supports children in their understanding of aggregation and partitioning. Due to its shape, it can be referred to as a cherry part-whole model.

When the parts are complete and the whole is empty, children use aggregation to add the parts together to find the total.

When the whole is complete and at least one of the parts is empty, children use partitioning (a form of subtraction) to find the missing part.

Part-whole models can be used to partition a number into two or more parts, or to help children to partition a number into tens and ones or other place value columns.

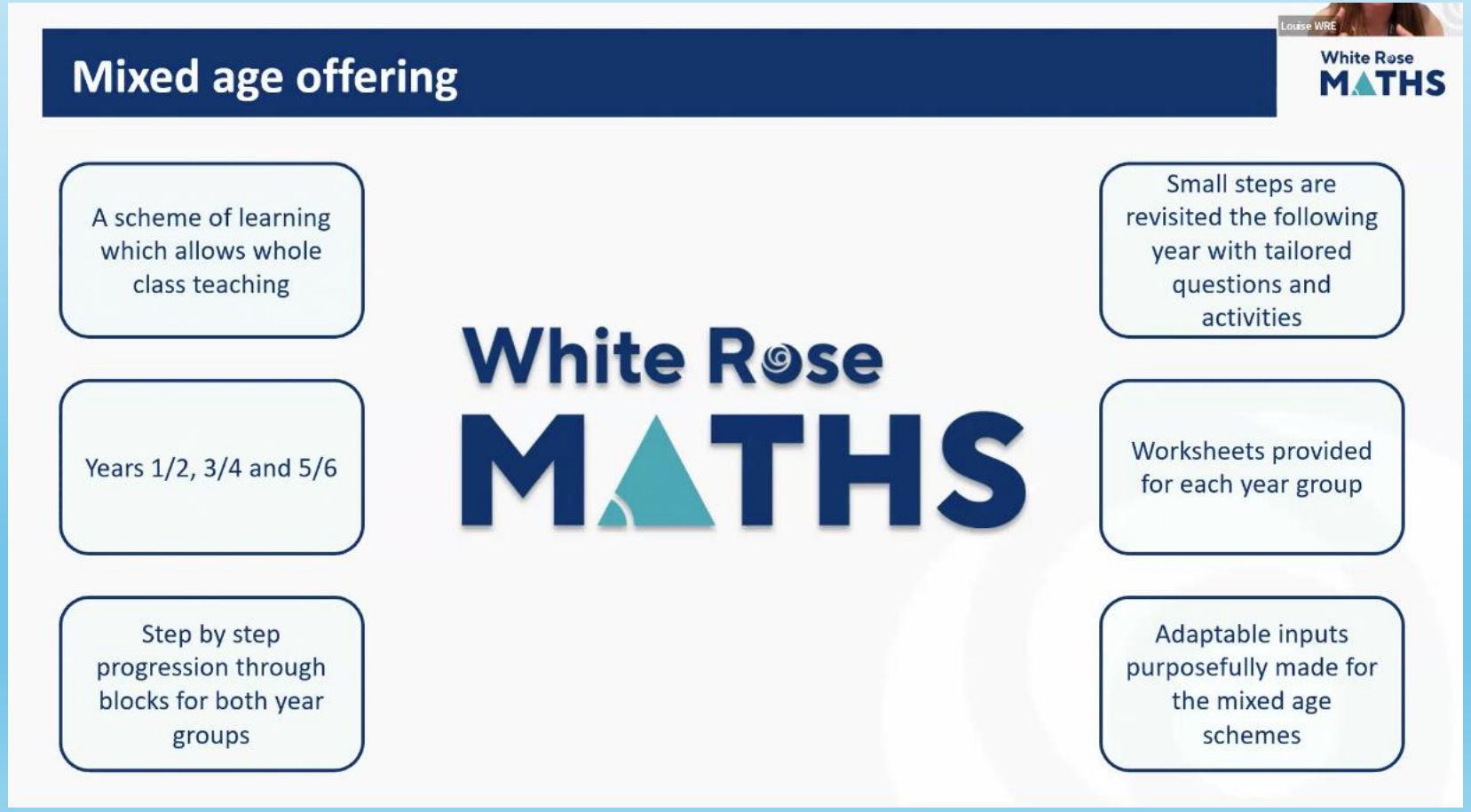
In KS2, children can apply their understanding of the part-whole model to add and subtract fractions, decimals and percentages.

KS1 Structure

- We have moved to whole class Maths teaching.
- This has reduced the number of transitions in the day and has resulted in a calmer classroom environment. It means children are with their class teacher for this lesson too.
- White Rose planning has been updated to enable whole class teaching.

Mixed age Maths teaching

White Rose have carefully mapped out both curriculums so that they can be taught together. There is already a large amount of overlap and revisiting of learning with year 1 and 2 curriculums.



Addition and subtraction block

Notes and guidance

In this small step, children add to the next 10 using their knowledge of number bonds and related facts.

Base 10 and Rekenreks are particularly useful concrete resources, as children can physically see the 10 they are making. Throughout this step, Year 2 children should move towards a mental strategy, rather than relying on counting the individual ones.

Children can identify missing numbers in a given calculation using the learning from earlier in the year. For example, to find the missing number in 28 + _____ = 30, they can use the fact that 8 + 2 = 10

Encourage children to make connections between the ones in calculations. For example, if they know that 35 + 5 = 40, they can use this to identify the missing number in 36 + _____ = 40: 36 is 1 more than 35, so the missing number must be 1 less than 5

Things to look out for

- Children may think that calculations presented in a different way are harder, for example identifying the missing number in 36 + _____ = 40 more easily than in _____ + 36 = 40 or 40 = _____ + 36

Key questions

- What is the multiple of 10 after _____?
- How many ones/tens are there in _____?
- What is the bond to 10 for _____?
- How many more do you need to add to get to _____?

Possible sentence stems

- The next 10 is _____
  The bond to 10 for _____ is _____
  I need to add _____ to _____ to get to the next 10

Single age small step links

- Find and make number bonds to 20 (Y1)
- Add to the next 10 (Y2)

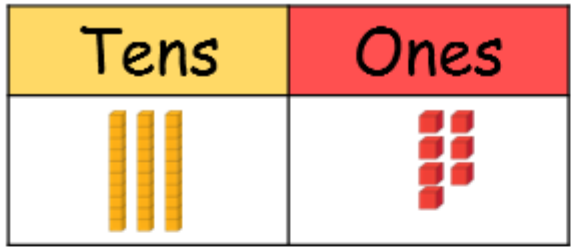
National Curriculum links

- Add and subtract 1-digit and 2-digit numbers to 20, including zero (Y1)
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a 2-digit number and 1s, a 2-digit number and 10s, two 2-digit numbers and adding three 1-digit numbers (Y2)

Same concept. Representations are different, numbers are different, more scaffolding.

Structure of a lesson

Flashback 4:
Recap of previous learning from the past week, month or term.

1) 

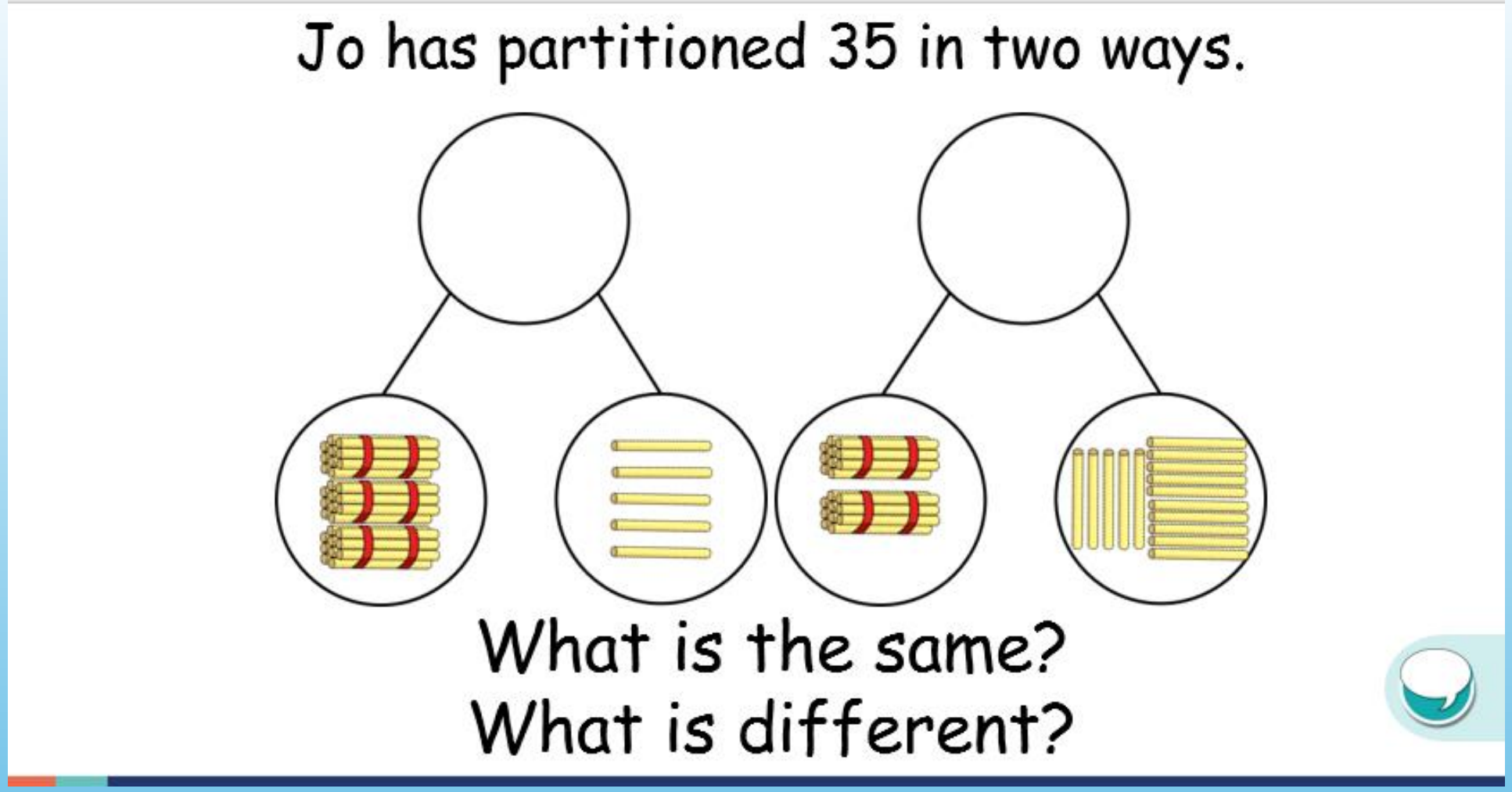
The number represented is ☐

2) 48 has ☐ tens and ☐ ones.

3) 8 + ☐ = 13

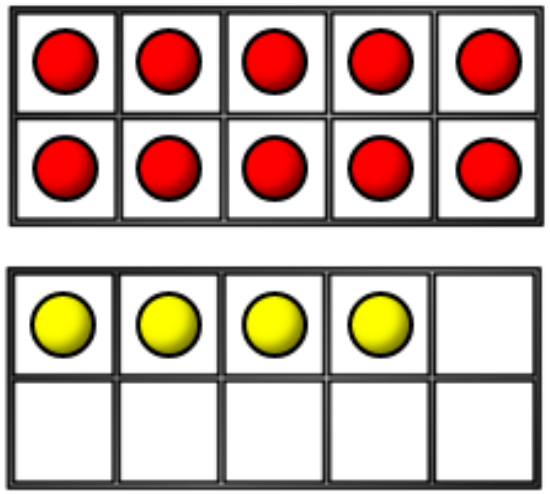
4) Write 16 in words.

Use Base 10 to build numbers under 20



- Starter
- Main teaching: Vocabulary, worked examples, sentence starters, whiteboard work. 'My turn, our turn, your turn'.
- Both year groups are able to access this level.

What number is represented?



14

What is number is 1 more? 15

What is number is 1 less? 13

Mo is thinking of a number.

My number is more than 11 but less than 15

Mo's number could be... 12, 13, 14

My number begins with 't'

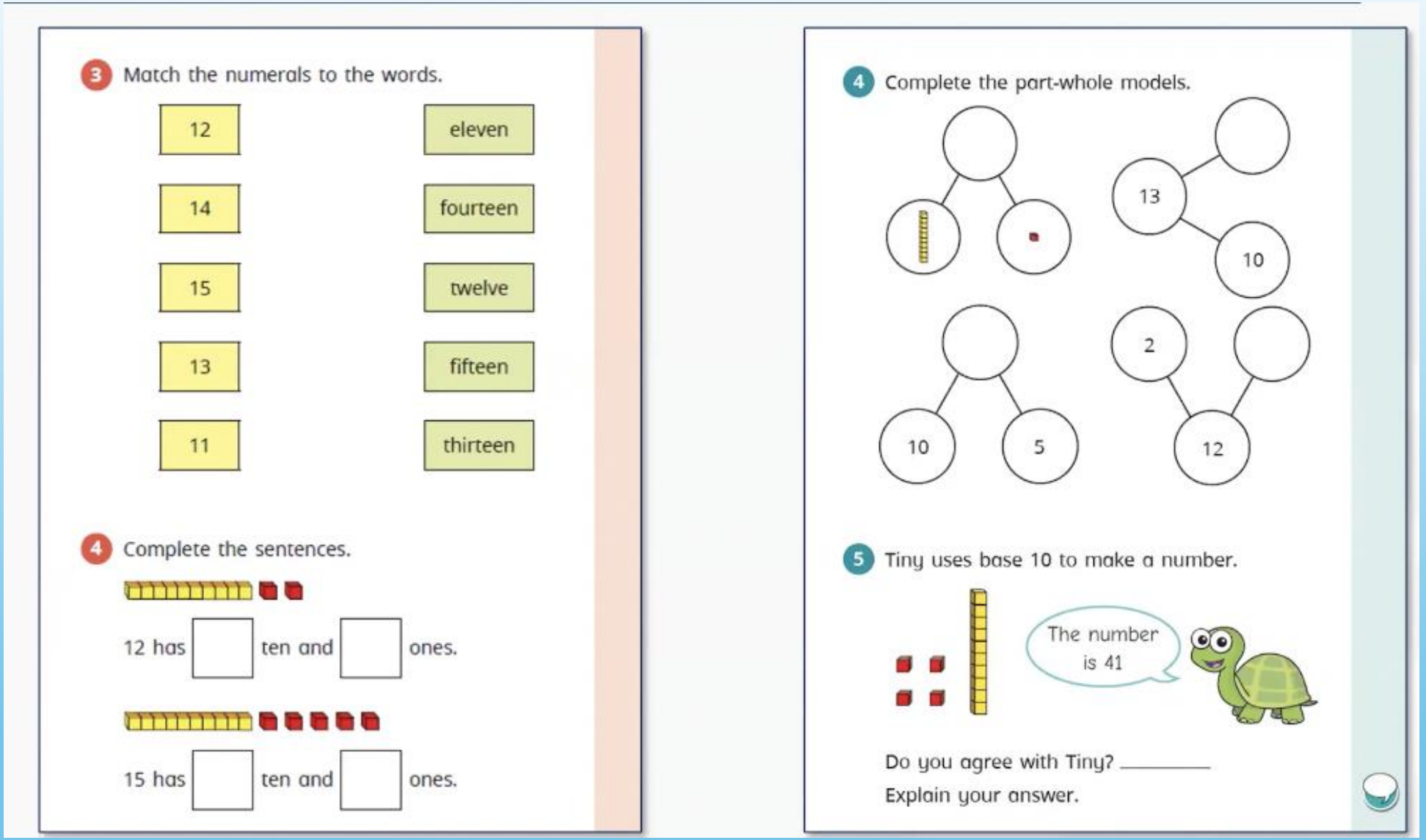
Mo's number could be... 12, 13

My number has 2 ones

Mo's number is... 12

White Rose MATHS

Split screens- one is for Year 1 pupils and one for Year 2. This allows pupils to access the learning at their level, and for teachers for check their understanding.



3 Match the numerals to the words.

12	eleven
14	fourteen
15	twelve
13	fifteen
11	thirteen

4 Complete the sentences.

12 has ☐ ten and ☐ ones.

15 has ☐ ten and ☐ ones.

4 Complete the part-whole models.

13, 10

10, 5

2, 12

5 Tiny uses base 10 to make a number.

The number is 41

Do you agree with Tiny? _____

Explain your answer.

Separate activities for each year group. Both will have reasoning and problem solving. Some children will need support within their year group work and some will have extension activities.

How can you help at home?

- Maths homework fortnightly
- **Counting-** out sweets, building blocks, going up stairs. Once they can do it forwards, do it backwards. Into Year 1 and 2, beginning to count in 2s, 5s, 10s.
- **Subitising-** knowing how many **without counting.** Only for smaller numbers. Noticing in bigger numbers how they are made up: e.g. 7 counters. May notice 3 and 4.
- **Follow a recipe:** work together to find out the quantities needed, ask your child to weigh the ingredients, discuss how you'd halve or double the recipe.
- **Going shopping**: talk about the cost of items and how the cost changes if you buy two items instead of one. Let your child count out the coins when paying and discuss the change you get back. Use coins to explore addition, subtraction, multiplication and division.
- **Telling the time-** Talk about the time. What time is lunch? Bedtime? When you are going out etc? Digital clocks are a good starting point. Hours and minutes- build up a concept of what they are.

Useful websites

- CBeebies have lots of fun and interactive games and activities to help get our younger children excited about Maths
- I See Maths – a useful site with a plethora of ideas for fun games for all the family
- Hit the Button – children love this game as it helps to increase confidence through practising times tables and number bonds.
- Maths Zone – this site is jam-packed with fun ways to learn more about maths.
- BBC Bitesize – lots of information alongside short videos help to make the learning enjoyable and accessible for all children.
- Numberblocks- programme that helps develop a secure knowledge of number.
- GCP books