Marvellous Maths Workshop Key Stage 1 and 2

14th October 2019

The Mastery Approach

- Taught as a whole class – everyone is doing the same thing – how they get there may vary
- A teaching sequence of concrete, pictorial and abstract
- Fluency tasks
- Mastery and greater depth sasks (Seghill Solver and Challenge Champion

KS1 and 2 maths curriculum

- Fluency - The national curriculum for mathematics aims to ensure that all pupils:

become fluent so that they have the ability to recall and apply knowledge rapidly and accurately.

- Reasoning and Problem Solving - The national curriculum for mathematics aims to ensure that all pupils:

can reason mathematically by using mathematical language accurately in order to explain why something happened, how they got an answer or to prove why something is true or untrue

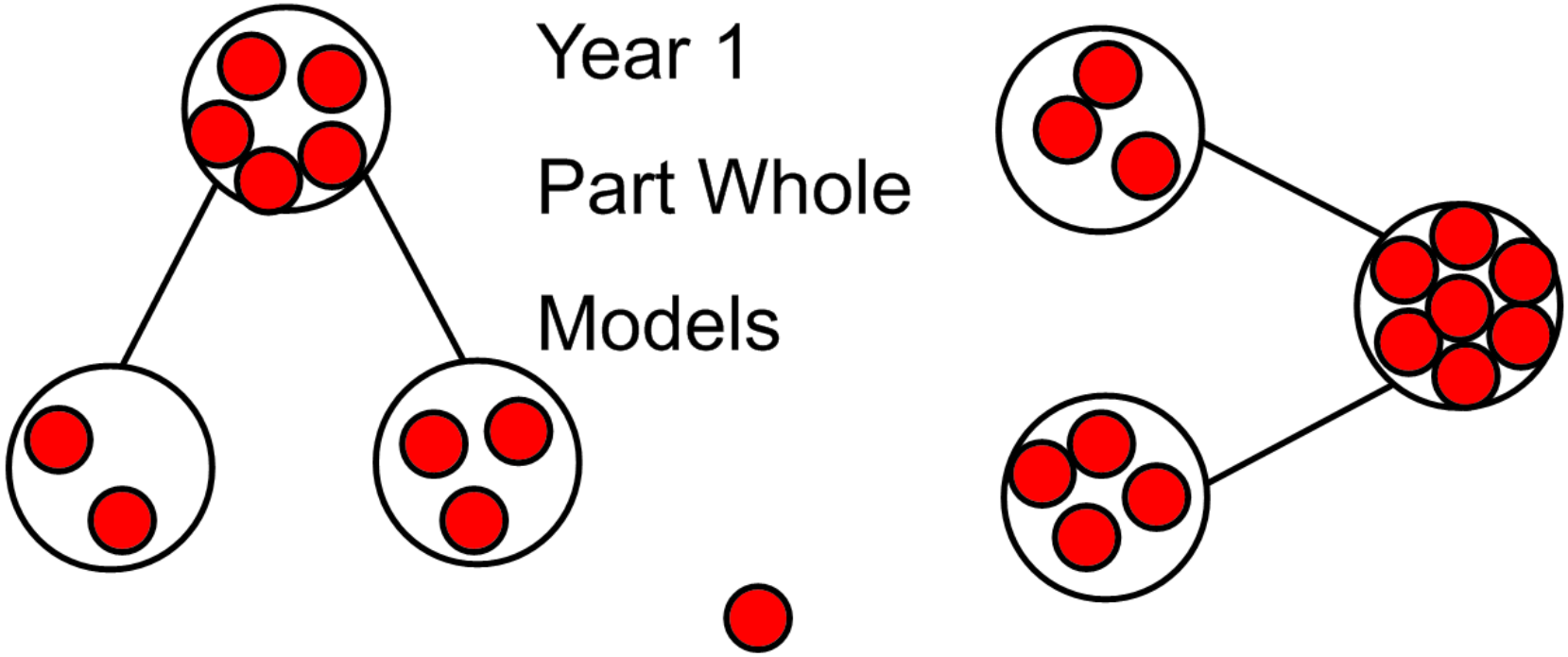
can solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into simpler steps and persevering in seeking solutions.

The importance of counting

- 1. Counting in a given number starting at zero – link to multiplication tables
- 2 Counting in a given number starting at any number.
- 3. Counting backwards.
- 4. Missing numbers in number sequences.
- 5. Reasoning about whether a given number will be in a particular number sequence.

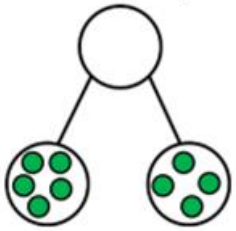
Workshop

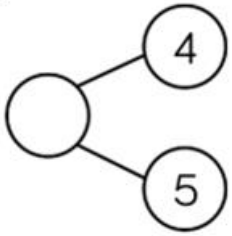
- Look at, talk about and use concrete manipulatives
- Fluency tasks, mastery and greater depth challenges
- Have fun, explore and ask questions!


Year 1
Part Whole
Models

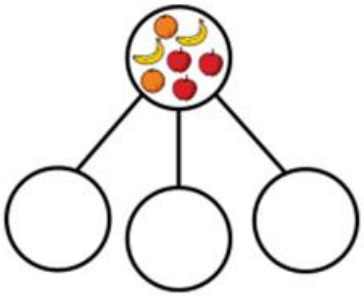
Year 1

- Complete the part-whole models by drawing counters and then writing the numerals.





- Here are seven pieces of fruit.



Put the fruit into a part-whole model.
Complete the sentences.
_____ is the whole.
_____ is a part, _____ is a part and _____ is a part.

- Draw the part-whole model that represents the stem sentences:
  - A part is 4
  - A part is 3
  - The whole is 7

Year 1

There are 6 animals.

How many different ways can you sort the animals?
Complete a part-whole model for each way.
Can you partition the animals into more than 2 groups?

Year 1

Challenge Champion

4 is the whole.
How many **different** part-whole models can you draw to show this?
Use different numbers for the parts every time.

Are any the same? Why?

Year 1

Work in groups of up to 8 children.

Can you split yourselves into different groups?

Think of different ways to group yourselves: hair colour, eye colour, gender, shoe size etc.

Complete a part-whole model for each way.

Can you partition into more than 2 groups?

Seghill Solver

Year 2

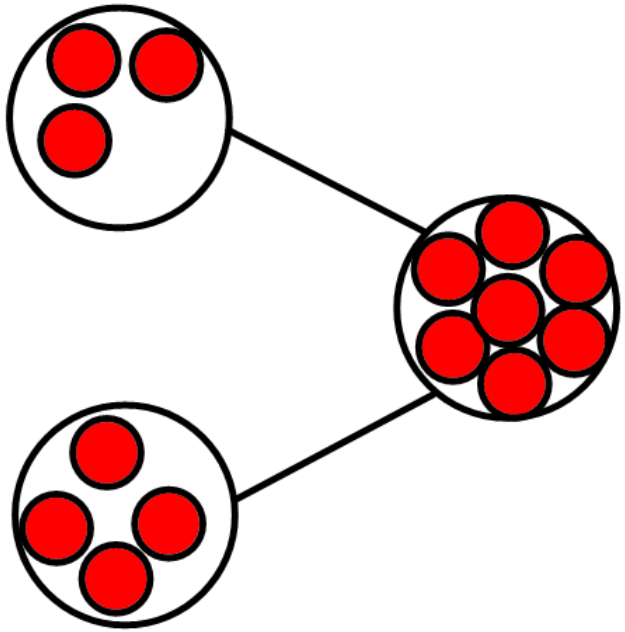
Part Whole Models

3 + 4 = 7

4 + 3 = 7

7 - 4 = 3

7 - 3 = 4



Year 2

- Using concrete apparatus, can you talk about the relationships between the different flowers?

- One relationship shown by this part-whole model is 15 + 5 = 20
  Can you write all associated number sentences in the fact family?

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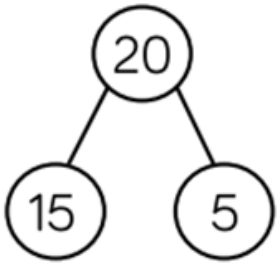
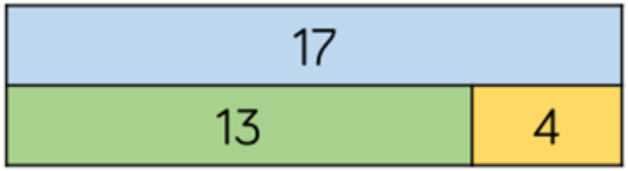


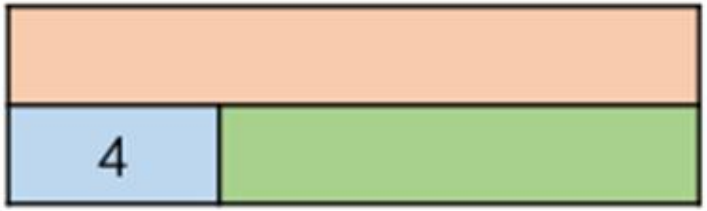
- Look at the bar model below.
  Can you write all of the number sentences in the fact family?



Year 2

Seghill Solver

Here is an incomplete bar model.
The total is greater than 10 but less than 20
What could the missing numbers be?
How many different combinations can you find?



Year 2

Challenge Champion

$8 - 5 = 3$

$8 - 3 = 5$

$8 = 5 - 3$

$3 = 8 - 5$

Rosie says,

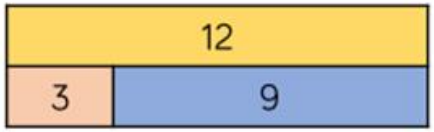
I think that all of these facts are correct because the numbers are related

Ron disagrees.

Who is correct? Can you prove it?

Year 2

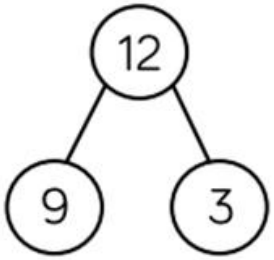
Which of the representations are equivalent to the bar model?



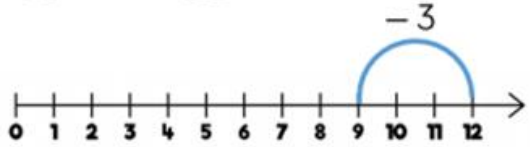
Challenge Champion

$12 = 9 + 3$

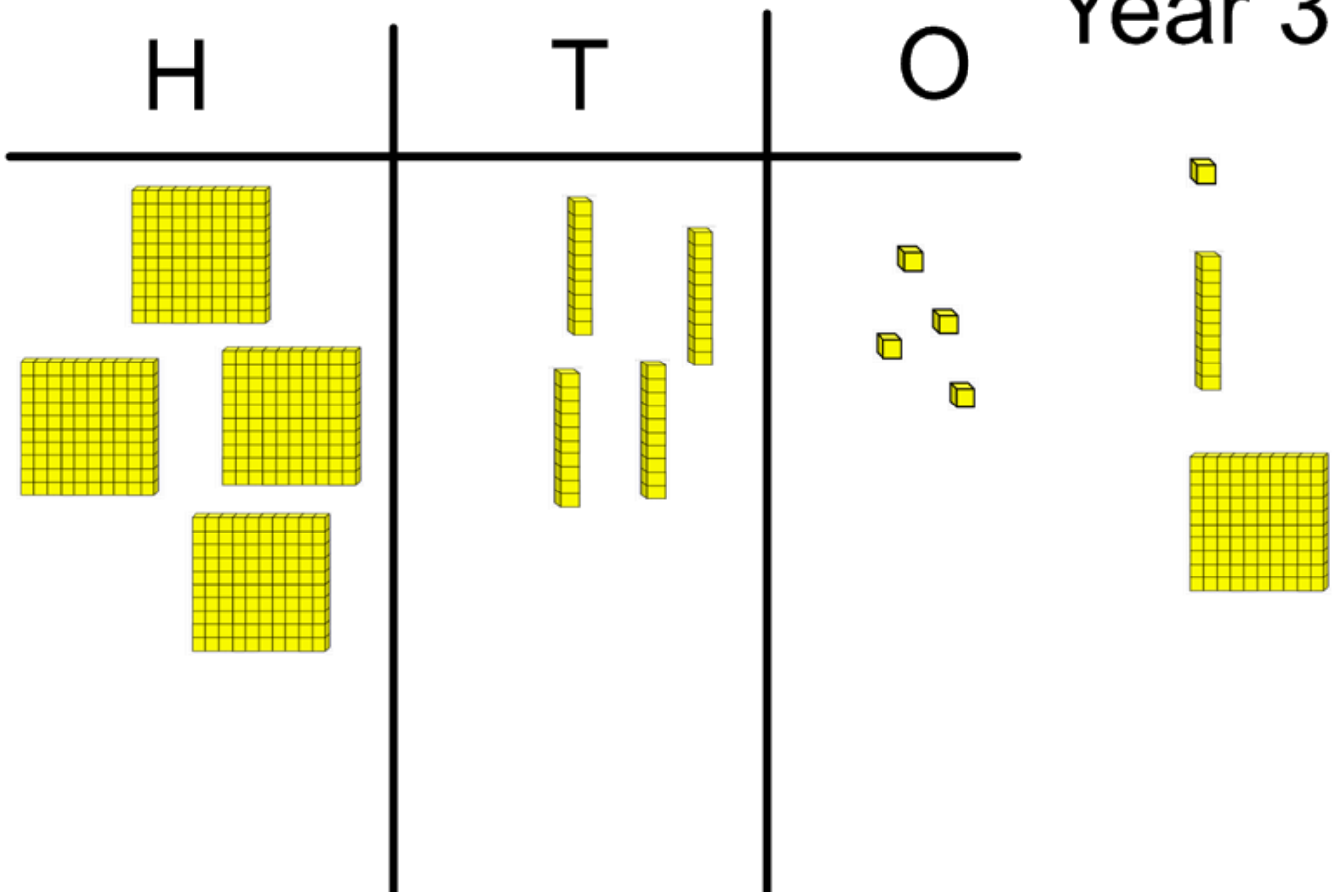
There are 9 cars in a car park, 3 cars leave.



$9 - 3 = 12$



Year 3



Year 3

Hundreds	Tens	Ones

Use the place value grid to complete the calculations.

214 – 3 = ___ 214 + 3 = ___

Complete:

356 – 5 =	356 – 5 =	356 – 5 =
357 – 5 =	356 – 4 =	366 – 5 =
358 – 5 =	356 – 3 =	376 – 5 =
359 – 5 =	356 – 2 =	386 – 5 =

Jack has 534 team points and gets four more.
Tommy has 534 team points and loses four of his.
How many team points does each person have?
Who has the most?

Rosie has added or subtracted ones to get this answer.

Hundreds	Tens	Ones
● ● ●	● ● ● ●	● ●

What could her calculation have been?

Her starting numbers are between and include 340 and 350

Did you use a strategy?

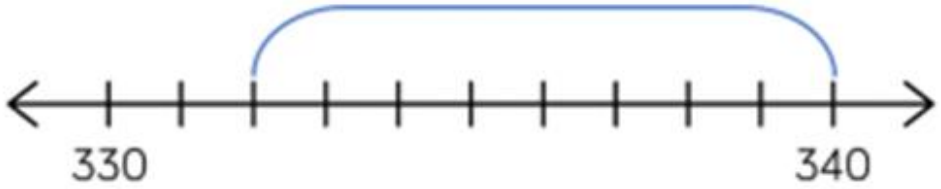
Do you see a pattern?

Seghill Solver

Year 3

Year 3

Which image does not represent 339 – 8?



Challenge Champion

Year 3

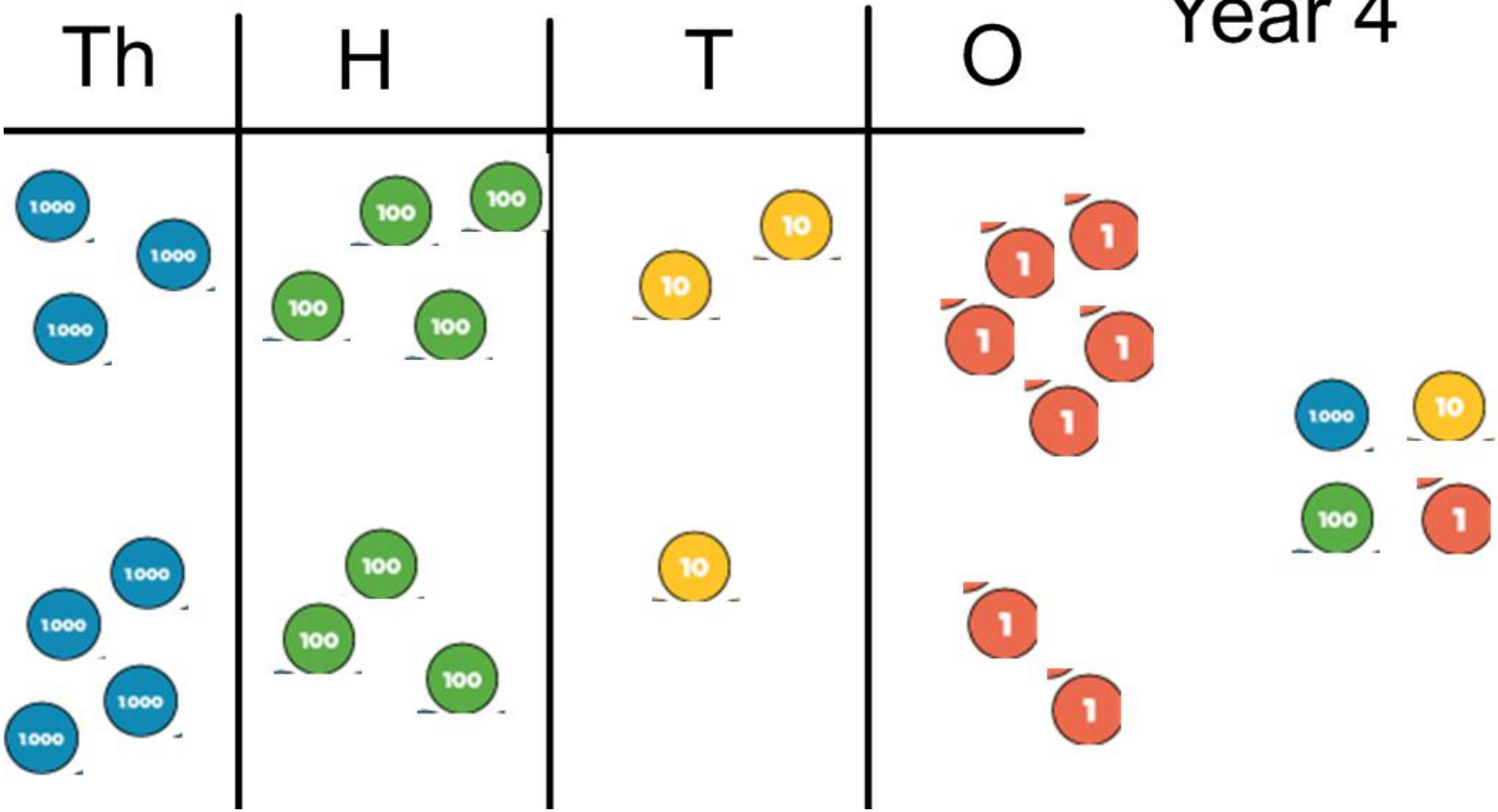
Challenge Champion

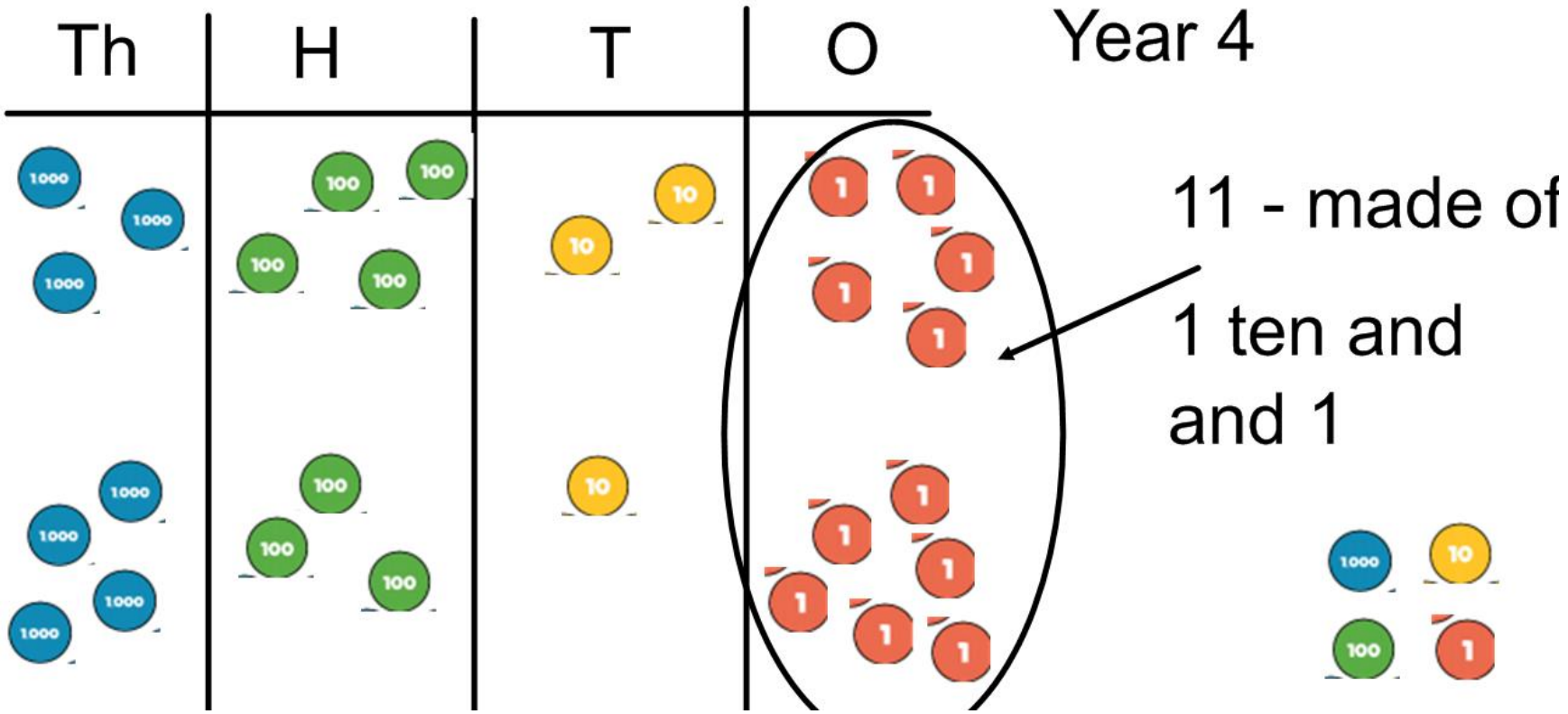
Alex thinks the chart shows 456 – 4
Do you agree?

Hundreds	Tens	Ones
● ● ● ●	⊘ ⊘ ⊘ ⊘ ●	● ● ● ● ● ●

Explain why.

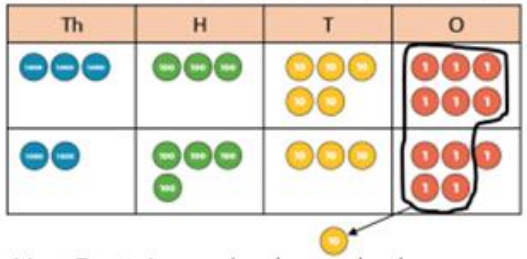
Year 4




Th
H
T
O
Year 4
11 - made of
1 ten and
and 1

Year 4

- Rosie uses counters to find the total of 3,356 and 2,435



	Th	H	T	O
	3	3	5	6
+	2	4	3	5
	5	7	9	1
				1

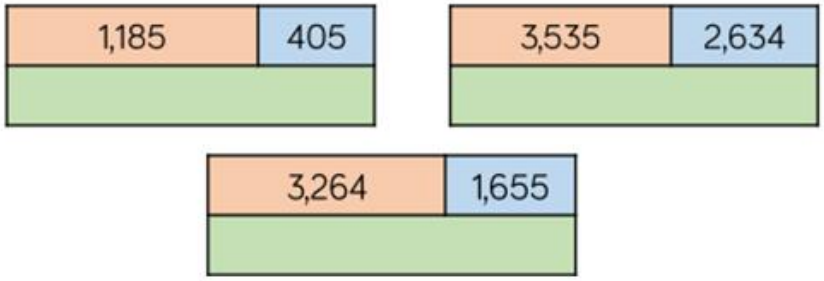
Use Rosie's method to calculate:

3,356 + 2,437 3,356 + 2,473 3,356 + 2,743

- Dexter buys a laptop costing £1,265 and a mobile phone costing £492

  How much do the laptop and the mobile phone cost altogether?

- Complete the bar models.



Year 4

What is the missing 4-digit number?

	Th	H	T	O
	___	___	___	___
+	6	3	9	5
	8	9	4	9

Seghill Solver