Burnt Oak Junior School

The Pioneer Academy

Burnt Oak Junior School

An Introduction to Maths teaching at Burnt Oak Junior School.

What scheme of learning do we follow?

We use the White Rose Maths 'schemes of learning' for each year group from Reception to Year 6. This is the same in all TPA Trust schools.

This is a mastery approach to maths teaching that matches the National Curriculum.

It is a clear, time-linked plan for learning throughout the whole school year.

What does it mean in practice? In summary, a mastery approach…

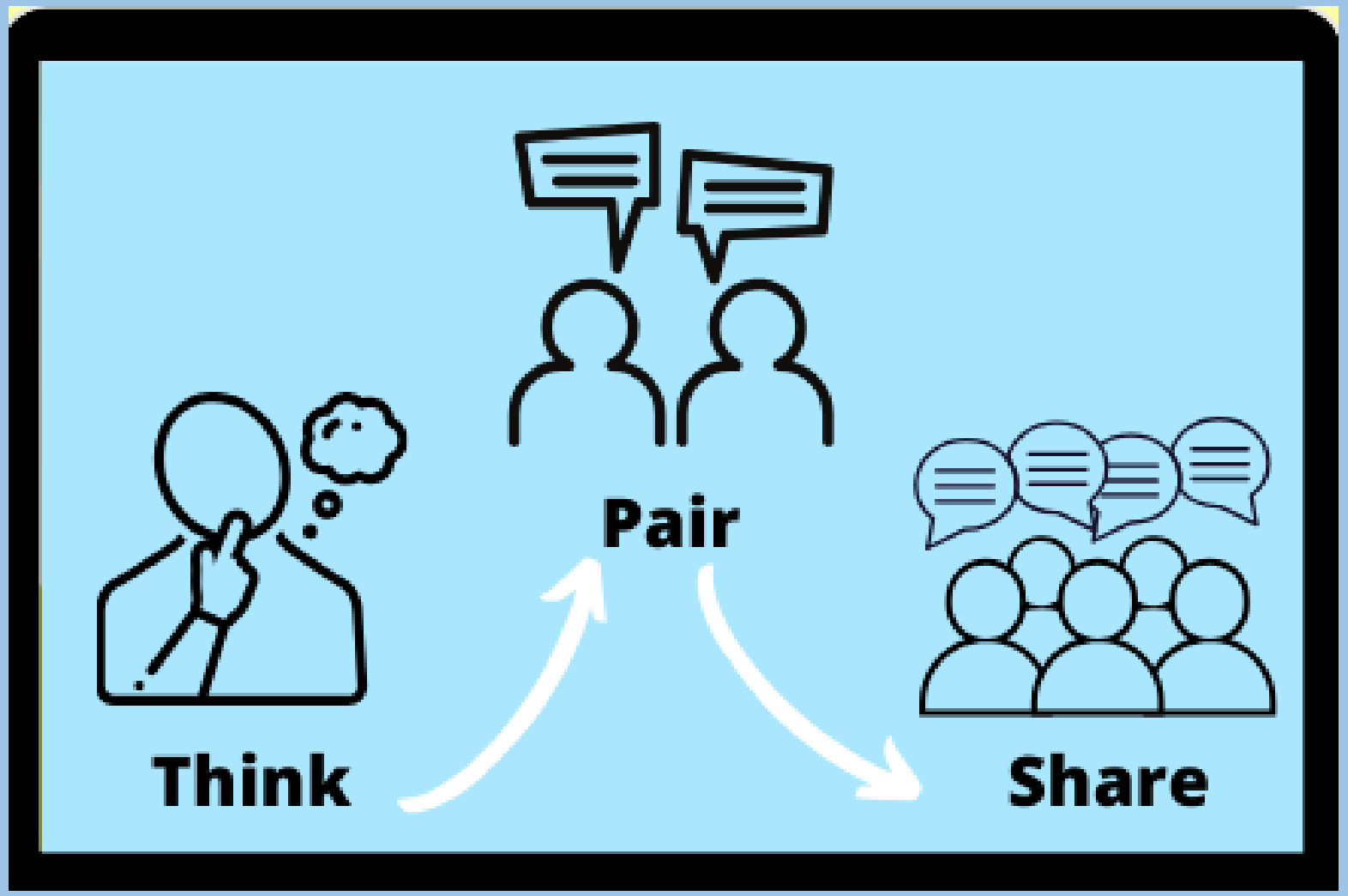
Puts numbers first: Our schemes have number at their heart, because we believe confidence with numbers is the first step to competency in the curriculum as a whole.

Puts depth before breadth: we reinforce knowledge again and again.

Encourages collaboration: children can progress through the schemes as a group, supporting each other as they learn.

Focuses on fluency, reasoning and problem solving: it gives children the skills they need to become competent mathematicians.

Involving Everyone

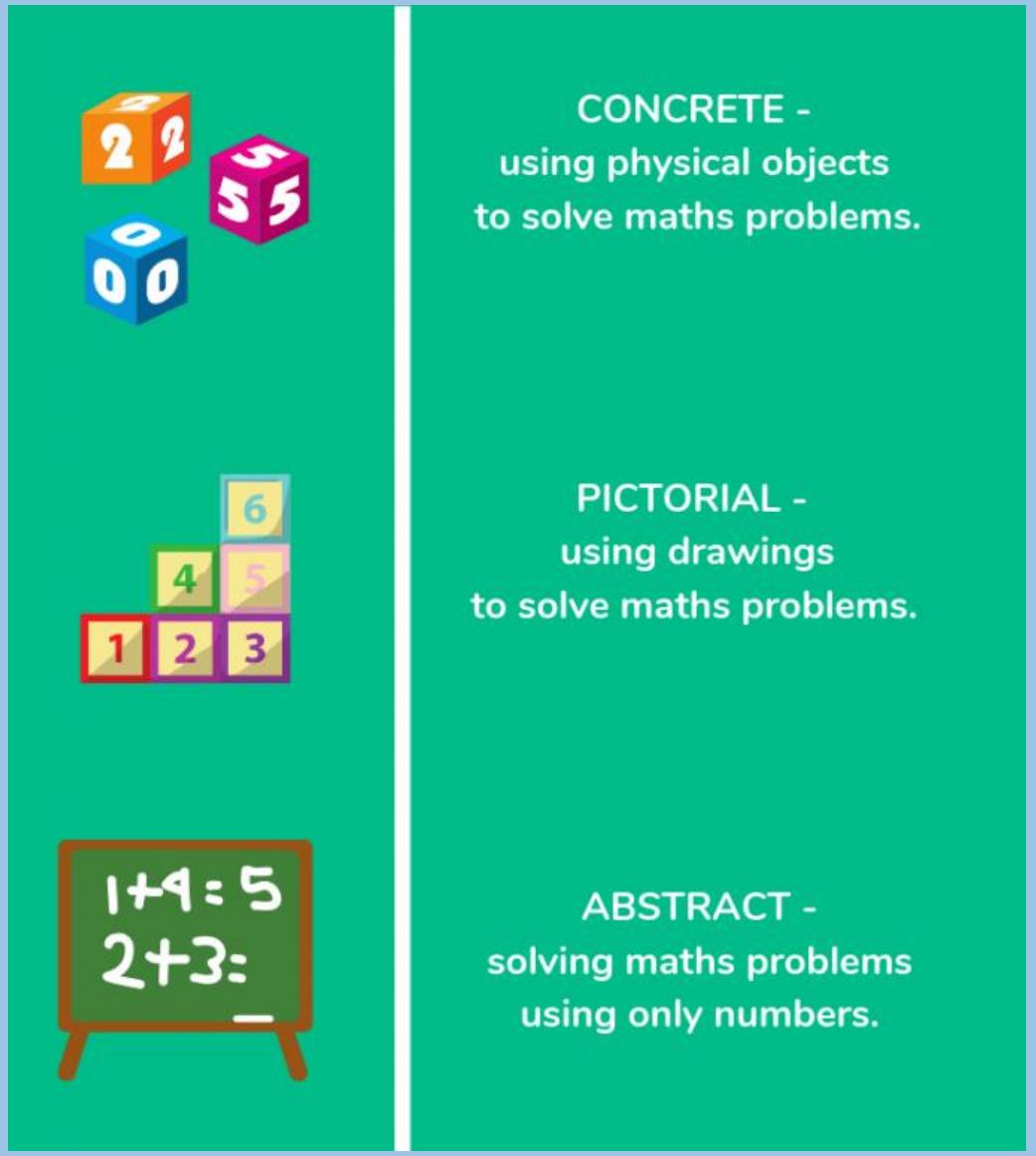


- What is the CPA approach?

Concrete Pictorial Abstract

At the heart of the White Rose Maths mastery approach is the Concrete Pictorial Abstract (CPA) approach.

Research shows that when children are introduced to a new concept, working with concrete and physical resources as well as pictorial representations leads to a better understanding of abstract concepts.



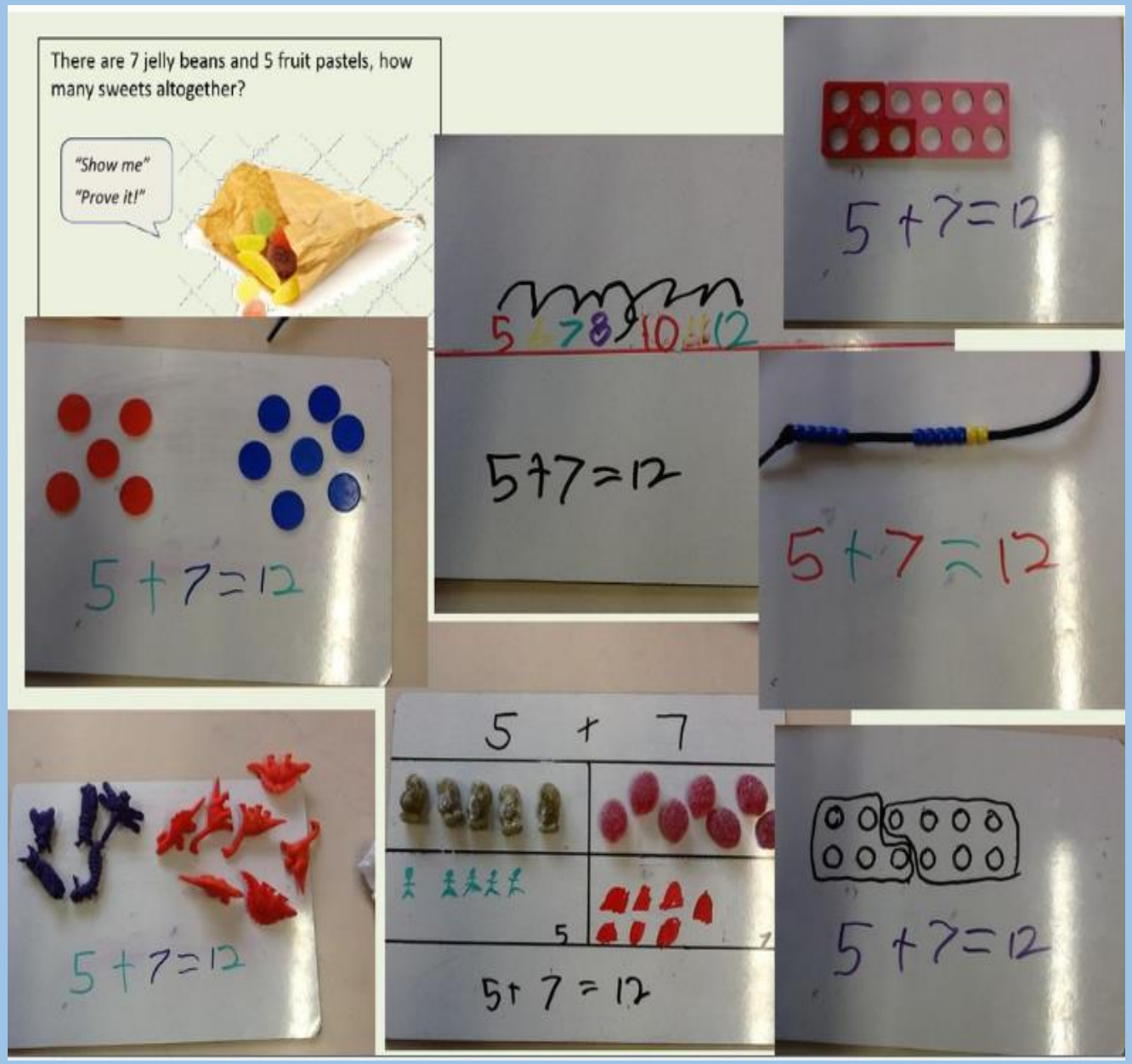
Why is this beneficial to our students?

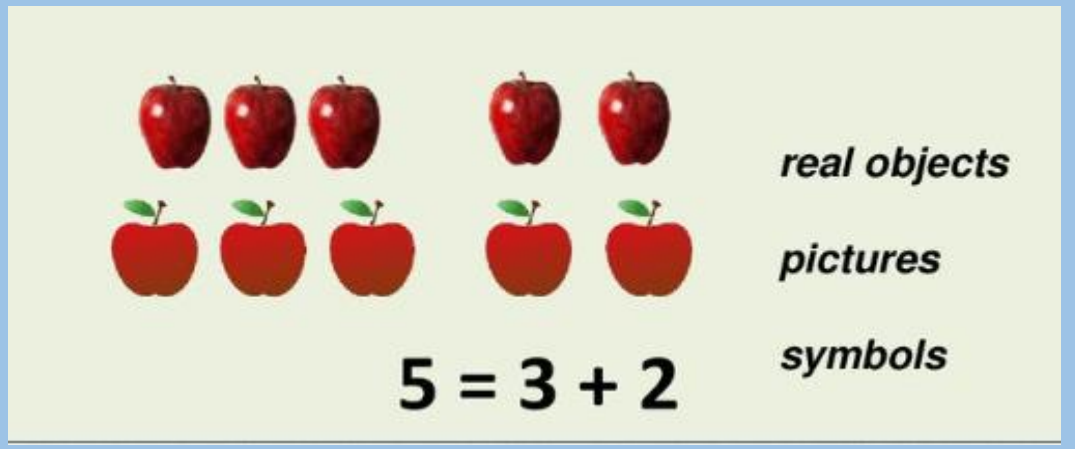
Research-based studies show that students who use concrete materials

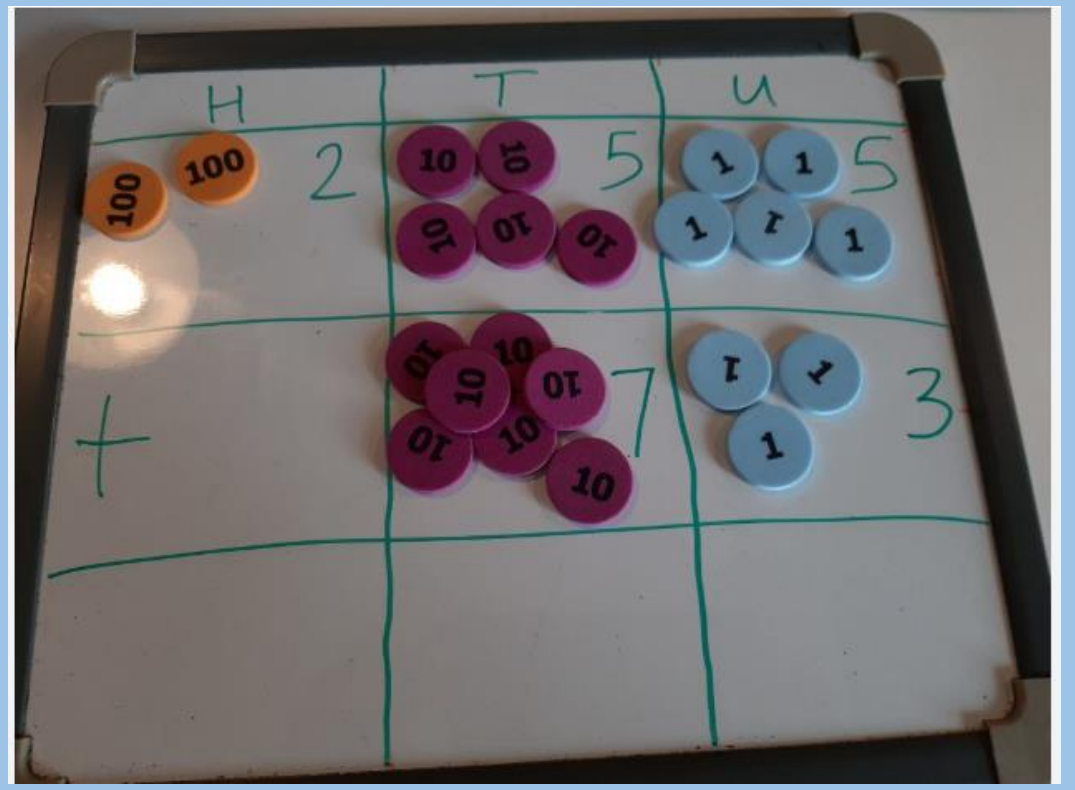
- develop more precise and more comprehensive mental representations,
- often show more motivation and on-task behavior,
- understand mathematical ideas, and
- better apply these ideas to life situations

List/Uses of Suggested Mathematical Tools (Manipulatives)

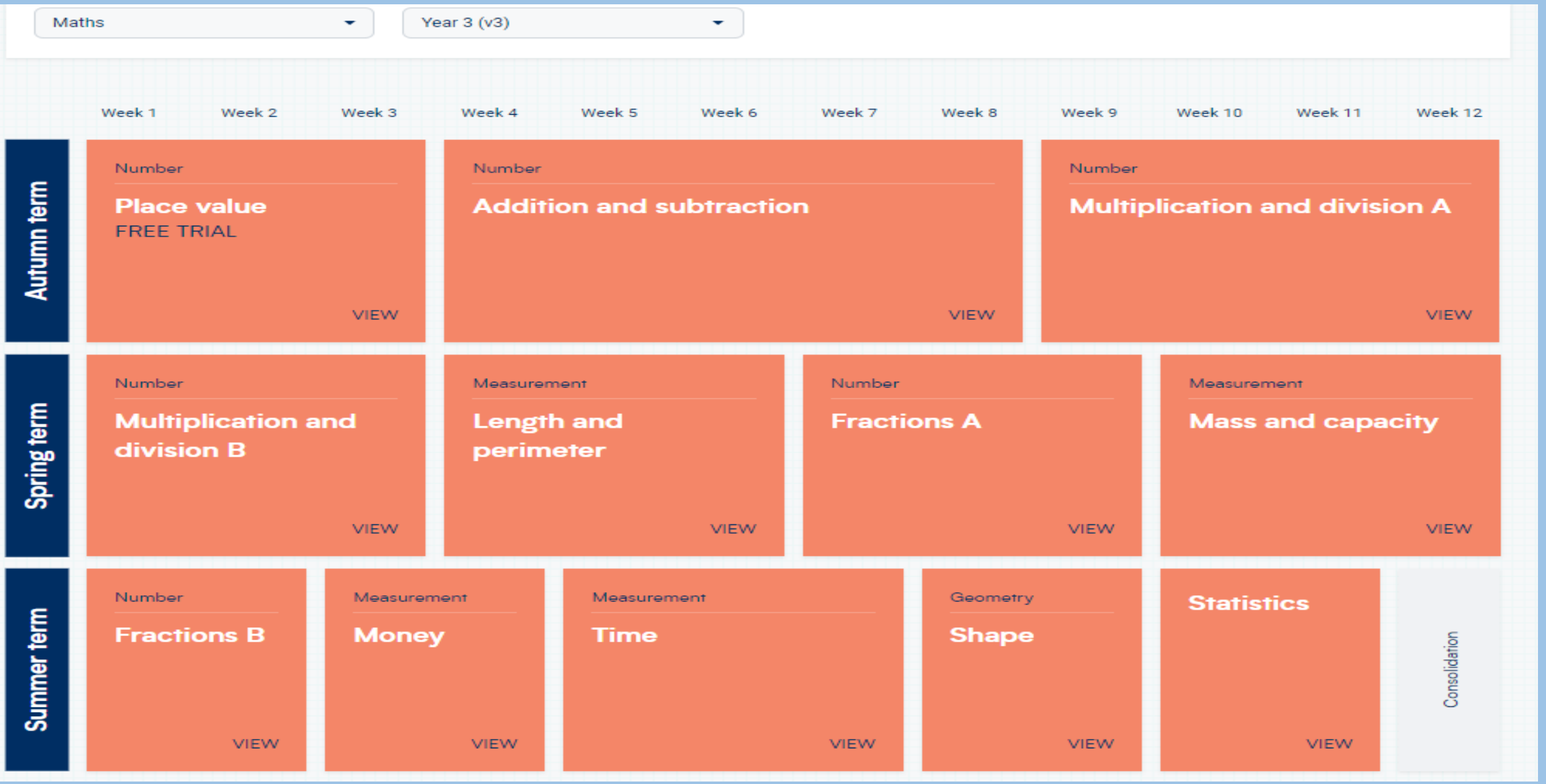
An example of CPA use within classes







An example of a long term overview of Maths within Year 3



Small steps within each topic

Year 3 | Autumn term | Block 2 – Addition and subtraction

Small steps

Step 1	Apply number bonds within 10
Step 2	Add and subtract 1s
Step 3	Add and subtract 10s
Step 4	Add and subtract 100s
Step 5	Spot the pattern
Step 6	Add 1s across a 10
Step 7	Add 10s across a 100
Step 8	Subtract 1s across a 10

White Rose MATHS

Examples of White Rose maths worksheets

Add two numbers (no exchange)

White Rose MATHS

1 Complete the column addition. Use base 10 to help you.

Tens	Ones
+	

		T	O	
		3	4	
	+	5	3	

2 Complete the column addition.
Use place value counters to help you.

Hundreds	Tens	Ones
100 100 100 100	10 10 10 10 10	1 1 1
+ 100	10 10	1 1 1 1 1

		H	T	O	
		4	5	3	
	+	1	2	5	

3 Kim uses counters and a place value chart to help her work out 362 + 205

Hundreds	Tens	Ones
100 100 100	10 10 10 10 10 10	1 1
+		

		H	T	O	
		3	6	2	
	+	2	0	5	

a) Draw counters to complete the chart.

b) Complete the column addition.
Which column did you add first?
Talk to a partner about your method.

4 Work out the additions.

a) 711 + 140 **b)** 414 + 203

5 Mrs Morgan drives 230 km on Monday.
On Tuesday, she drives 169 km.
How far does she drive in total on Monday and Tuesday?

6 Use the column method to work out the additions.

a) 41 + 56 **b)** 317 + 252 **c)** 405 + 361 **d)** 480 + 309

7 Three children each work out an addition problem.

- Each child uses the same six digits.
- Each addition gives the same answer of 888
- Each child adds two different 3-digit numbers together.

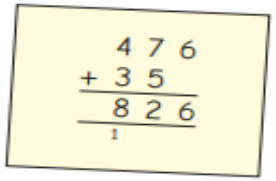
Work out a possible set of addition problems.

		H	T	O	
	+				
		8	8	8	

4 Ron works out 476 + 35

a) What mistake has Ron made?

b) Work out the correct answer.



5 Alex collects stickers.

She has collected 286 stickers.

She only needs 69 more stickers to fill the album.

How many stickers does the album hold when full?

6 Here are some digit cards.

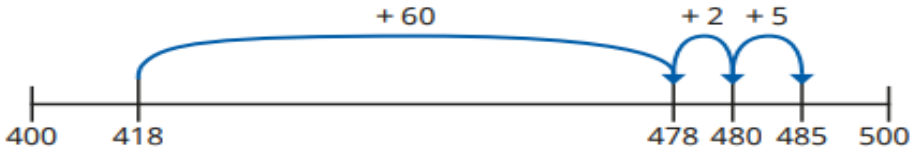
2	3	5	7	8

Arrange the digits to make two different additions that have just one exchange.

		H	T	O	
	+				

		H	T	O	
	+				

7 Mo uses a number line to work out an addition.



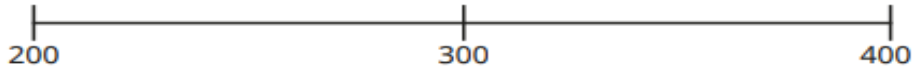
What addition has Mo worked out?

□ + □ = □

8 Use the number lines to complete the additions.

a) 235 + 47 = □

b) 235 + 87 = □



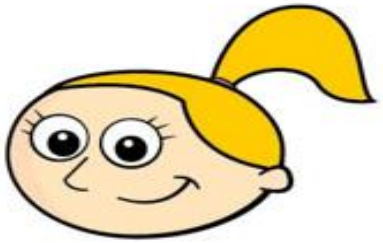
White Rose MATHS

Teddy and Eva are both working out a subtraction.

I am working out 75 – 33

Teddy

One of my numbers is 53



Eva

Teddy's answer is double Eva's answer.

What could Eva's other number be?

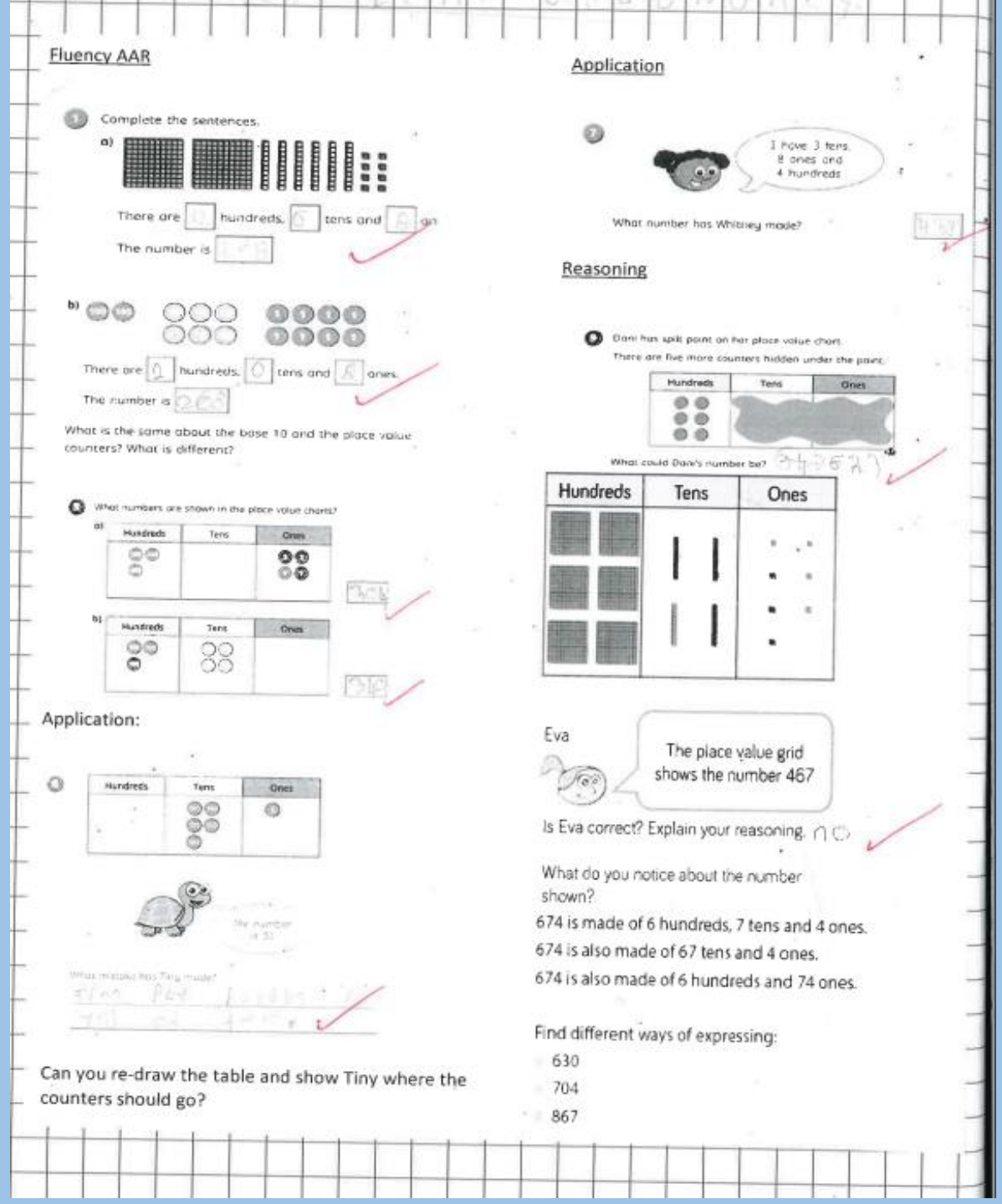
Compare answers with a partner.

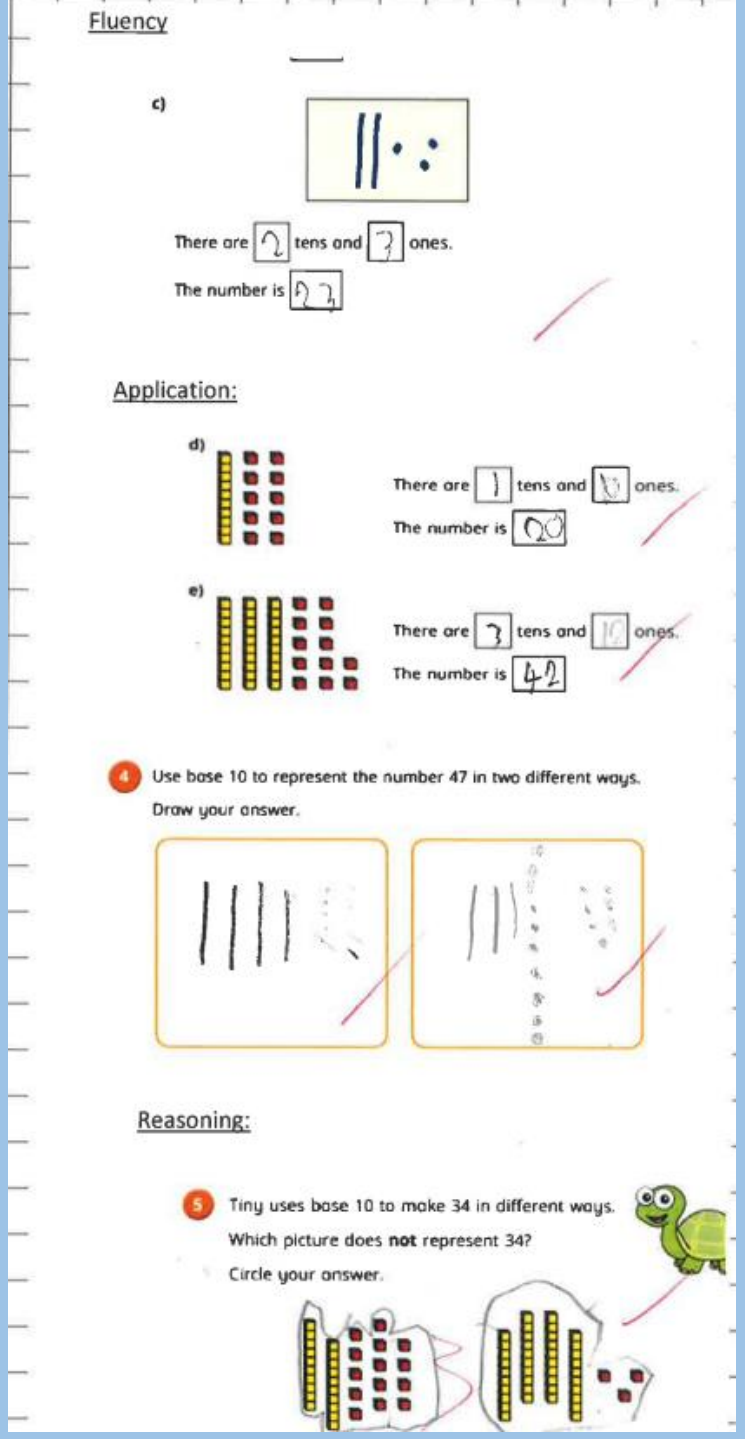
An example of work from Year 3

Questions are taken from the worksheets created by White Rose for specific targeting of needs. This ensures different abilities are having the necessary challenges.

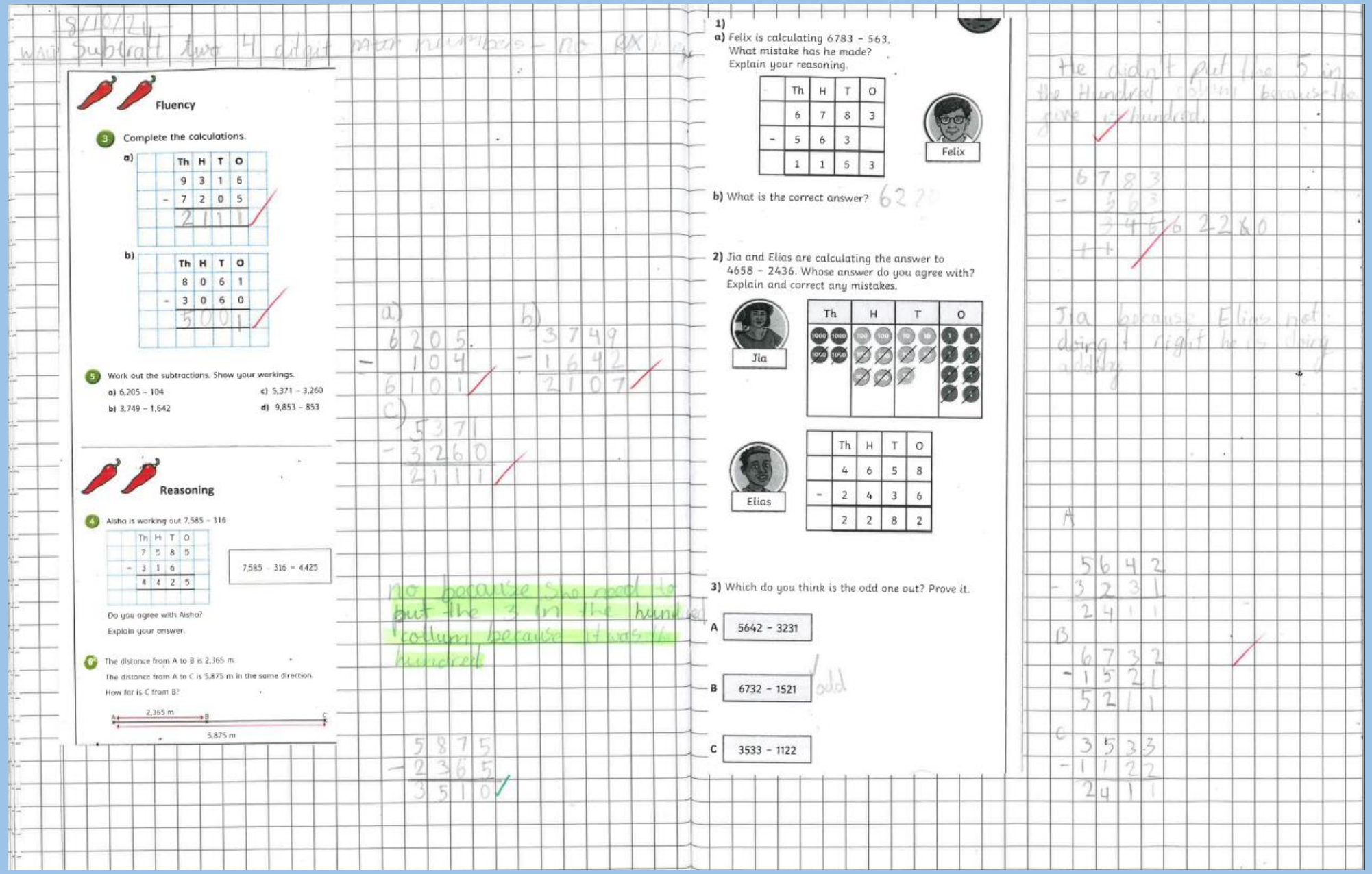
Work sheets still contain the CPA approach.

Children will have access to an array of manipulatives to assist their work (such as number beads, cube, place value charts and counters etc).





An example of work from Year 4



Fluency

3 Complete the calculations.

a)

	Th	H	T	O
	9	3	1	6
−	7	2	0	5
	2	1	1	1

b)

	Th	H	T	O
	8	0	6	1
−	3	0	6	0
	5	0	0	1

5 Work out the subtractions. Show your workings.

a) 6,205 − 104
b) 3,749 − 1,642
c) 5,371 − 3,260
d) 9,853 − 853

Reasoning

4 Alisha is working out 7,585 − 316

	Th	H	T	O
	7	5	8	5
−	3	1	6	
	4	4	2	5

7,585 − 316 = 4,425

Do you agree with Alisha?

Explain your answer.

6 The distance from A to B is 2,365 m.
The distance from A to C is 5,875 m in the same direction.
How far is C from B?

a) 6205 − 104 = 6101 ✓

b) 3749 − 1642 = 2107 ✓

c) 5371 − 3260 = 2111 ✓

no because she need to put the 3 in the hundred collum because it was the hundred

5875 − 2365 = 3510 ✓

1)
a) Felix is calculating 6783 − 563.
What mistake has he made?
Explain your reasoning.

	Th	H	T	O
	6	7	8	3
−	5	6	3	
	1	1	5	3

Felix

b) What is the correct answer? 62?

2) Jia and Elias are calculating the answer to 4658 − 2436. Whose answer do you agree with? Explain and correct any mistakes.

Jia

Th	H	T	O
1000 1000 1000 1000	100 100 100 100 100	10 10 10 10 10	1 1 1 1 1 1

Elias

	Th	H	T	O
	4	6	5	8
−	2	4	3	6
	2	2	8	2

3) Which do you think is the odd one out? Prove it.

A 5642 − 3231

B 6732 − 1521 odd

C 3533 − 1122

He didn't put the 5 in the Hundred column because he gave it a hundred. ✓

6783 − 563 = 6220 ✓✓

Jia because Elias not doing it right he is doing adding

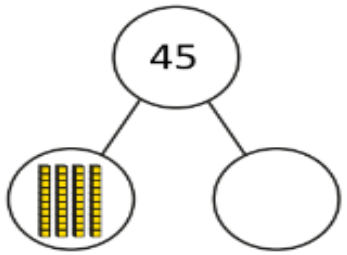
A 5642 − 3231 = 2411

B 6732 − 1521 = 5211 ✓

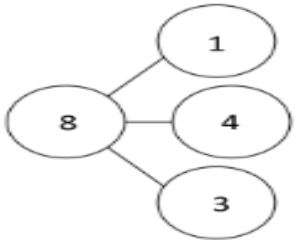
C 3533 − 1122 = 2411

Children are taught to use 1 digit for 1 square to ensure Place Value accuracy.

Red dots are used to show misconceptions and red ticks and green highlighter are used to indicate an accurate understanding. The children will also use a green pen to re-examine misconceptions.

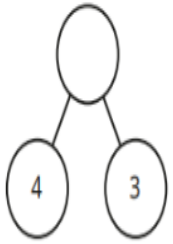


What is a part–whole model?

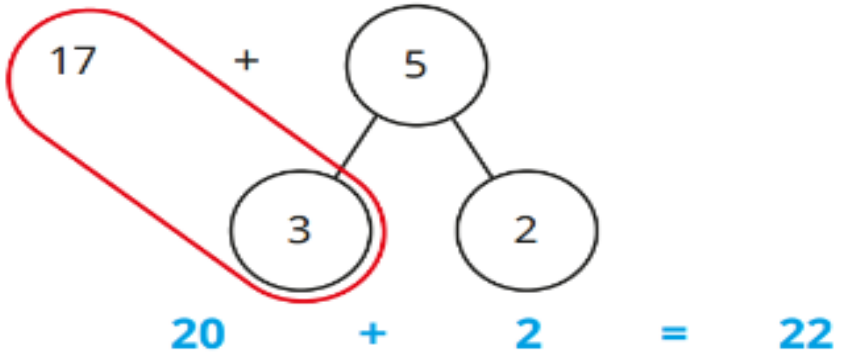


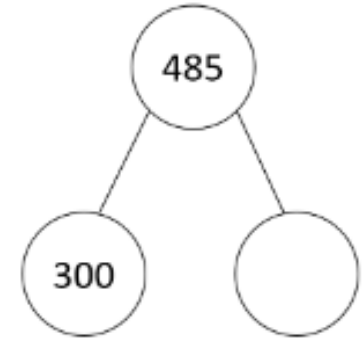
A part-whole model is a pictorial representation that allows children to visualise the relationship between a whole and its parts.

When the parts are complete and the whole is empty, you add the parts together to find the total (this structure of addition is aggregation).

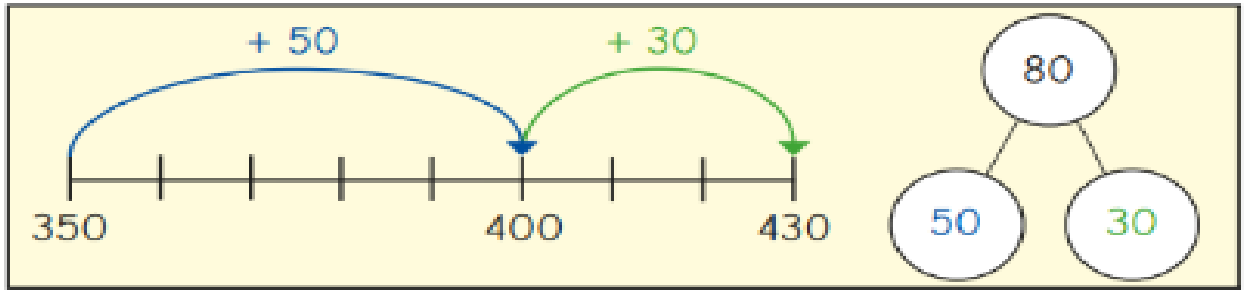


In this example, one part is 4, the other part is 3, we can add the parts together to find the total, which is 7.

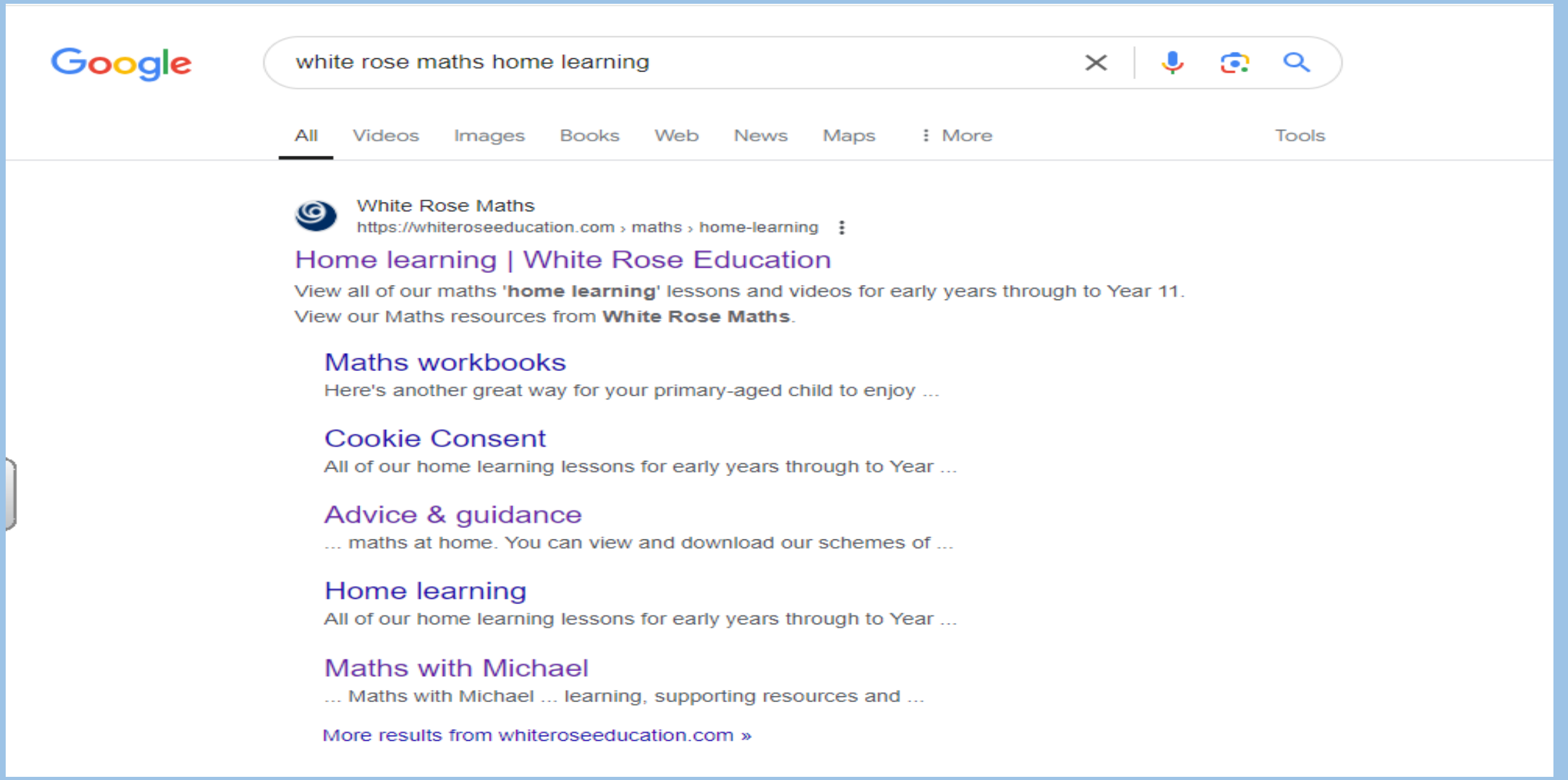




Dora is working out 350 + 80



Helping at Home with White Rose Maths



X-tables

Times Table Rockstars has an array of challenges and gets children ready for their Year 4 MTC test in June (use of number pad).

Children tested every Friday

Reading record will indicate when they will move onto the next Times Table

Children are required to score 11/12 to move onto the next Times Table

Counting and Times Table practice is undertaken in most maths lessons as well as computing and PE.

Name:

Class:

_____ x 3 =_____

_____ x 3 =_____

_____ x 3 =_____

_____ x 3 =_____

_____ x 3 =_____

_____ x 3 =_____

_____ x 3 =_____

_____ x 3 =_____

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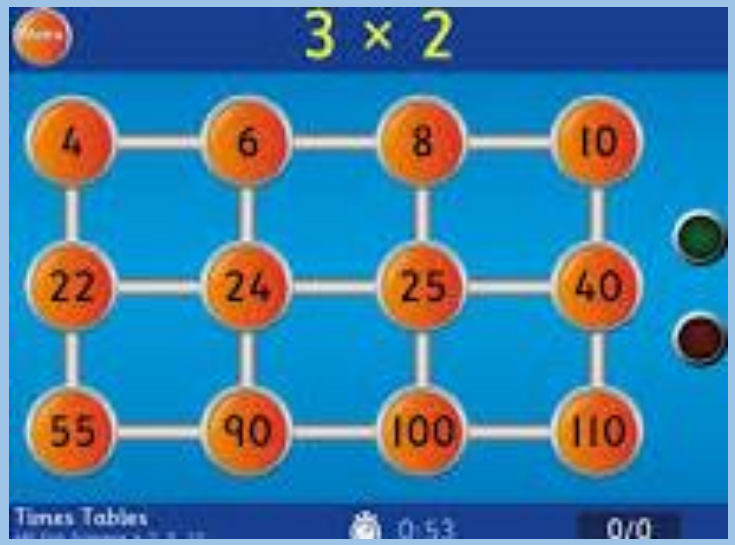
_____ x 3 =_____

_____ x 3 =_____



Hit the button is excellent for visual answers when learning a Times Table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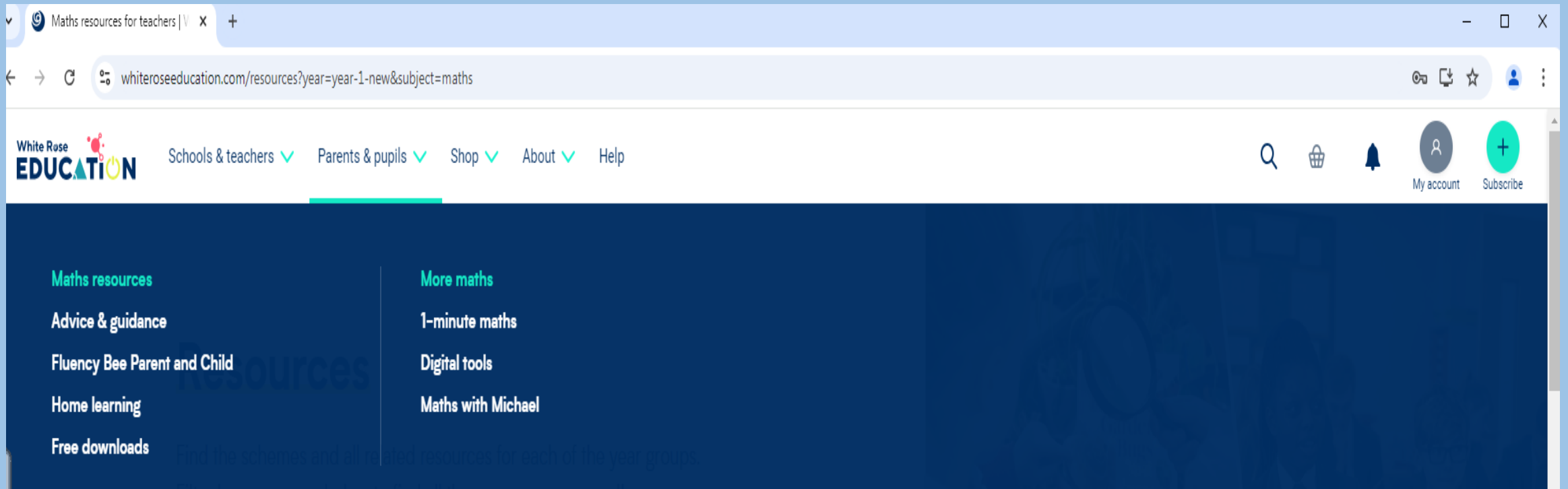
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Home learning

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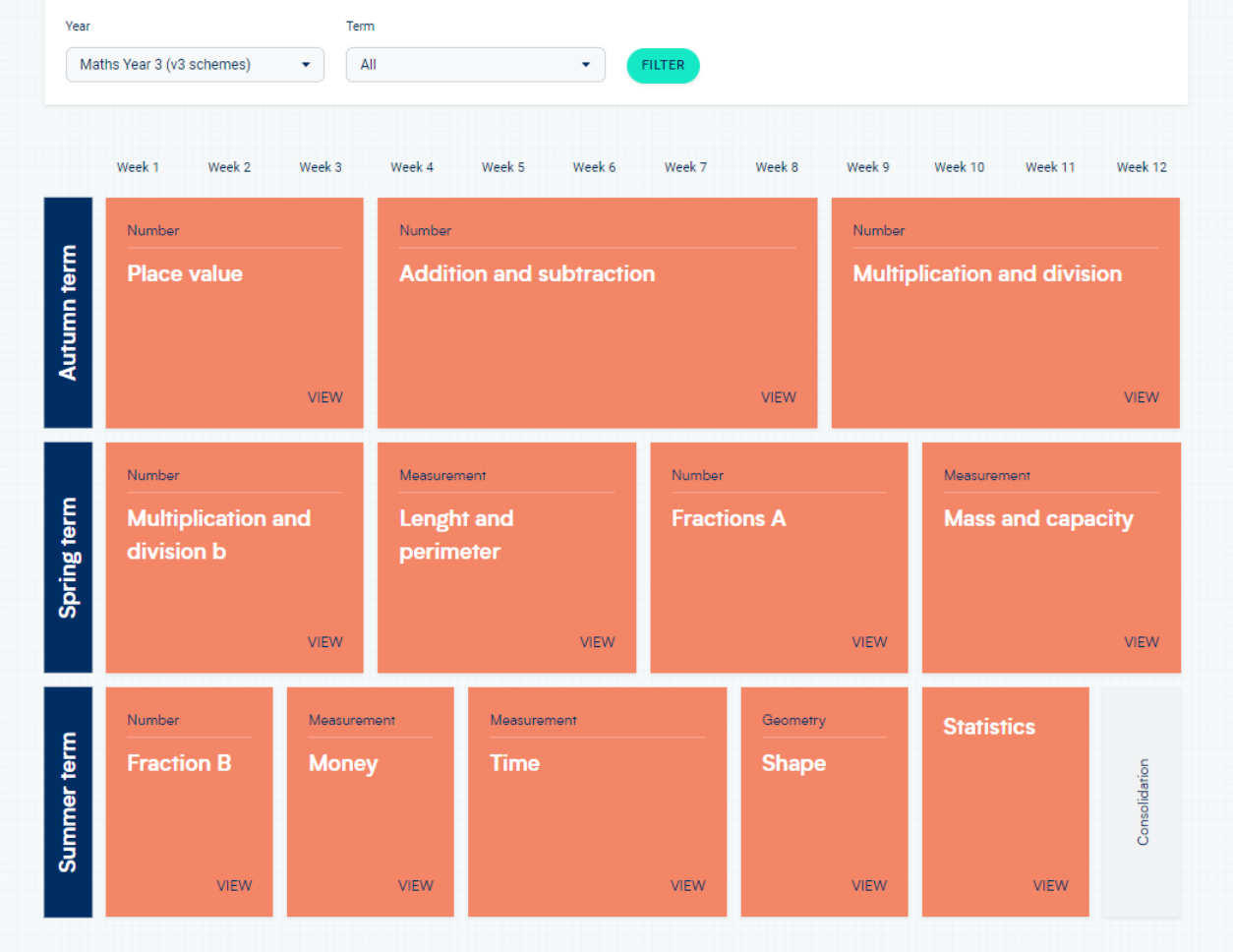
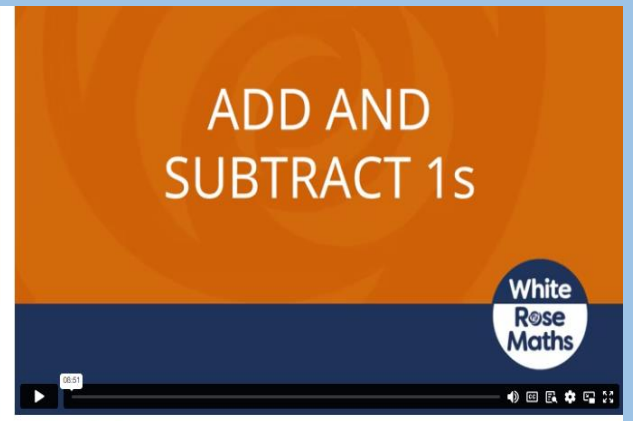
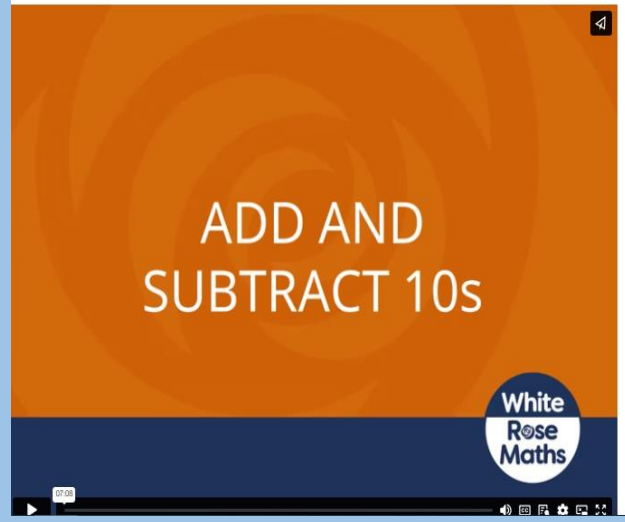
Making use of free video tutorials

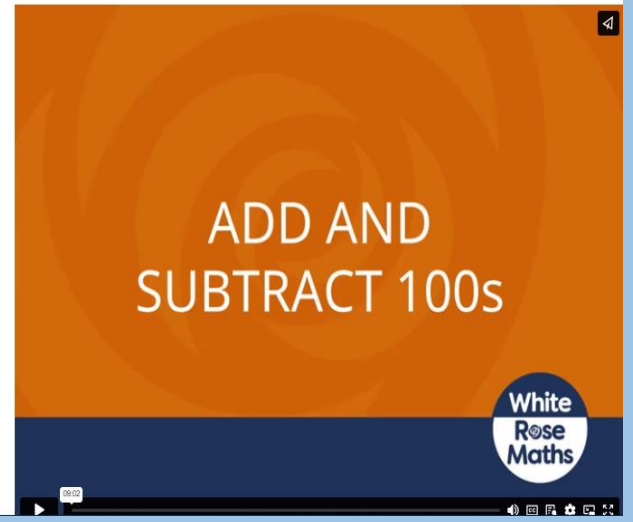


Apply number bonds within 10



Add and subtract 1s





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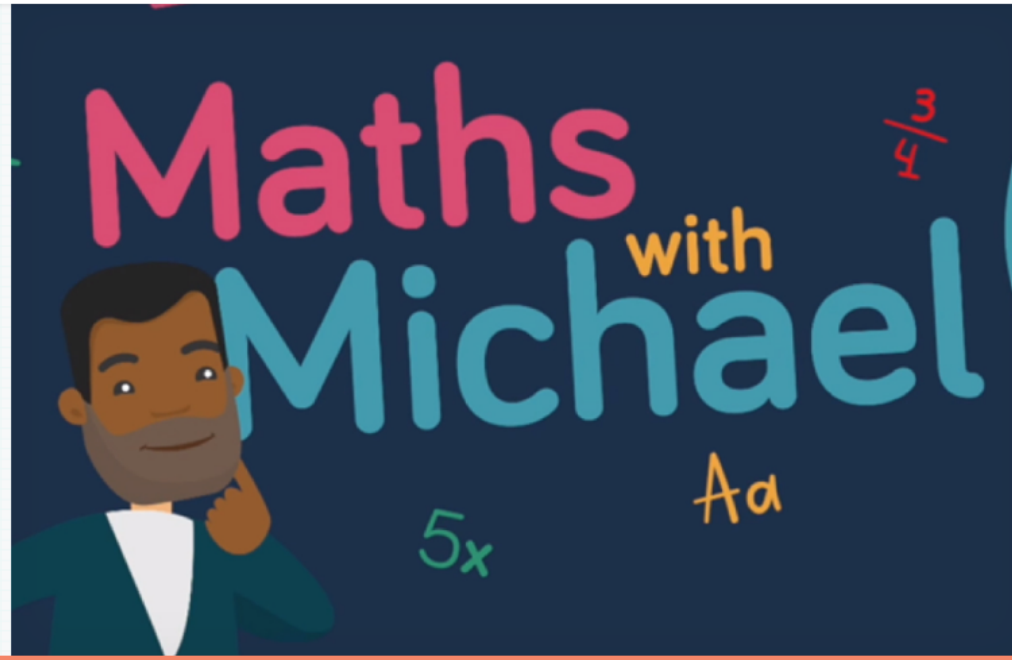


Has maths changed? | 1. Place Value | 2. Subtraction | 3. Multiplication | 4. Division | 5. Fractions | 6. Algebra

Has maths changed?

We understand that many parents feel like maths has changed and that it's sometimes difficult to keep up to date with modern teaching methods. Well don't worry, we're here to help.

With over 80% of primary schools and a growing number of secondary schools using our free schemes of learning, supporting resources and assessments, we can help you bridge the gap between school and home.

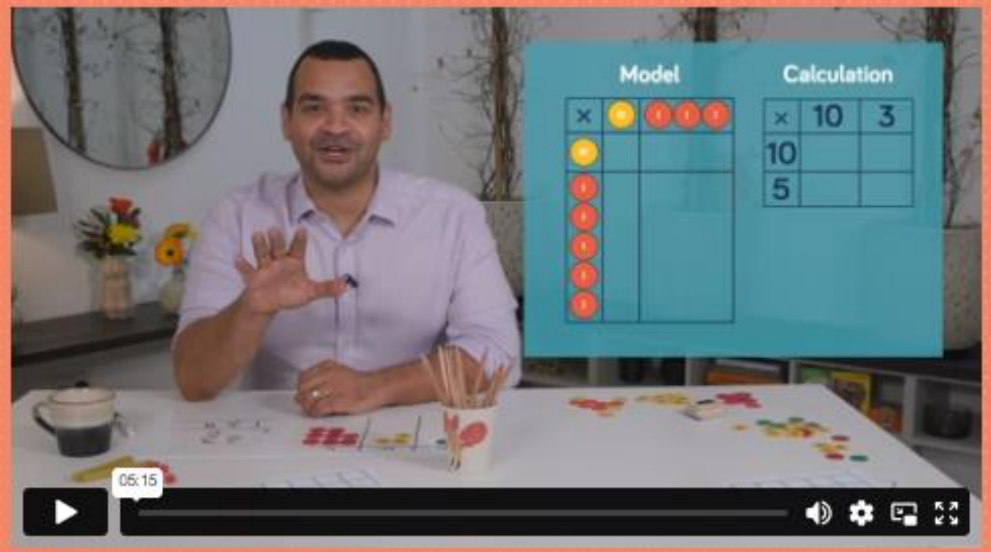
NEXT →

Place Value

A short 'how to' guide providing information on how you can help your child understand Place Value.

GET THE PARENT GUIDE

PREV NEXT



Multiplication

A short 'how to' guide providing information on how you can help your child understand Multiplication..

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More maths

- 1-minute maths
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Free downloads (workbooks) for extra practice and consolidation

Get the free workbooks

Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6

Autumn Block 1
Place value (within 10)

Autumn Block 2
Addition and subtraction (within 10)

Autumn Block 3
Shape

Autumn Block 4
Place value (within 20)

Spring Block 1
Addition and subtraction (within 20)

3 ADDITION AND SUBTRACTION

White Rose Maths

From White Rose Maths schemes for Year 3 Autumn Term

BLOCK 2 - ADDITION AND SUBTRACTION

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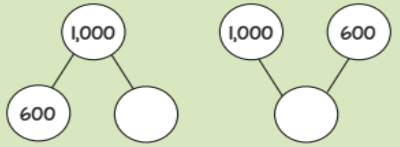
1 Complete the part-whole models.



2 Alex has 262 stickers.

She buys 12 more.

How many stickers does she have now?

3 Find the missing number.

361 = 9 + ☐

---

6 Work out 403 + 537

You may use the place value chart to help.

Hundreds	Tens	Ones
100 100 100 100		1 1 1
100 100 100 100 100	10 10 10	1 1 1 1 1 1 1

		4	0	3	
	+	5	3	7	

---

7 Complete the bar models.

298	132

846	
346	

8 Fill in the missing digits.

		3	8	8	
	+			4	
			8	2	

Answers

Good Effort

1 1,000 / 600 / 400 and 1,000 / 600 / 1,600

2 274 stickers

3 352

4 63, 59, 128

5 654

6 940

7

430	
298	132

846	
346	500

8

		3	8	8	
	+		9	4	
		4	8	2	

9 The numbers in the tens and ones columns have been subtracted in the wrong order.
The correct answer is 646

10 Rosie could find the difference between 101 and 99 by counting up 2 from 99 to 101
The answer is 2

Thank you for listening

and

Any Questions