WIMBORNE Academy Trust

Maths Information Evening Emmanuel Middle School

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Rob Christopher: Interim Head of School Emmanuel

Liz West: CEO Wimborne Academy Trust

Louise Jeffs: Maths Specialist for Wimborne Academy Trust, School Improvement Team & SLE for Wimborne Teaching School

Katharine Anstey: Head of School St John's First School WAT: a lead MNP school

Department for Education

2014 – New Curriculum for England

The National Curriculum aims to ensure that all pupils become fluent mathematicians, can reason mathematically and can solve mathematical problems.

Ofsted guidance for Outstanding maths teaching and learning states that pupils should:

- understand important concepts, make connections and apply what they know
- show exceptional independence, perseverance and confidence
- embrace learning from mistakes
- reason, generalize and make sense of solutions
- be fluent in mental and written calculation
- be accurate in mathematical language and symbols in their recorded work and in discussions
- be passionate and committed to maths

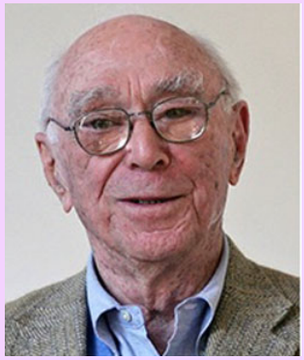
National Centre for Excellence in the Teaching of Mathematics

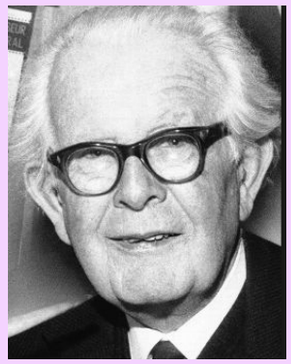
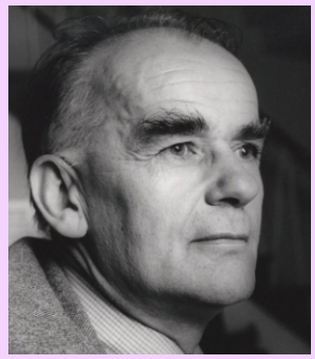
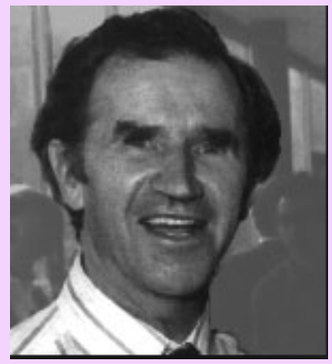
NCETM states that all pupils should:

-Acquire mastery of mathematics
-Continue to acquire master throughout their school lives and beyond

NCETM states mastery is:

-acquiring a deep, long-term, secure and adaptable understanding of the subject
-acquiring a solid enough understanding of the maths that's been taught to enable him/her move on to more advanced material

‘Singapore Approach’

Singapore teaches maths better than most countries including the UK, according to international rankings for secondary pupils.

Bruner: Concrete, Pictorial, Abstract approach
Vygotsky: rich discussion & peer talk
Piaget: thinking processes rather than outcomes
Dienes: exploration before structure and a variety of methods
Skemp: making links

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EMMANUEL MIDDLE SCHOOL

The approach Wimborne Academy Trust & Emmanuel is taking in maths to meet the National Curriculum, Ofsted and NCETM criteria is based on 3 fundamental areas:

1. Identifying and addressing gaps in Key Skills in previous year group curriculums

2. Using the research from Bruner, Vygotsky, Piaget, Dienes and Skemp

3. Offering all children Greater Depth opportunities

National College for Teaching & Leadership

WIMBORNE TEACHING SCHOOL

Findings as an SLE

Development was needed in:

- Formative assessment – detailed information of what the pupil can and can't do
- Addressing the gaps in previous year group curriculums
- Pace
- A spiraling curriculum
- Pupil discussion
- Concrete, Pictorial, Abstract (CPA)

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Lesson Structure across Wimborne Academy Trust & Emmanuel

3 main structures:

1. Whole class intervention lesson

2. Group intervention lesson

3. Scheme lesson

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Whole Class or Group Intervention Lesson

- 2, 3, or 4 part lessons
- Addressing gaps identified from Key Skills assessments
- Opportunity for times tables to be practiced or tested
- Variety of methods explored
- Concrete, pictorial, abstract approach
- Pupil discussion – reasoning
- Pace
- Differentiated where necessary
- Increasingly difficult questions

Example of addressing the gaps: mental methods

$$300 - 124 =$$

Which method would you use to solve this calculation?

"I know the answer already so I don't need to write an explanation or draw a diagram."

300 - 124 =

$$\begin{array}{r} 300 \\ -\ 124 \\ \hline \end{array}$$

300 – 124 =

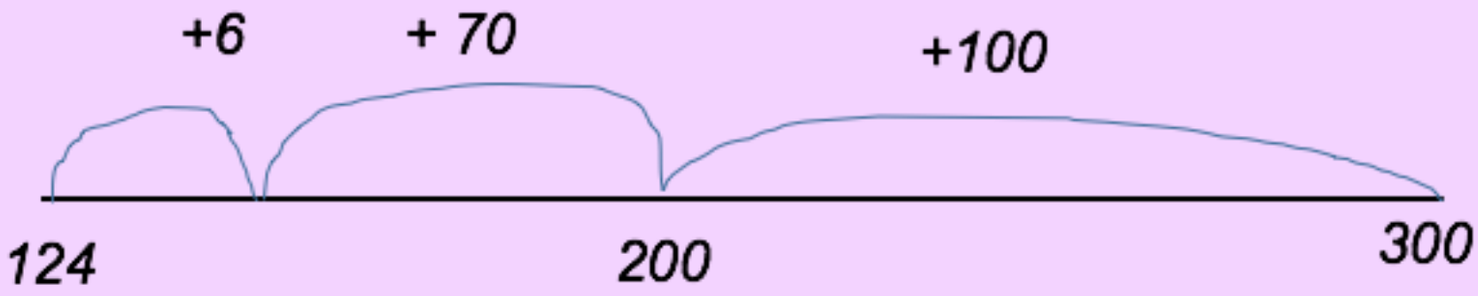
100 20 4

300 – 100 = 200

- 20 = 180

- 4 = 176

300 - 124 =

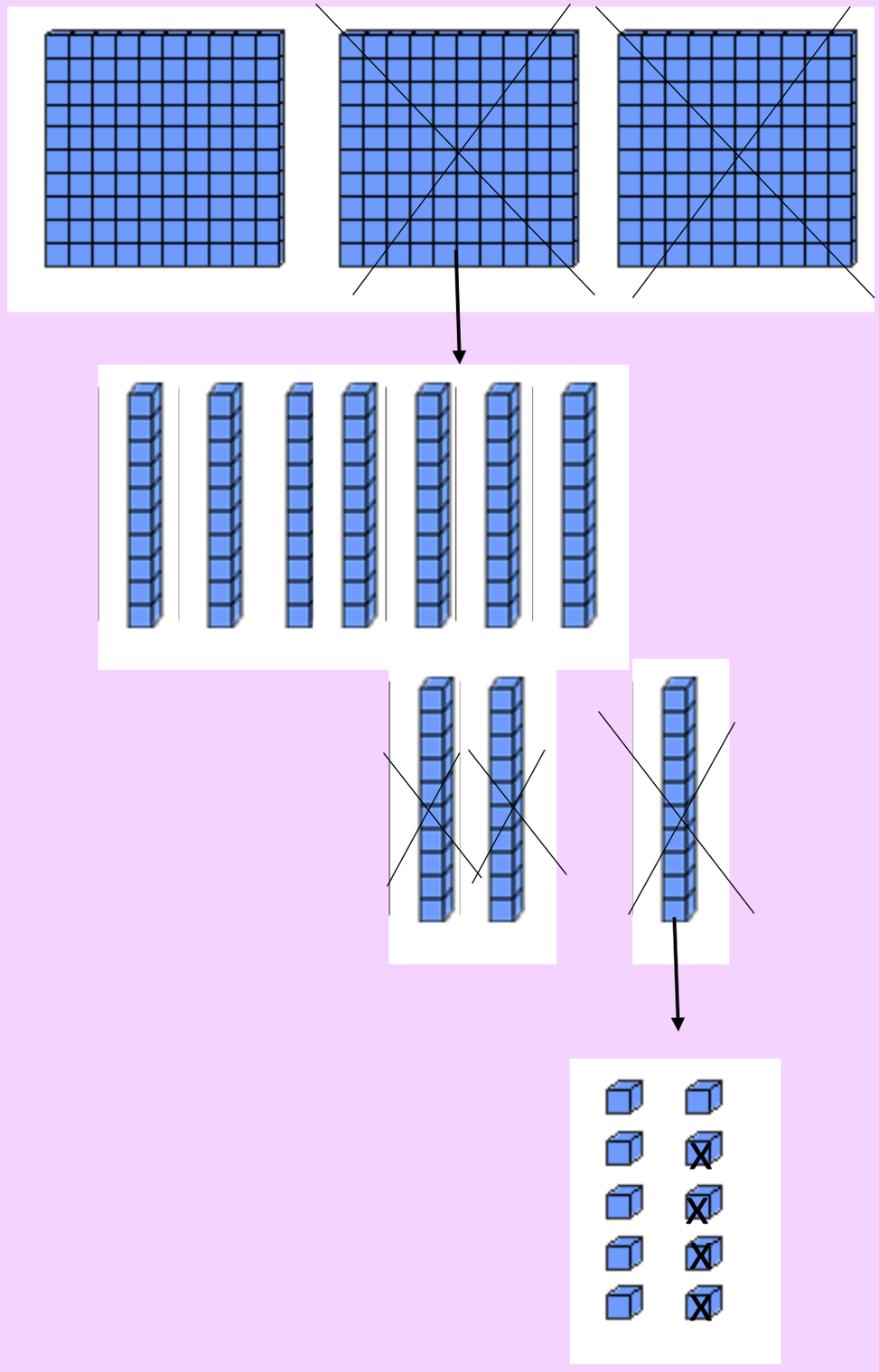


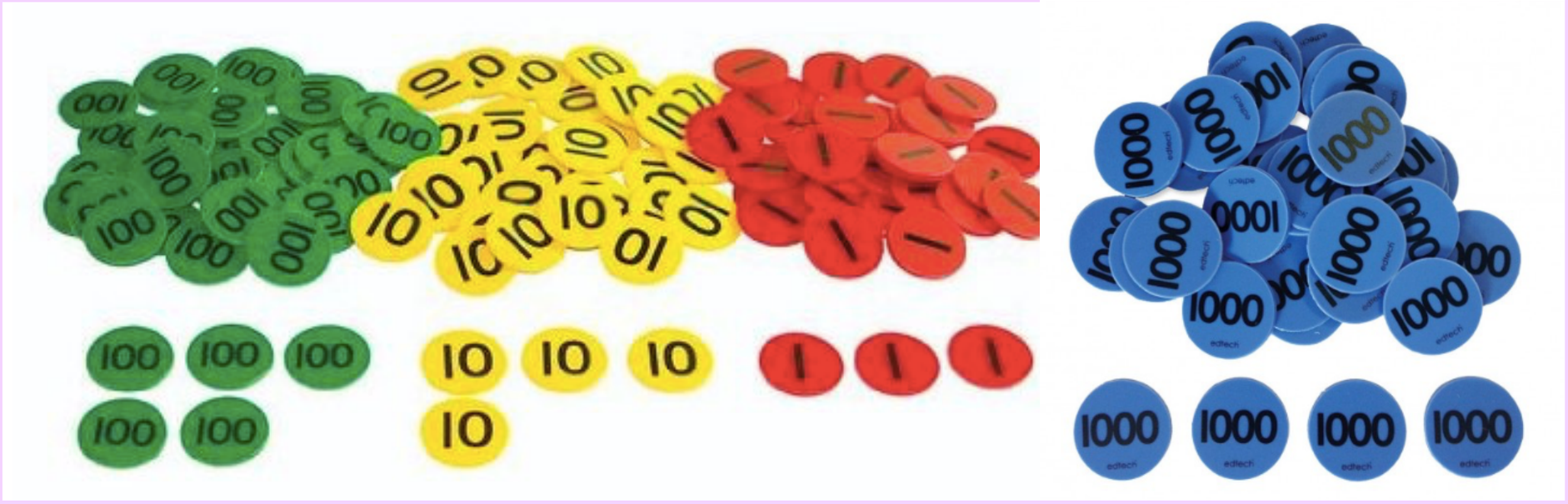
300 – 124 =

299 1

299 – 124 = 175

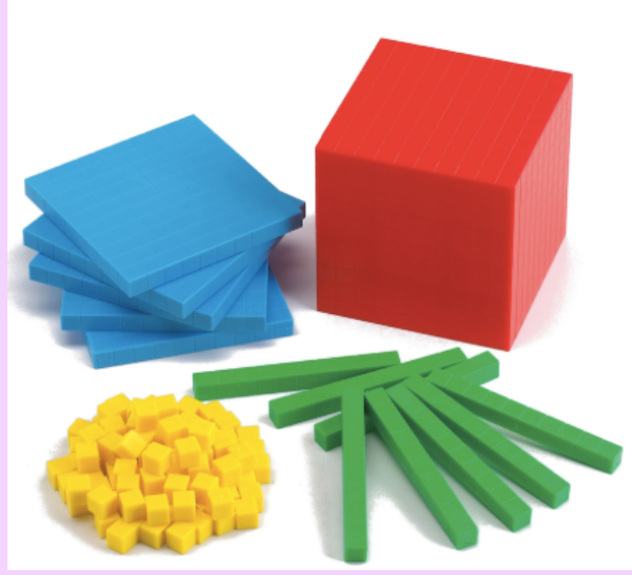
+ 1 = 176





New maths resources in Emmanuel include:

HTh	TTh	Th	H	T	O
●	●	●	●	●	●
●	●	●	●		●
●	●		●		●
●	●		●		
●	●		●		
●	●				
	●				



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Queen Elizabeth's School QE

White Rose Maths

Scheme Lesson

- Created by L Jeffs (KS2) & L Jeffs & R Hardy – QE (KS3)
- Follow's 'Maths No Problem' lesson structure with additional Greater Depth
- Based on White Rose Maths Hub resources
- Y9 & Y10 QE following the same lesson structure

Scheme Lesson

In Focus: Explore, Gather, Structure, Journal

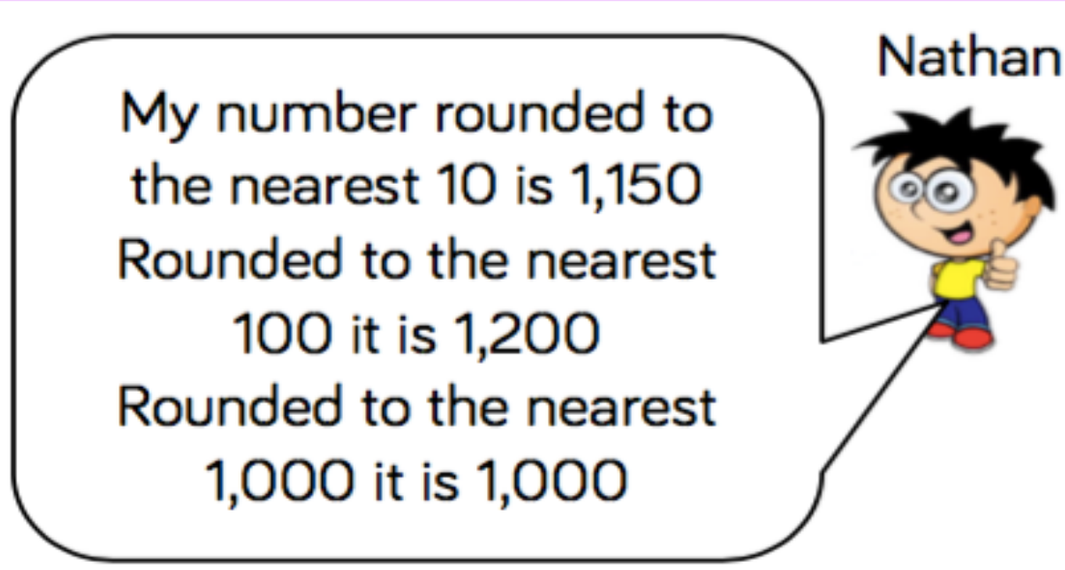
Guided Practice: collaborative, whiteboards, teacher overview & guidance

Activity: Independent where possible, adult support where needed, assessment of the lesson

Greater Depth: for rapid graspers

In Focus: Explore, Gather, Structure, Journal

5 Ch1c Place Value Lesson 1
WALT: Rounding numbers to the nearest 10, 100 and 1000
In Focus

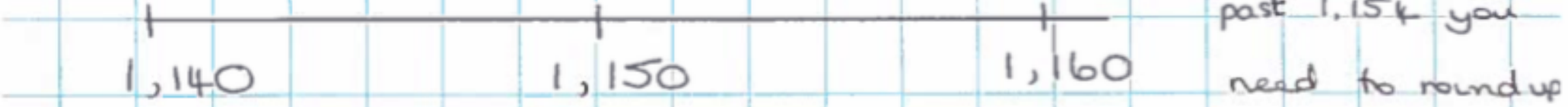


What could Nathan's number be?

Can you find all of the possibilities?

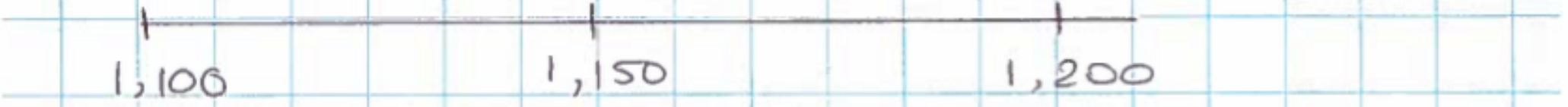
Nearest 10

1,154
1,153
1,152
1,151

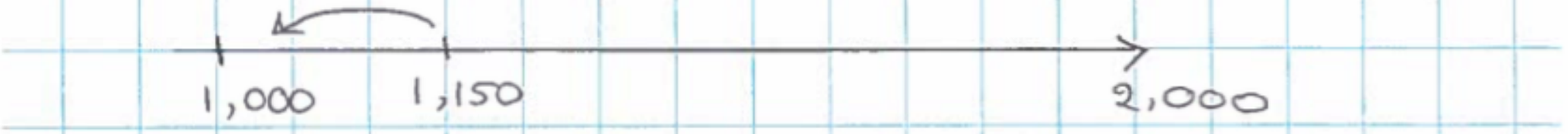


past 1,15[illegible] you need to round up

Nearest 100



Nearest 1,000



round down as it's closer to 1,000 than 2,000

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White Rose Maths

Guided Practice

Model number-lines to teach how to select the nearest number to round to. Give children a selection of numbers to round to the nearest 10, 100 and 1000.

NOTES:

- Don’t just teach the rule of 5 and above goes up and below 5 goes down
- Use number-lines to show which number is the nearest
- Which place value column do we need to look at when we round the nearest 1,000?
- Ensure the rounded digit is followed by zeros when rounding whole numbers

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White Rose Maths

Activity

1 Complete the table.

Start number	Rounded to the nearest 10	Rounded to the nearest 100	Rounded to the nearest 1,000
			
			
DCCLXIX			

Activity

1 Complete the table.

Start number	Rounded to the nearest 10	Rounded to the nearest 100	Rounded to the nearest 1,000
	1,310	1,300	1,000
	4,350	4,400	4,000
DCCLXIX	770	800	1,000

Th	H	T	O
1	3	1	1

1,311

10 ← 11 → 20

300 ← 311 → 400

1,000 ← 1,310 → 2,000

4	3	5	0

stays the same as it's a multiple of 10.

300 ← 350 → 400

up if it's 50

4000 ← 4,350 → 5,000

D = 500

C = 100

L = 50

X = 10

1 X = 9

	7	0	0
+		6	0
			9
	7	6	9

60 ← 69 → 70

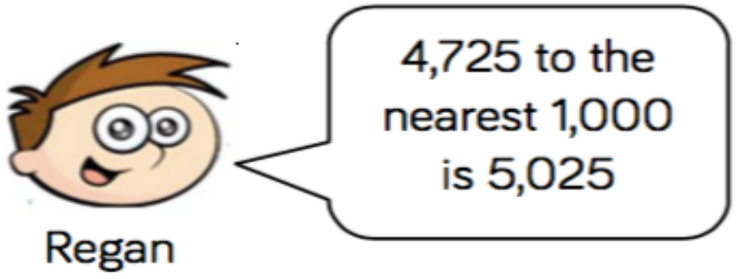
700 ← 769 → 800

0 ← 769 → 1000

Greater Depth

Do you agree with Alya?

Explain why.



Explain the mistake Regan has made.

I do not agree with Alya because 2,567 rounded to the nearest 100 is 2,600. It is closer to 2,600 than 2,500.

Regan has correctly changed 4 thousand to 5 thousand, but has added the tens and ones back on. When you round to the nearest thousand, the hundreds, tens and ones will be zeros.

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MATHS NO PROBLEM!

MathsHUBS Jurassic

Covering Dorset, Devon, Somerset and Wiltshire

Other Greater Depth activities:

Take your learning to a

Greater Depth

Find as many different ways of answering one of the questions as you can.

Take your learning to a

Greater Depth

Create your own word problem based on the learning you have done today and solve it.

Take your learning to a

Greater Depth

Write instructions to a friend to explain how you worked out one of your calculations.

Take your learning to a

Greater Depth

Write a letter to an absent friend explaining what you have done in your maths lesson today.

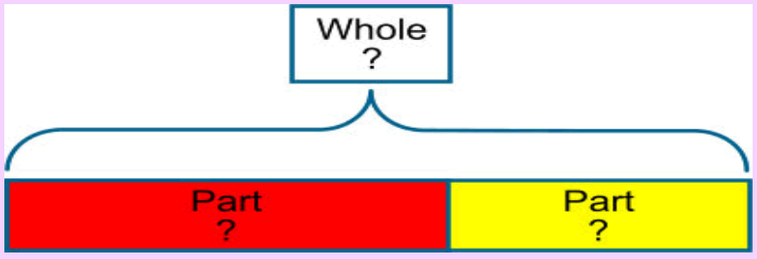
Take your learning to a

Greater Depth

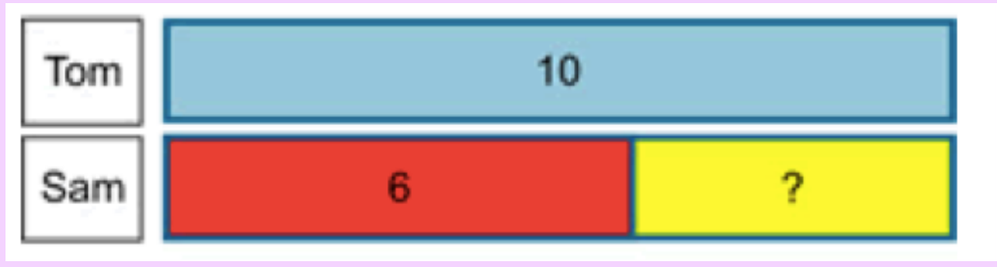
Use the bar model strategy to solve one of your calculations and explain how you did it.

Bar Modelling

Pictorial way of making sense of a problem

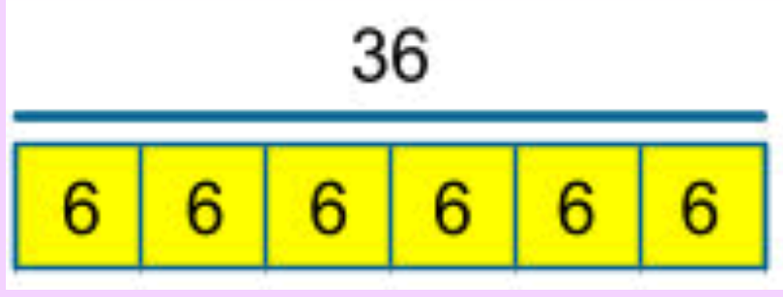


Sam had 10 red marbles and 12 blue marbles. How many marbles did he have altogether?



Tom has 10 pencils and Sam has 6 pencils. How many more does Tom have?

Peter has 4 books Harry has five times as many books as Peter. How many books has Harry?



Mr Smith had a piece of wood that measured 36 cm. He cut it into 6 equal pieces. How long was each piece?

A Key Stage 3 word problem:

A computer game is reduced in a sale by 30%. Its reduced price is £77. How much was the original price?

A computer game is reduced in a sale by 30%. Its reduced price is £77. How much was the original price?

Dividing the bar into ten equal pieces allows us to represent 30% and keep the other pieces the same size.

£77 ÷ 7 = £11

The original cost (the whole bar) is £11 × 10 = £110

Assessment

Formative & Summative Assessments

Formative:
Every lesson
At the end of the Chapter
Key Skills assessments (inform teaching, but can also be used to inform summative)

Summative:
End of Key Stage 2 practice tests & actual tests
Teacher judgement at the end of each half term

Moderation

With Wimborne Academy Trust & other interested schools (120 teachers at the last moderation)

With Maths specialist for Wimborne Academy Trust

Maths specialist also liaises with 2 other Maths specialists from Trusts in London & Devon

Maths specialist has also just recently moderated with Emmanuel's 3 main feeder First Schools

Further plans are to also moderate KS3 with QE and Cranborne – meetings have already begun

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Helping your child at home with maths

Encourage homework to be done in the allocated time each week
(20 mins KS2, 30 mins KS3)

Practice times tables as much as possible – your child should know which table they are learning. Focus only on that one, until it is tested and secure in school. (All should be secure by the end of Y4 including fact families.)

Practice quick recall of number bonds

- 1 digit (All children should be secure by the end of Y2)
- Number bonds to make 100 (Y2)

These are necessary to have throughout schooling from Y2 to GCSE and beyond

Practice counting forwards and backwards from any number in 1s, 10s, 100s, 1000s, 10000s up to one million (Y5), ten million (Y6)

Practice counting backwards through zero

Encourage pictorial representations especially with word problems, fractions, decimals, percentages & ratio.

Encourage reasoning in maths – ask ‘How did you do that?’ or ‘Why is your answer correct, because I got a different answer?’

Encourage a positive approach to exploration and discussion with maths

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National College for Teaching & Leadership

Department for Education

MathsHUBS Jurassic

National Centre for Excellence in the Teaching of Mathematics

Ofsted raising standards improving lives

MATHS NO PROBLEM!

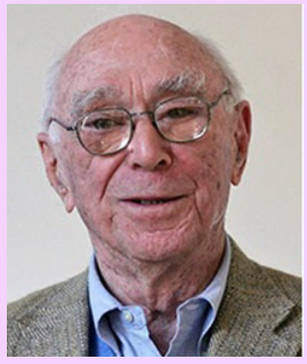
Standards & Testing Agency

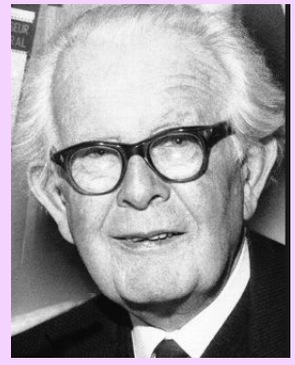
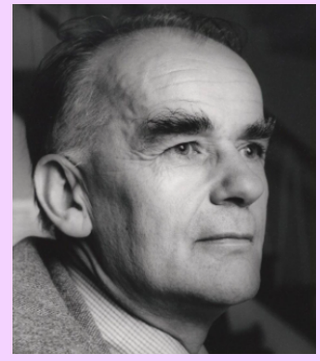
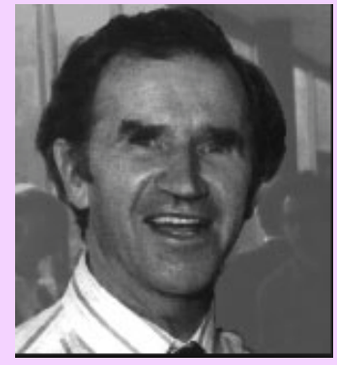
LEO ACADEMY TRUST LEARNING. EXCELLENCE. OPPORTUNITY.

WhiteRoseMaths

QueenElizabeth's School QE

learning academy partnership

Thank you for attending this maths information meeting. We hope this has helped you to find out more about your child's education at Emmanuel. Please do not hesitate to contact us if you have any further questions.