Beyond Fluency

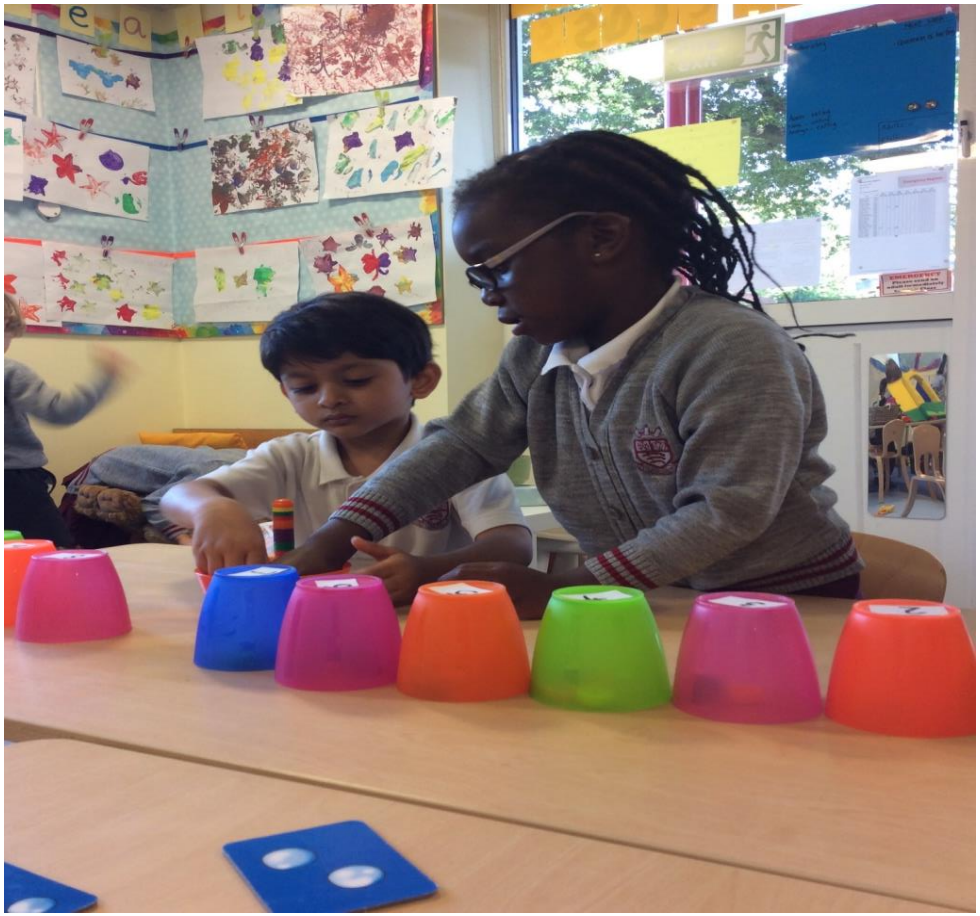
Wednesday 23rd November 2016

National Curriculum

'Mathematics is an interconnected subject … pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.'

EYFS – From the beginning

EYFS – Making links

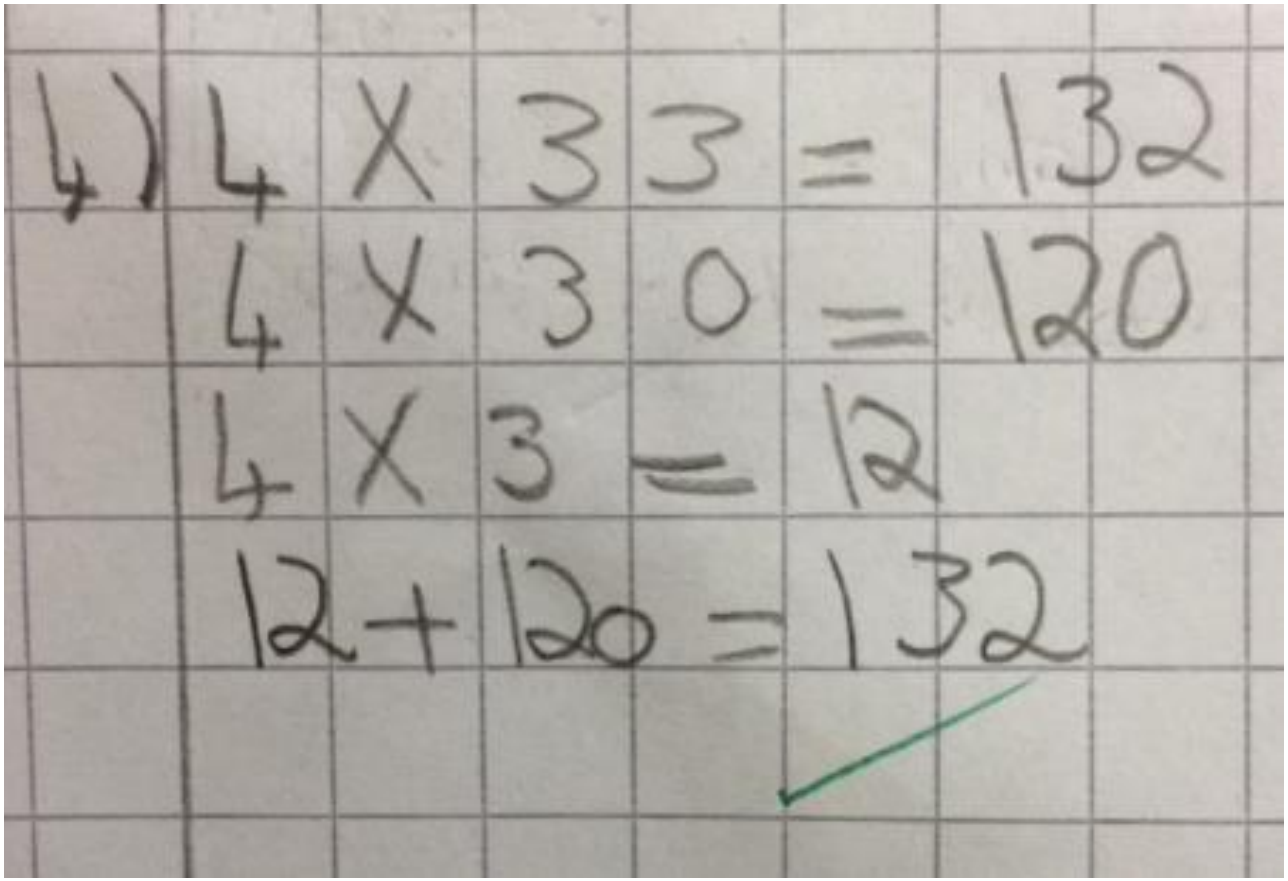


Moving into Key Stage 1

Reasoning

Reasoning skills demonstrate how a child is able to use their previous knowledge to help explain or calculate a problem.

Year 3 example



Year 1 example

Megan is counting on from 45.

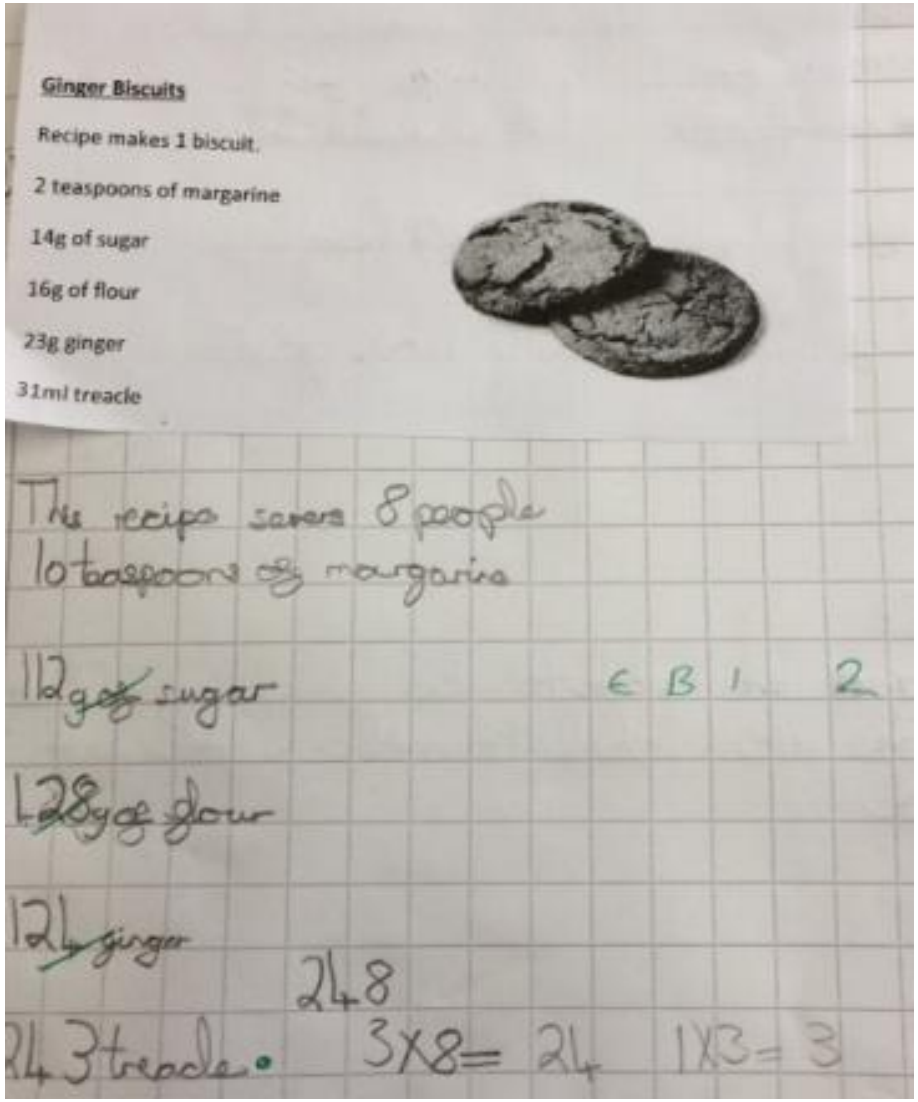
Will she count the number 39?

Explain how you know.

Application

Application skills demonstrate how a child is able to transfer a taught skill in to a different context. These questions often contain real life scenarios.

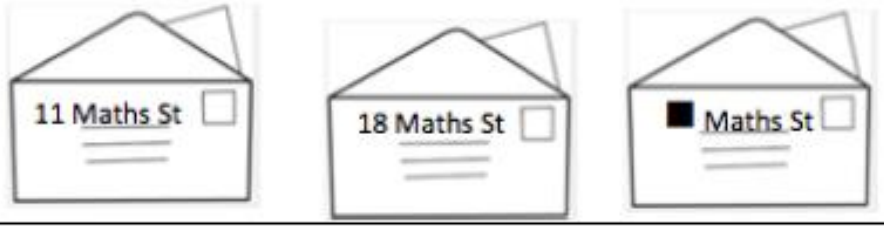
Year 3 example

- 

Year 1 example

- The postman has to put the letters in the right houses. One of the letters has been smudged and she cannot see the number.

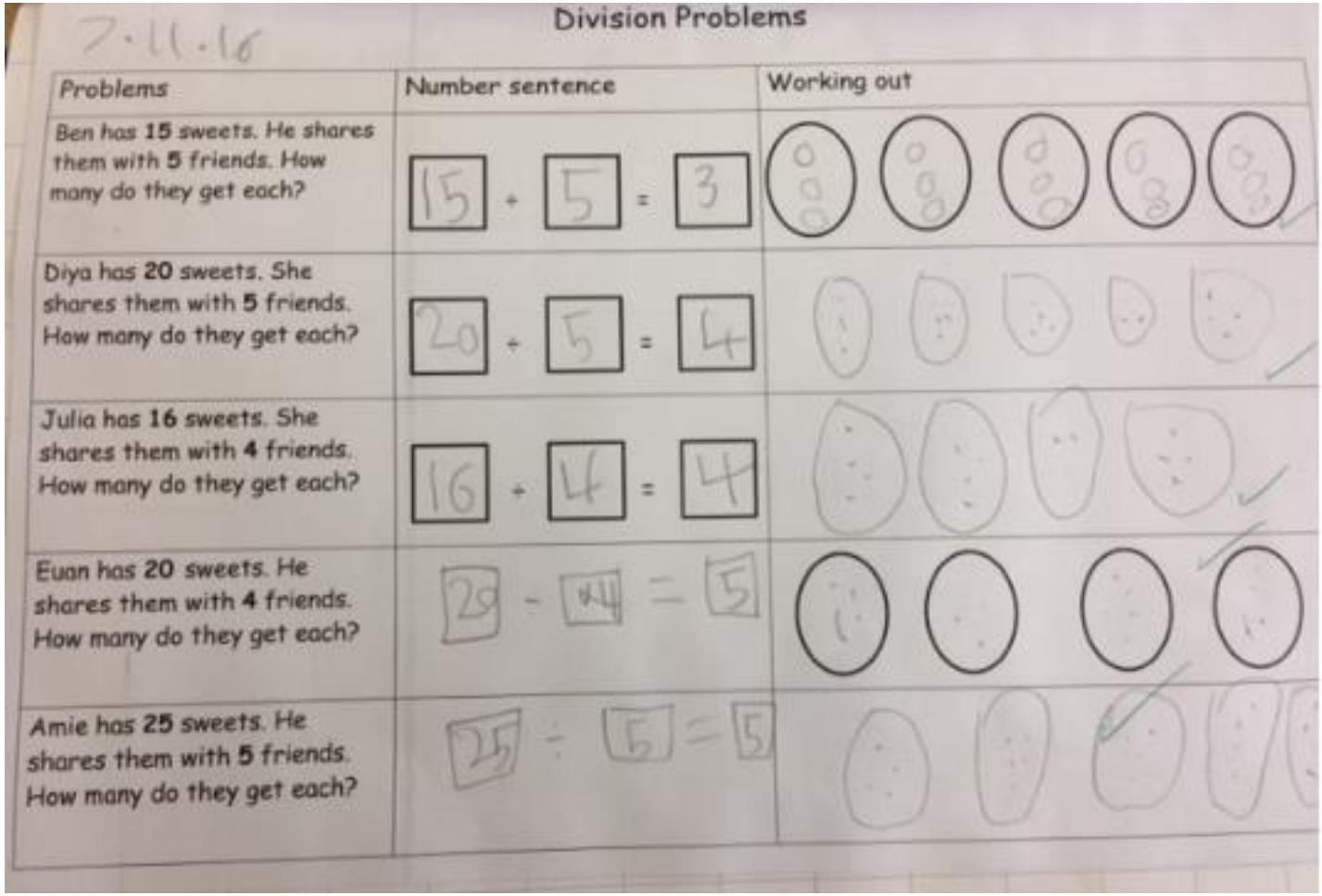
  Put the letters in the right doors. Fix the smudged letter.



Problem Solving

Problem solving skills demonstrate how a child is able to apply their mathematical knowledge to help solve number or worded problems.

Year 1 example



7.11.16

Division Problems

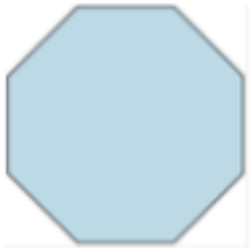
Problems	Number sentence	Working out
Ben has **15** sweets. He shares them with **5** friends. How many do they get each?	15 ÷ 5 = 3	
Diya has **20** sweets. She shares them with **5** friends. How many do they get each?	20 ÷ 5 = 4	
Julia has **16** sweets. She shares them with **4** friends. How many do they get each?	16 ÷ 4 = 4	
Euan has **20** sweets. He shares them with **4** friends. How many do they get each?	20 ÷ 4 = 5	
Amie has **25** sweets. He shares them with **5** friends. How many do they get each?	25 ÷ 5 = 5	

Year 2 example

Who am I?

I am a 2-dimensional shape.
All my sides are straight.
I have 5 corners.

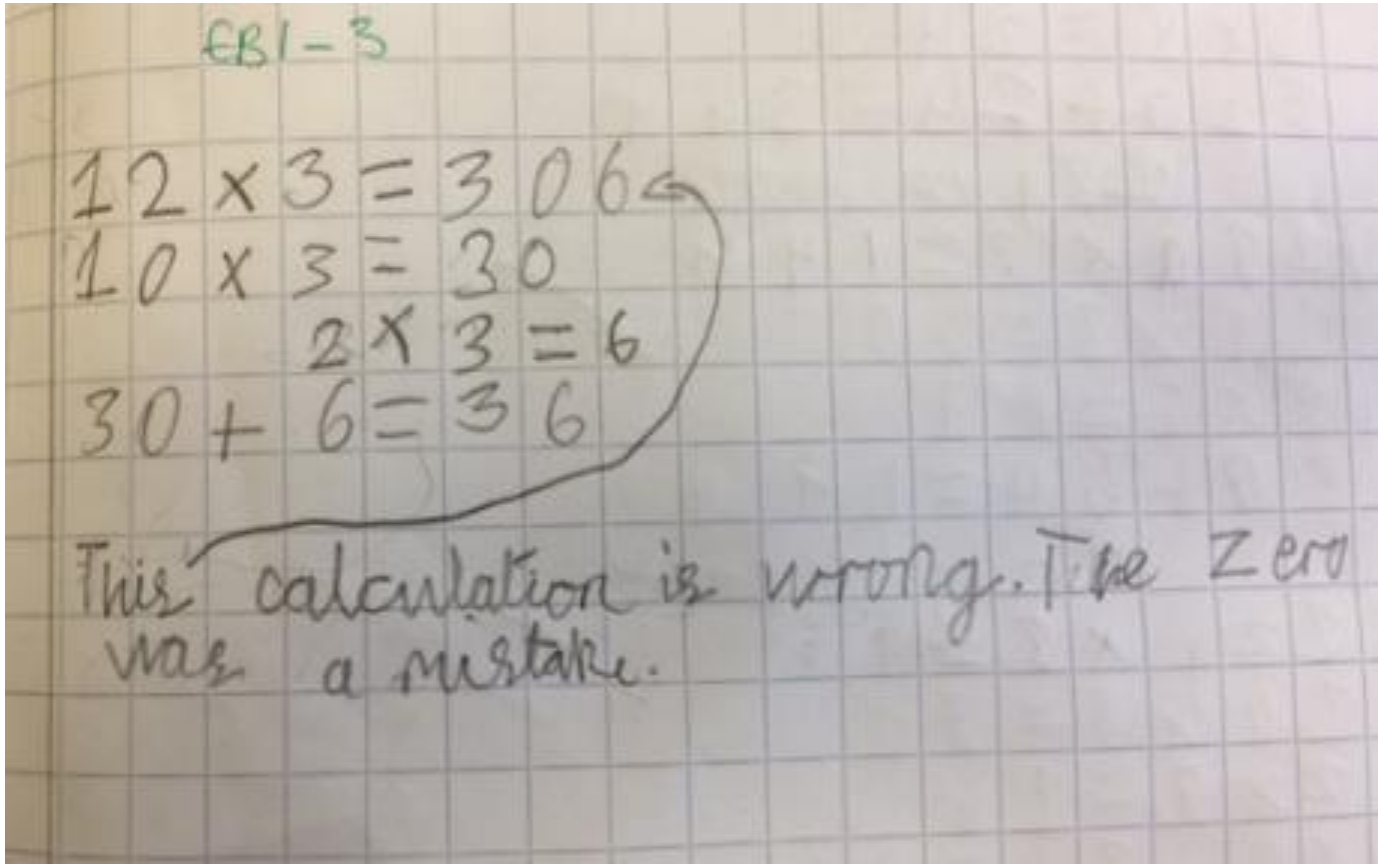
Make up '*Who Am I?*' clues for these shapes:



Misconception

Misconceptions are another form of reasoning, but is aimed at children being able to demonstrate their understanding by proving a calculation to be incorrect.

Year 3 example



Year 1 example

Joy says:

Bigger things are heavier

Do you agree or disagree with Joy? Why?

Over to our experts

Why is reasoning and problem solving important?

- Allows children to demonstrate they have a solid understanding of concepts oppose to learning mathematical concepts by rote.
- Supports their fluency
- Real life concepts