

# Maths at Floreat

Curriculum information session

23.02.2023

# Mrs Vaughan

(Miss Weeks)





## Tweet



**Anna Botting**   
@annabotting



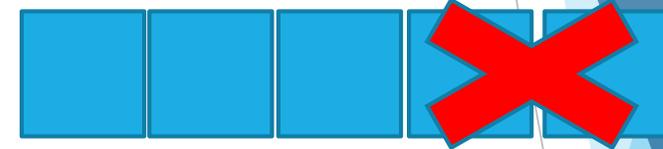
Stumped on another one [@wallaceme](#)  
... (they've not yet been taught algebra)... [#mathshelp](#)

9 There are 5 times as many pens in box A than box B.  
Tom moves 76 pens from box A to box B.  
Both boxes now have the same number of pens.  
How many pens are in box A now?

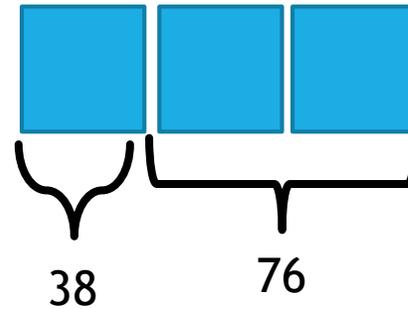
03:14 · 11/01/2023 · **15.4K** Views · [Twitter for iPhone](#)

**33** Likes **3** Retweets **2** Quotes

Box A:



Box B:



$$38 + 76 = 114$$

We would like you to leave with...

Understanding

Answers

Concerns lessened



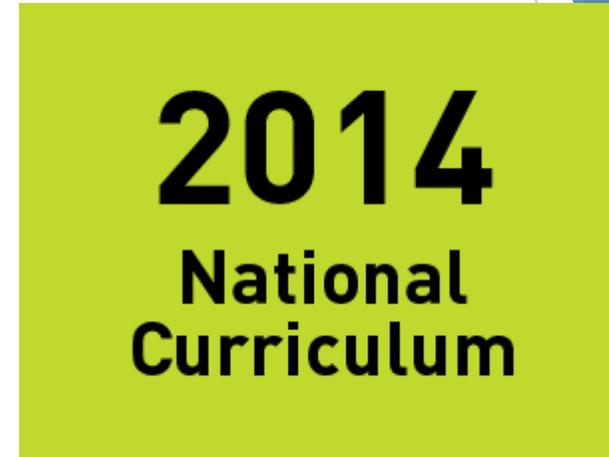
*Mathematical learning is like a building, made up of many bricks, which connect together and form a strong structure. Without the firmest foundations at the bottom this structure will crumble, in other words there will be gaps in children's mathematical understanding.*



Department  
for Education



2010-2014



4<sup>th</sup> to 16<sup>th</sup> in  
Science

8<sup>th</sup> to 27<sup>th</sup>  
in Maths

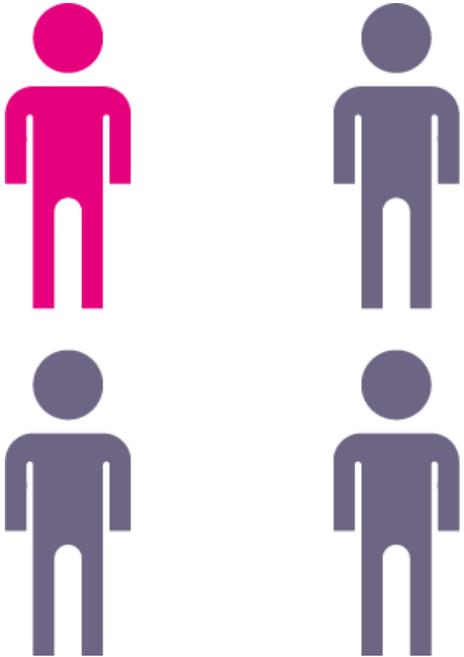
2 years behind  
at 15

15% take up  
post 16

# GCSE



71% of pupils met the expected standard in maths





# Department for Education



**MATHS CURRICULUM**

# Our curriculum



## MATHS CURRICULUM

deepen

precise teaching

coherent steps

talk mathematically

small steps

everyday contexts

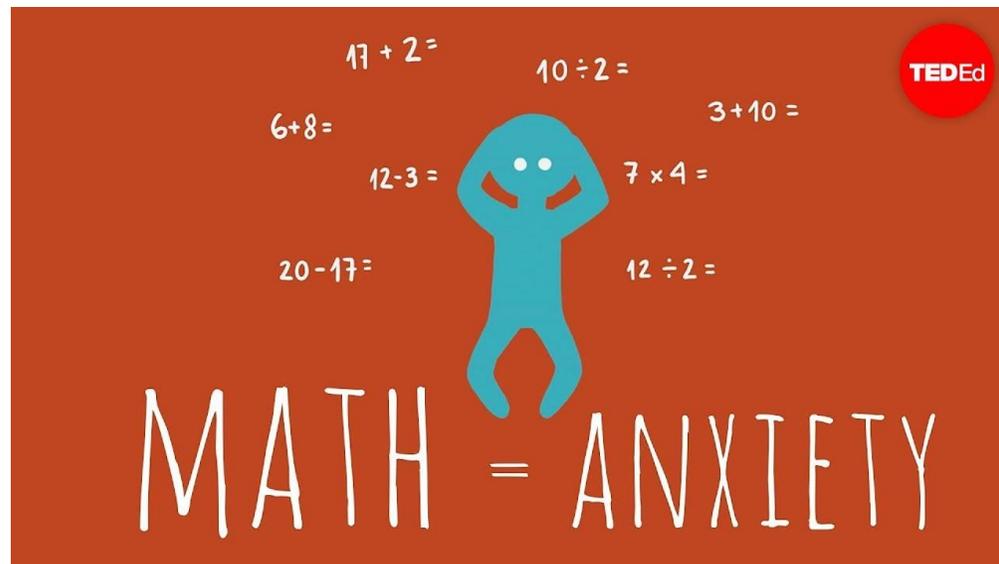
enquire

inclusive, inspiring and engaging

reason, problem solve and think logically

# Teaching for Mastery

Deep and sustained learning for all



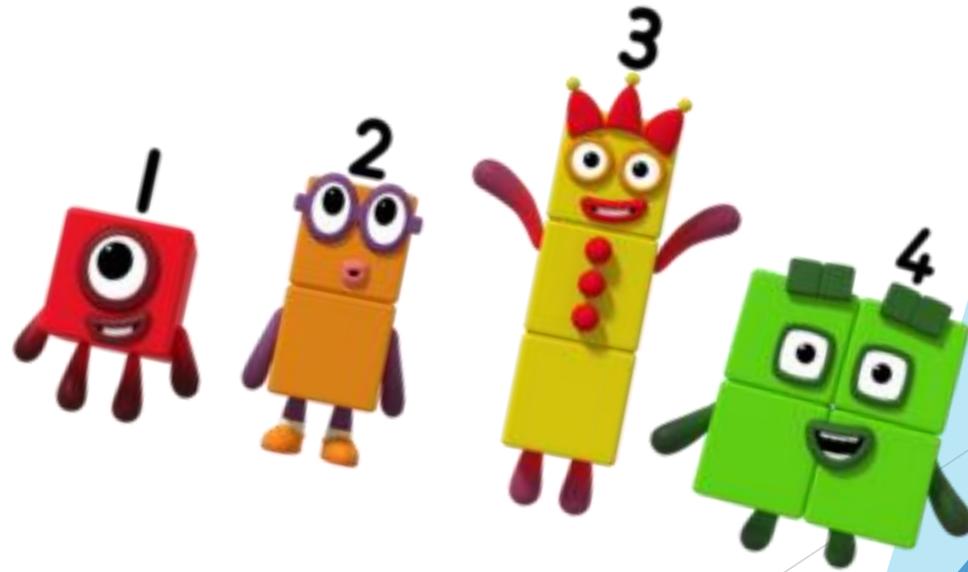
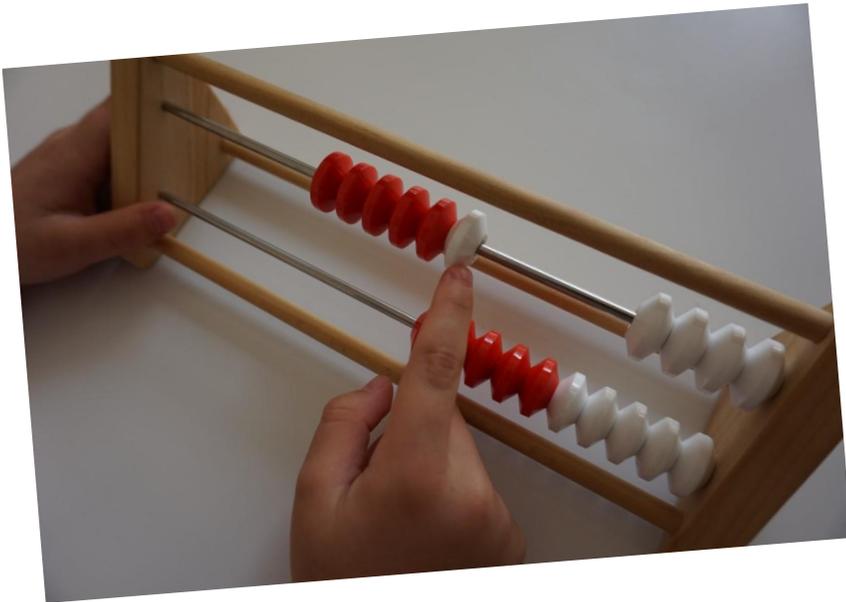
Phonics

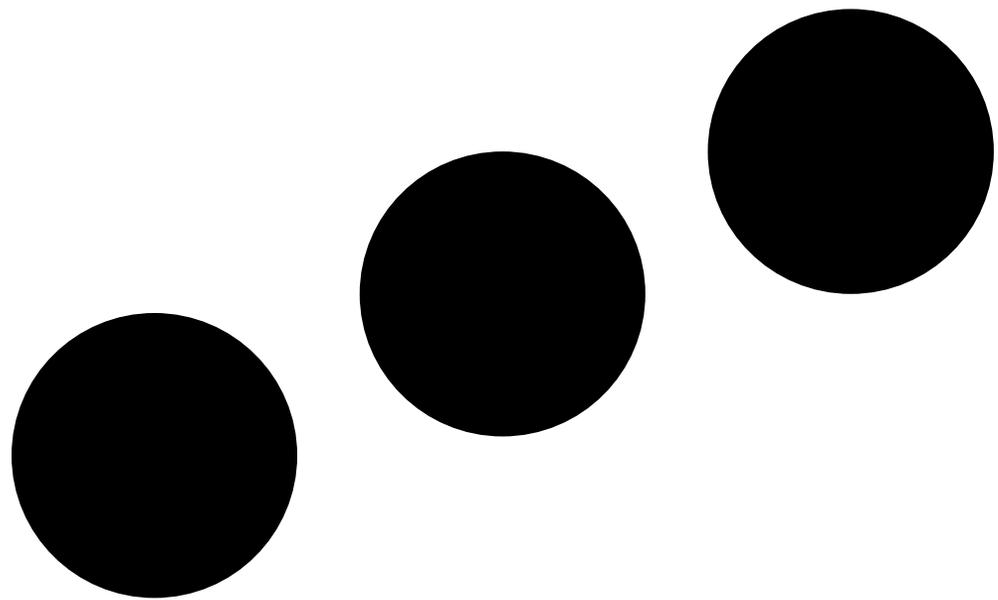
The word "Phonics" is written in a playful, bubbly font. Each letter is a different color and has a unique pattern: 'P' is blue with a black outline; 'h' is pink with light purple polka dots; 'o' is green with a black outline; 'n' is purple with yellow stars; 'i' is yellow with a black outline and a yellow star on top; 'c' is red with a black outline; 's' is light blue with dark blue polka dots. The background is white with a blue geometric pattern on the right side.

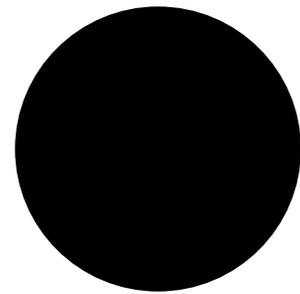
# Mastering Number

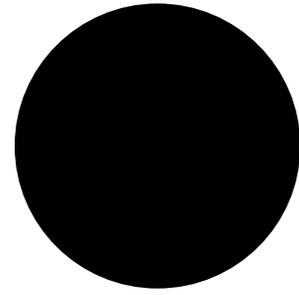
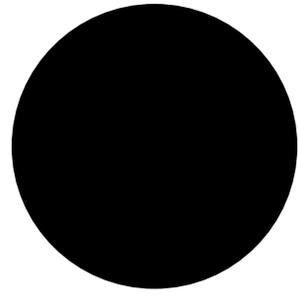
Ability to clearly communicate their mathematical ideas

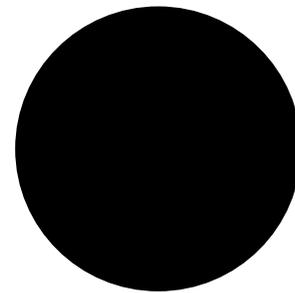
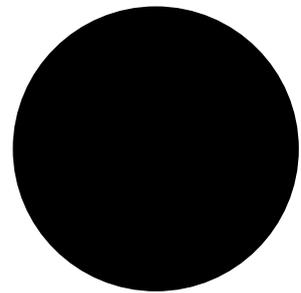
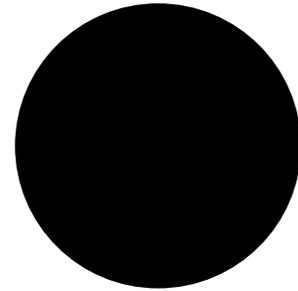
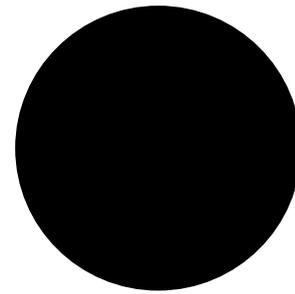
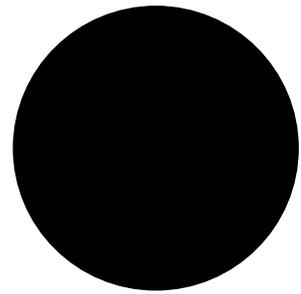
Develop a secure understanding of how to build firm mathematical foundations



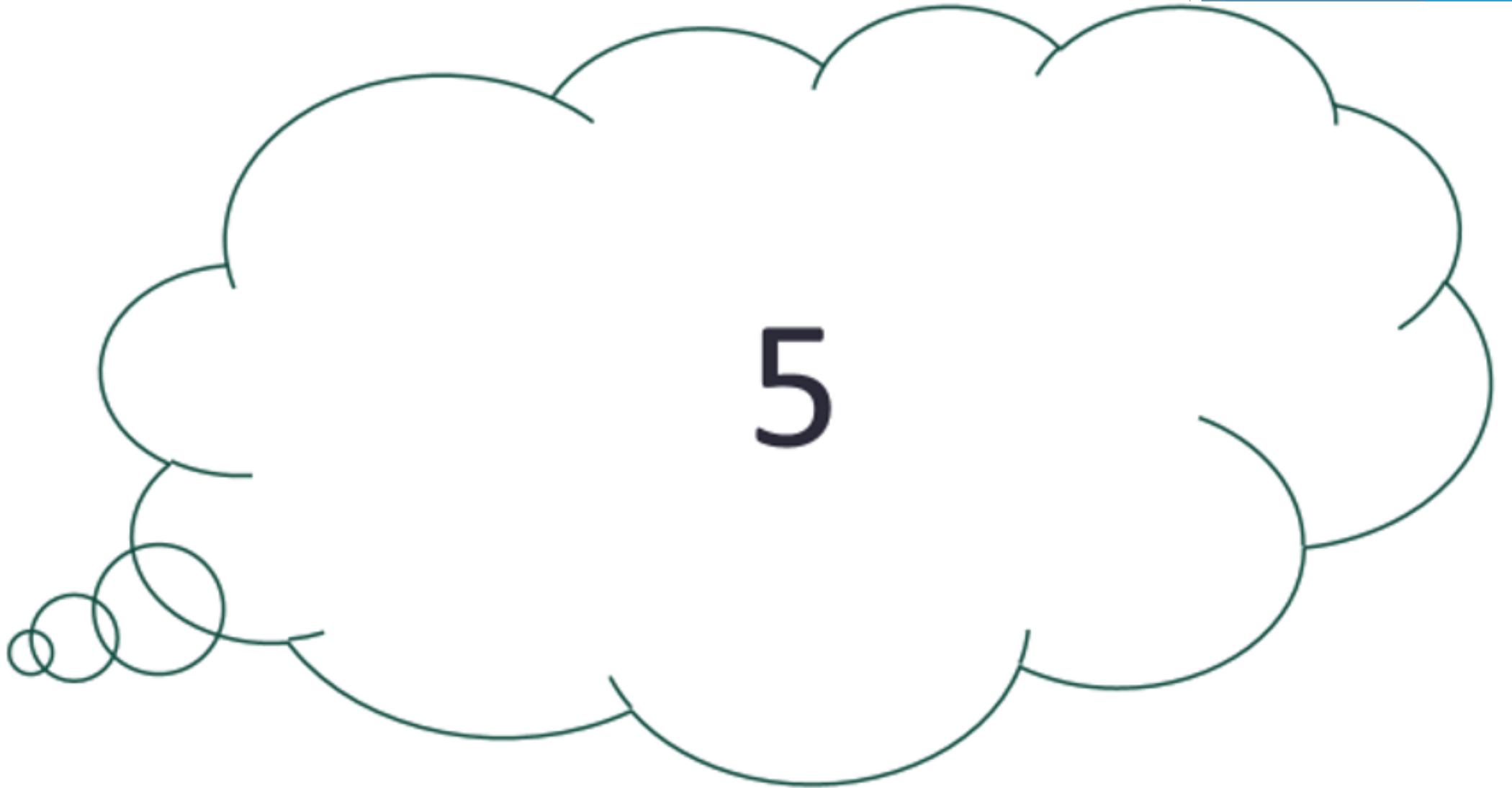




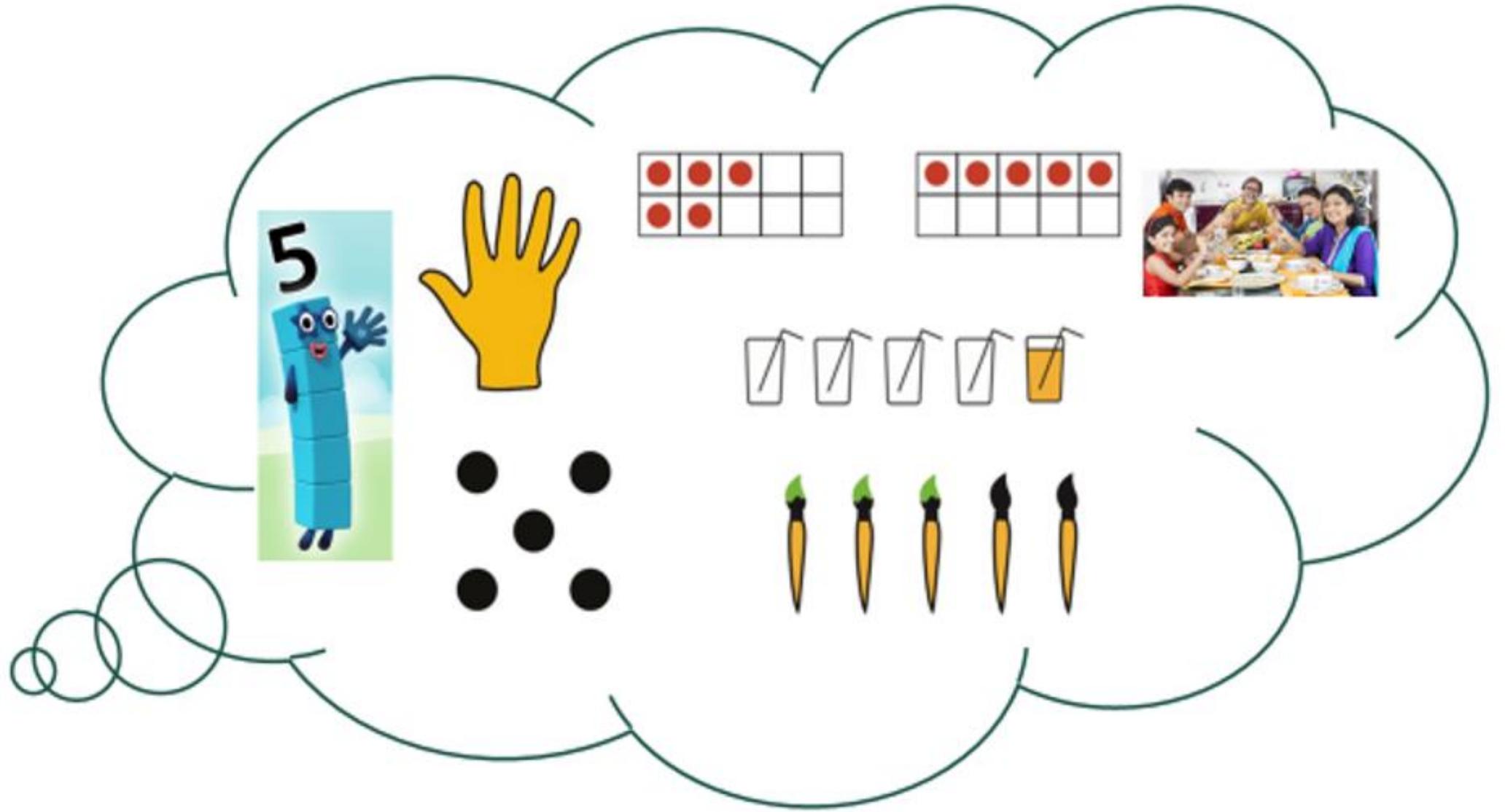


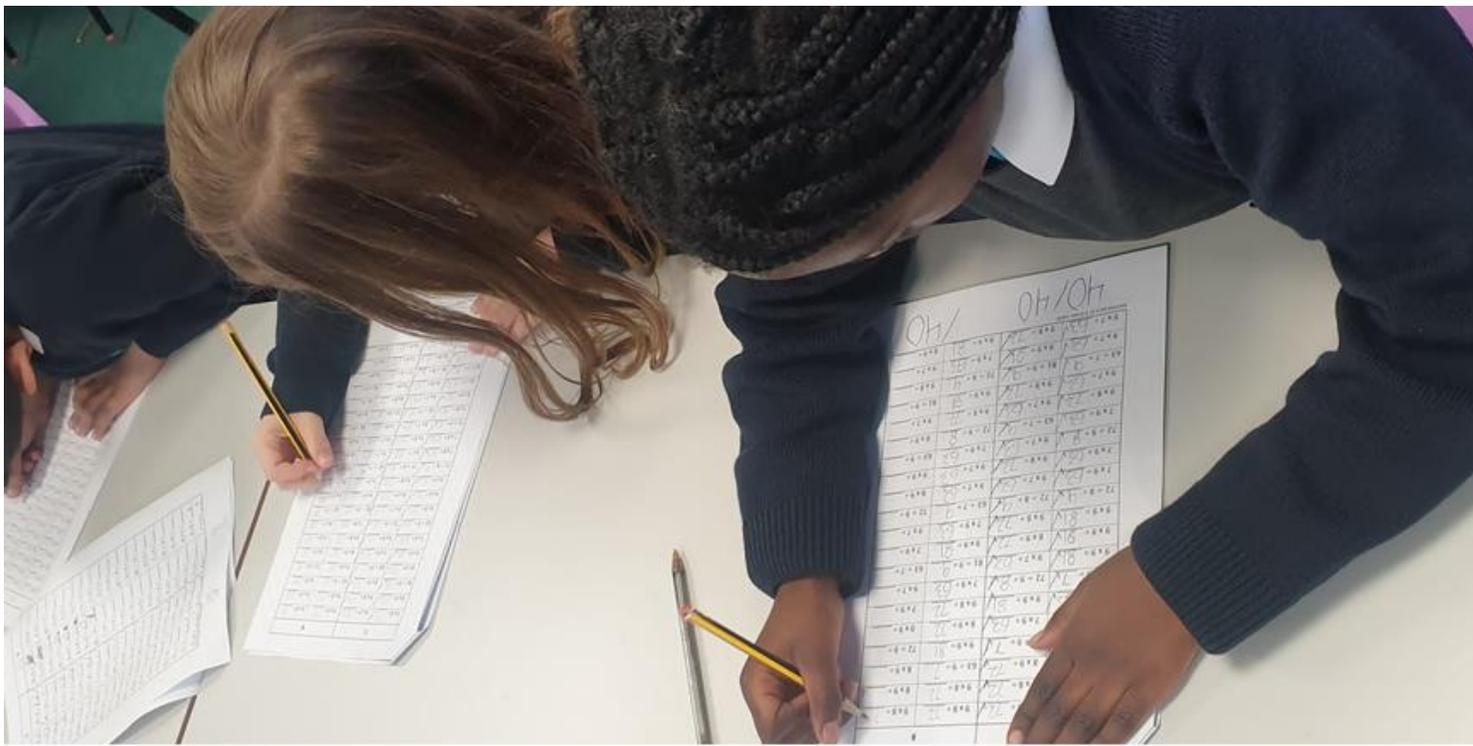


“Five”

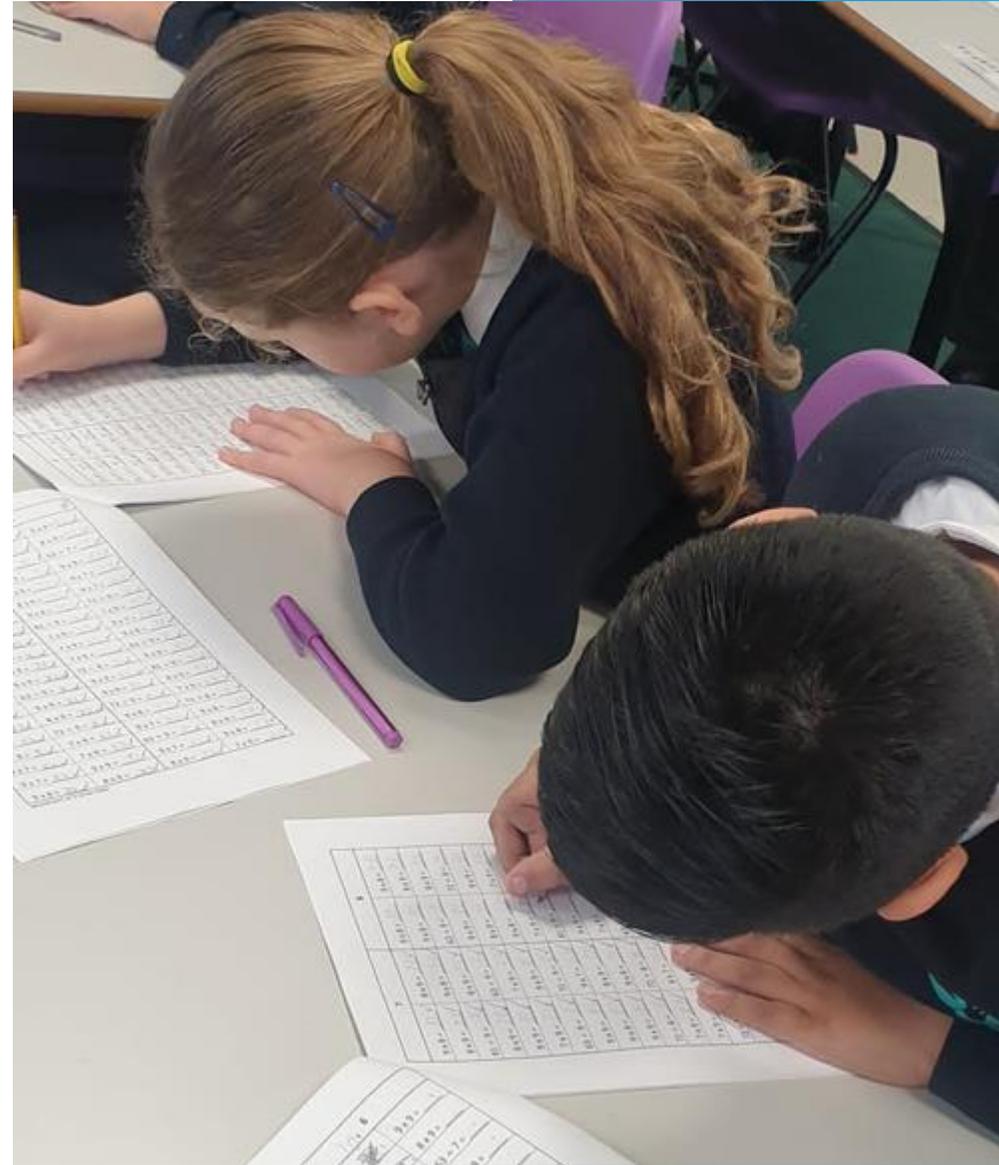


“Five”





# Times Tables Challenge



# Fluency?



- Recognition of number facts
- Flexibility in mathematical knowledge – being able to apply knowledge to different contexts/trickier situations
- Table facts
- Number bonds
- Making connections (with and between facts/numbers)
- Crucial knowledge to the understanding and development through the rest of the primary curriculum
- It is not learning by rote with no understanding of the structure of the numbers or facts learned.
- *Mark McCourt, “We consider someone to be fluent in a technique, procedure, idea, concept or fact at the point at which they no longer need to give attention”.*

$$\begin{array}{r}
 \phantom{0}391 \\
 \times \phantom{0}39 \\
 \hline
 3519 \\
 \phantom{0} \square \phantom{0} 8 \phantom{0} \square \\
 11730 \\
 \phantom{0} 2 \phantom{0} \square \phantom{0} \square \\
 \hline
 15249
 \end{array}$$

First we multiply each of the digits 391 by 9.

$$9 \times 1 = 9$$

$9 \times 9 = 81$   
(put the 1 down; carry the 8)

$$9 \times 3 = 27$$

$$27 + (\text{carried}) 8 = 35$$

Now we multiply each of the digits 391 by 3. Because it is actually 30, not 3, we put a zero down first.

$$3 \times 1 = 3$$

$3 \times 9 = 27$  (put the 7 down and carry the 2)

$3 \times 3 = 9$  (plus the 2 which makes 11)

Last of all, we add the results of our calculations to get the answer.

$$3519 + 11730 = 15249$$

# Language

Divisor

Inequality

Addend

Subitising

Quotient

Multiplicative

Multiple

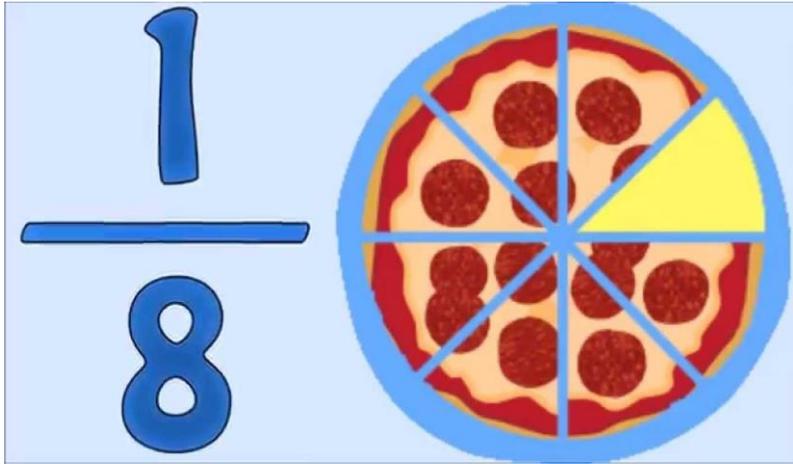
Product

Factor

Subtrahend



# Depth of understanding vs answer getting



Multiplying fractions

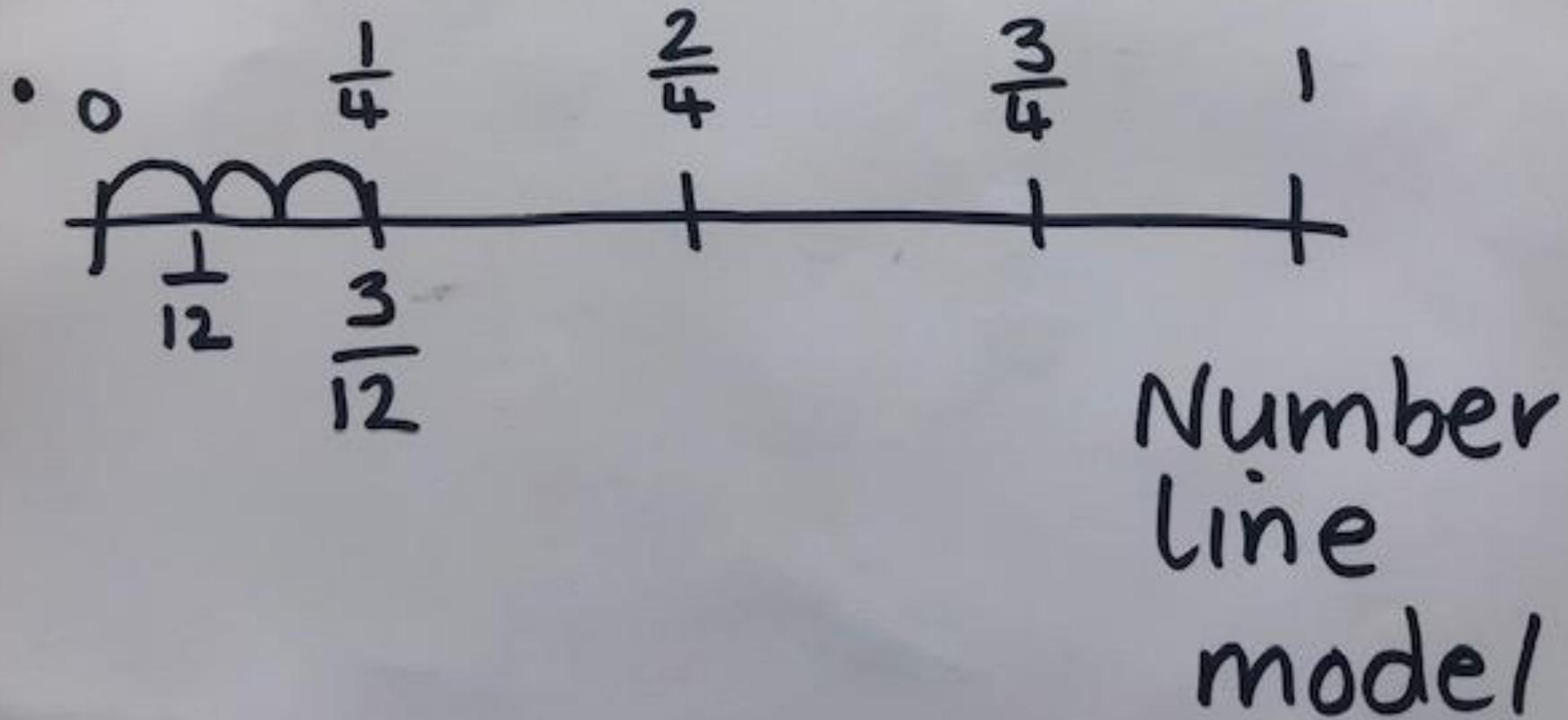
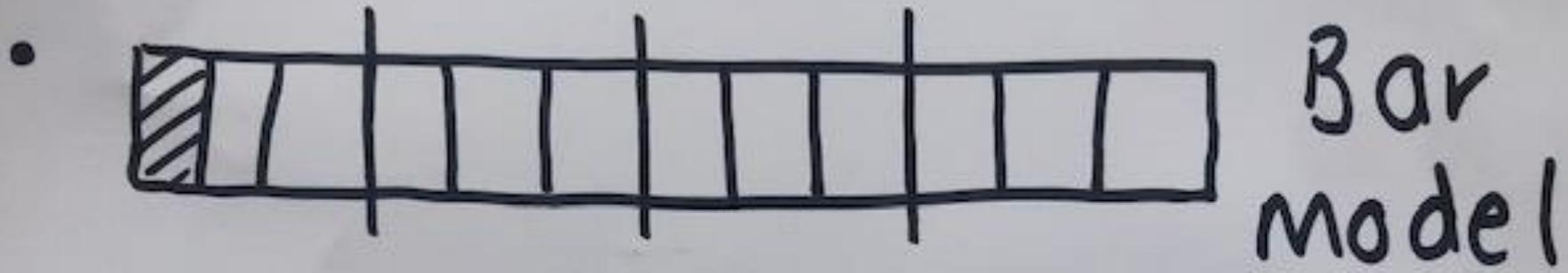
$$\frac{1}{3} \times \frac{1}{4}$$

Easy! Multiply the numerators; multiply the denominators!

$$1 \times 1 = 1$$

$$3 \times 4 = 12$$

$$\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$$



Differentiation - meeting the needs of all learners

Sets Ability groups

“All children moving at broadly the same pace”

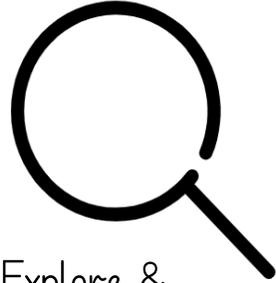
~~Sets~~

Differentiation still exists.... It  
just looks very different

# Lesson structure



Retrieval

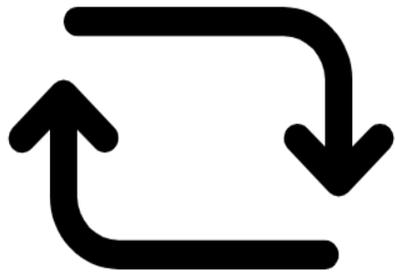


Explore &  
discuss



Independent Practice

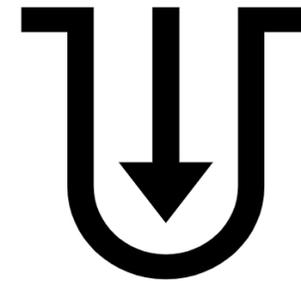
Deeper challenge



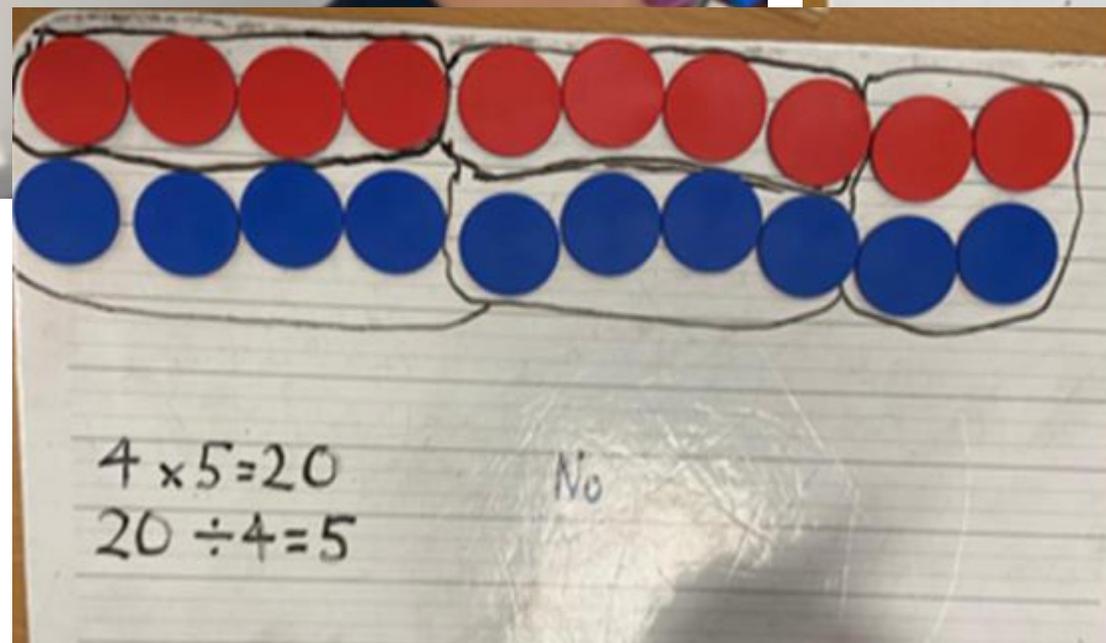
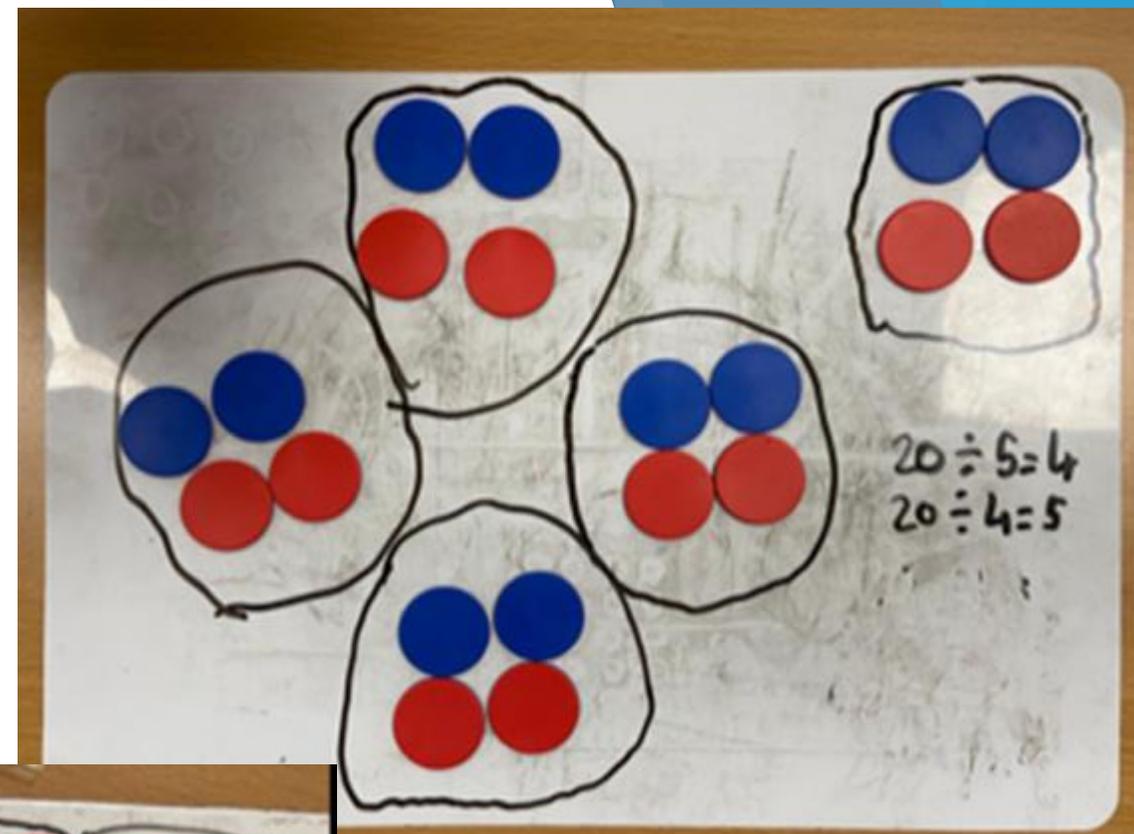
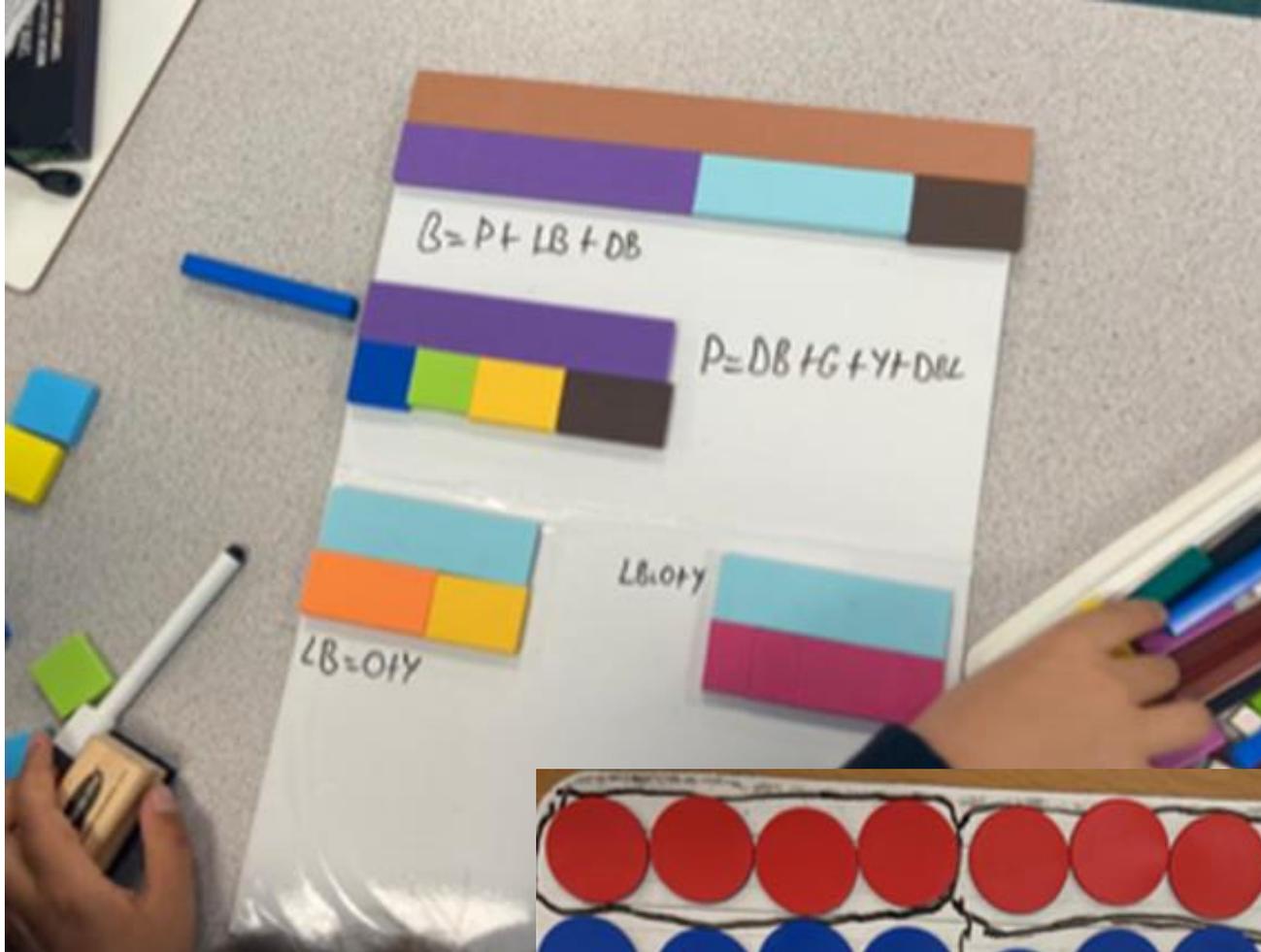
Recap



Checkpoint







KEY:



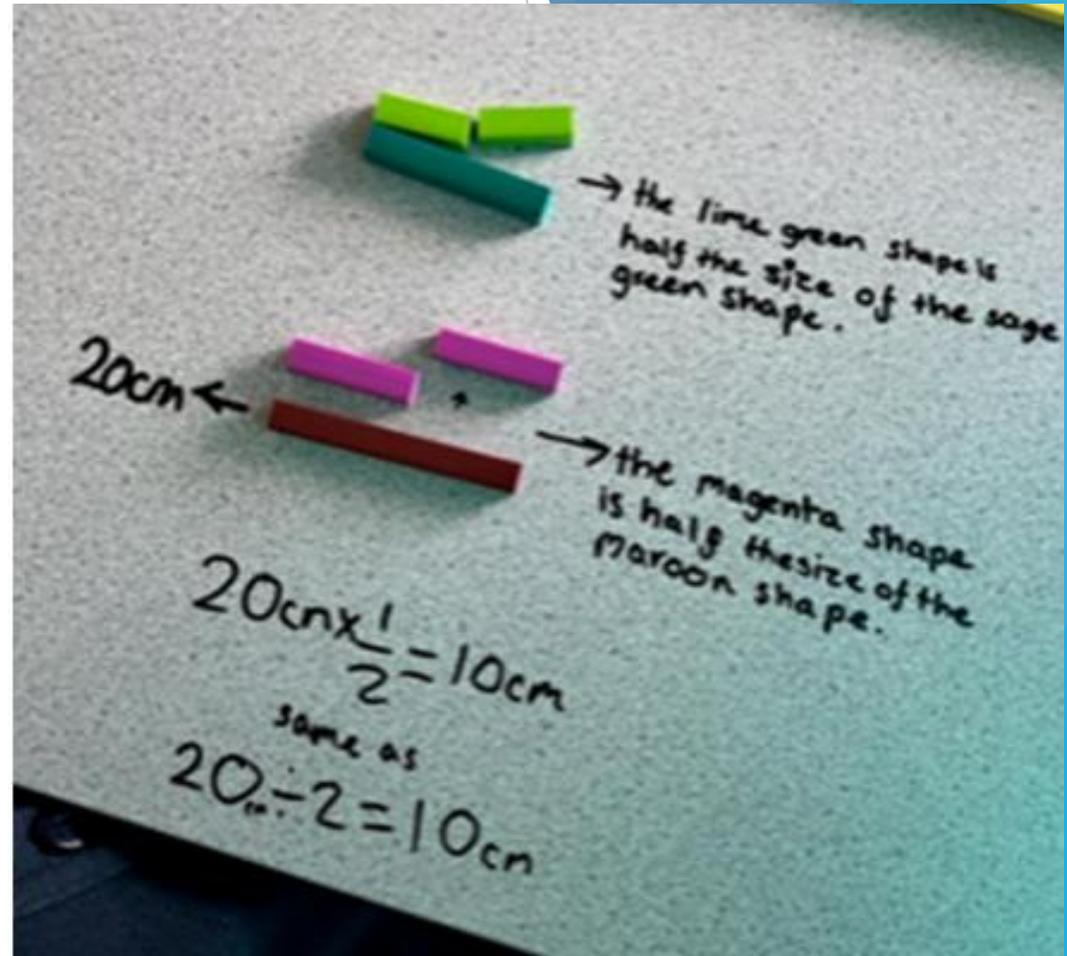
$$50\text{cm} \times \frac{1}{5} = 10\text{cm}$$

$$50\text{cm} \div 5 = 10\text{cm}$$

The length of 5 red rods is the same as the orange rod.

The red rod is  $\frac{1}{5}$  the length of the orange rod.

The orange rod is 5 times the length of the red rod.



→ the lime green shape is half the size of the sage green shape.

→ the magenta shape is half the size of the maroon shape.

$$20\text{cm} \times \frac{1}{2} = 10\text{cm}$$

same as

$$20 \div 2 = 10\text{cm}$$

# Year 3 - place value of a digit in 3 digit numbers

Lower ability  
or Red Group

Middle ability or

Higher ability or

**Factual knowledge**

Red

Orange

Green

1) 34

1) 224

1) 2524

2) 85

3) 92

4) 63

5) 43

Ext:

345

**Over-rapid progression**

5) 342

Ext:

7548

5) 3455

Ext:

75485



Maths Curriculum Overview - 2022-2023

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Finger and number rhymes Begin to make comparisons Begin to talk about and identify patterns Begin to understand position and sequencing	Simple linear patterns Recognise the amount and different representations of 0, 1 and 2 2D shapes Perspectives	Recognise the amount and different representations of 3 Compare quantities up to 3 Positional language Describe and compare measure	Recognise the amount and different representations of 4 and 5 Compare quantities Patterns Position	Shape: similarities and differences, formal and informal shape names To recognise some numerals of personal significance Count and compare objects up to 5	Mathematical problems within 5 Subitising to 5 Recite numbers to 10 Positional language Shape: predict and rotate
Reception	Subitise within 3 Relate counting to cardinality See that all numbers are made of 1s Use language of comparison Patterns	Subitise within 5 Begin to count beyond 5 and recognise numerals Wholes and parts Comparison inc. length & weight Pattern Shape Spatial awareness: language	Counting to 20 and beyond Order numbers Recognise that numbers within 10 can be composed of '5 & a bit' Comparison: equal & unequal Pattern: generalising structures Begin to use time to sequence 1	Odd & even numbers Composition & cardinality of numbers to 10 Compare numbers with reasoning Time as a measure Shape: compose & decompose Spatial awareness: manipulating	1 more & doubles pattern Composition of 10 Ordering Pattern: rules, continue, copy & create Measure: length, weight & capacity	Consolidation Representations of number Comparison: quantities & number Spatial awareness: maps Shape: composing & problem solving
Year 1	Comparison of quantities and measures. Introduction to 'whole' and 'parts'.	Composition of numbers: 0-5. Composition of numbers: 6-10. Properties of shape.	Properties of shape. Additive structures: aggregation and partitioning. Additive structures: augmentation and reduction.	Addition & subtraction: strategies. Composition of numbers: 11-19. Measurement: length & height.	Measurement: mass and volume. Counting: utilising and coins.	Fractions. Position and direction. Time.
Year 2	Multiples of 10 up to 100. Composition of numbers 20-100 Bridging 10. Subtraction as difference.	Two digit and single digit numbers. Two digit numbers and multiples of 10. Multiplication representing equal groups. Groups of 2 and commutativity	Groups of 10 and 5, and factors of 0 and 1. Doubling and halving. Division (quotitive and partitive).	Properties of shape. Addition: 2-digit & 2-digit numbers. Subtraction: 2-digit & 2-digit numbers. Money.	Fractions. Time. KSI Assessments	Measurement: length, mass, capacity and temperature. Position and direction. Doubling and halving. Division (quotitive and partitive).
Year 3	Composition and calculation: 100 & bridging 100. Composition and calculation: 3-digits.	Composition and calculation: 3-digits. Securing mental strategies to 999.	Manipulating the additive relationship. Column addition. Timetables: 2, 4, 8 & their relationships.	Scaling number facts by 10. Column subtraction. Fractions inc part-whole relationship & unit fractions.	Fractions inc: finding a unit fraction, identify, compare and represent non-unit fractions. Adding and subtracting within one whole.	Right angles. Parallel and perpendicular sides in a polygon. Time.

Statistics will be taught outside of Maths and linked to the Science curriculum.  
\*This is a guide and may need slight adjustments\*

Year 4	Algorithms: column addition & column subtraction. Composition and calculation: 1000 and 4 digit numbers.	Area & perimeter. Times tables: 3, 6, 9 & their relationships. Times tables: 7 and patterns within/across.	Multiplication and division. Multiply and divide by 10 or 100. Scaling number facts by 100.	Times tables: 11 and 12. Symmetry in 2D shapes. Time.	Fractions inc part-whole relationship, improper fractions and mixed numbers.	Co-ordinates. Statistics. Division with remainders.
Year 5	Composition and calculation: 10ths & 100ths. Addition & subtraction: Money. Negative numbers.	Negative numbers. Multiplication: short multiplication. Division: short division.	Area & perimeter Structures: understanding scaling. Decimal place value: multiplication & division.	Multiply/divide decimal fractions by whole numbers Volume. Factors, multiples, prime & composites. Multiplying whole numbers & fractions	Multiplying whole numbers & fractions. Finding equivalent fractions and simplifying. Linking fractions, decimals and percentages.	Number, place value & converting units. Properties of shape, including angles. Transformations.
Year 6	The part-part-whole relationship. Equivalence and compensation to calculate. Multiples of 1,000.	Numbers to 10,000,000. Draw, compose and decompose shapes. Using equivalence to calculate.	Multiplication strategies inc. long multiplication. Division inc. long division. Geometry – position & direction Fractions: equivalence & simplifying	Fractions, inc. adding, subtracting, multiplying and dividing. Linking fractions, decimals and percentage.	Statistics Revision KS2 Assessments (SATs). Scale factors	Ratio and proportional reasoning. Equivalence and compensation to calculate. Problems with two unknowns. Mean average and equal shares.



# Further reading and information

[Tim Oates - review of assessment and the National Curriculum 2010 - 2013](#)

[A World Class Mathematics Education for all - Vorderman, 2011](#)

[National Curriculum for Mathematics](#)

[NCETM](#)