



Year 3 maths workshop

Autumn 2022

Aims:



To understand theories behind maths teaching

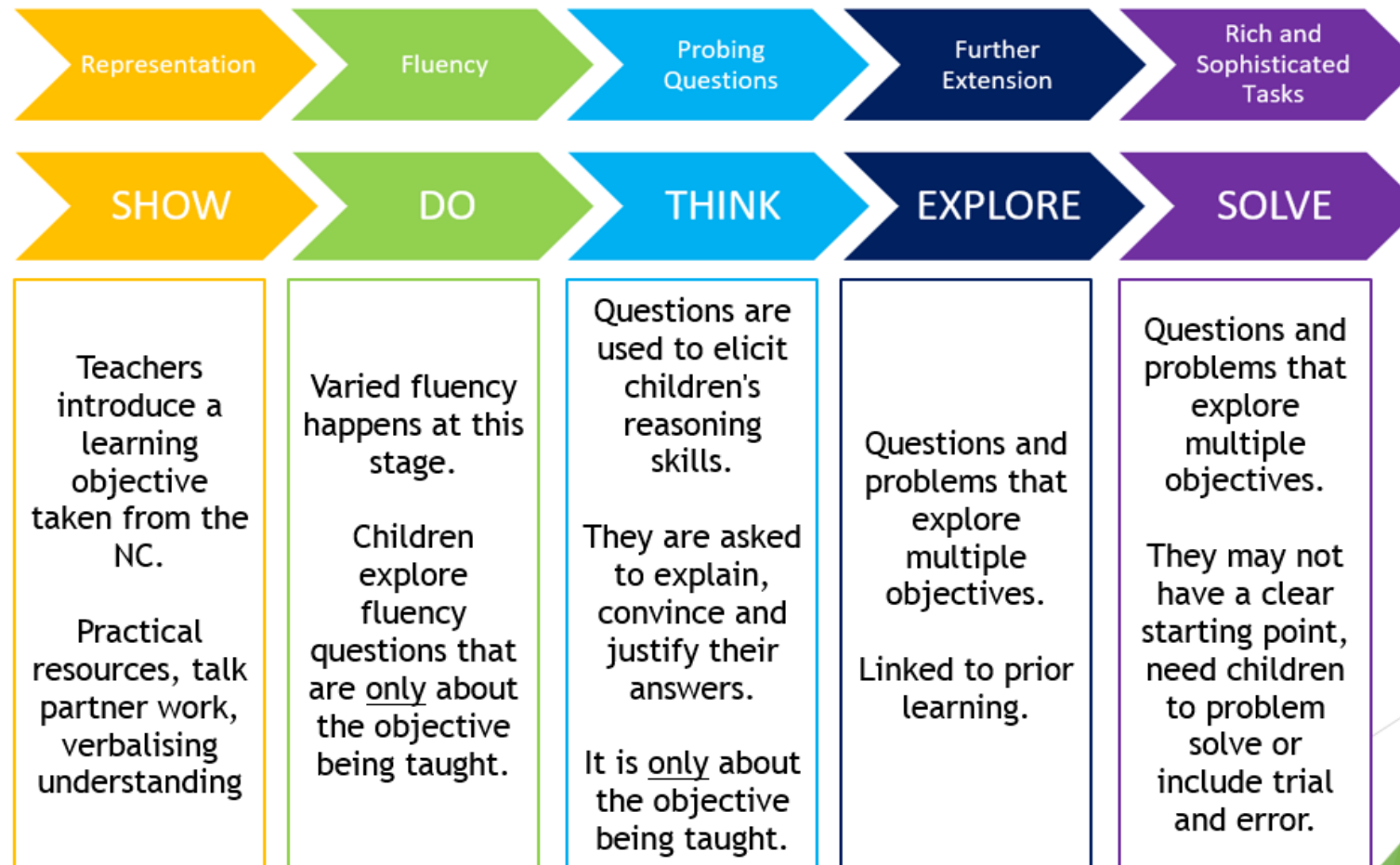


To understand the Maths journey we take during a Maths lesson - the learning flow

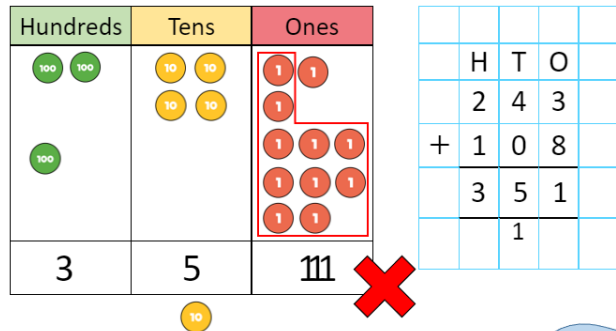


To understand how to support your child at home with their Maths

What happens at each stage of the flow?



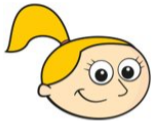
Mo scores 243 points in a game.
 Eva scores 108 points in a game.
 How many do they score in total? 351



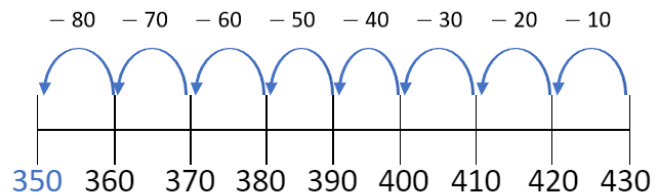
	H	T	O
	2	4	3
+	1	0	8
	3	5	1
		1	

SHOW me on
your whiteboard

$$430 - 80$$



I will count back in 10s.



Show

1 Complete the column additions.

a)

Tens	Ones
+	

b)

Hundreds	Tens	Ones
+		

a) Tick the additions with an answer that ends in zero.

$$317 + 203$$

$$134 + 754$$

$$390 + 177$$

$$425 + 165$$

$$306 + 184$$

$$340 + 147$$

Do

Tiny is working out $348 + 127$



		H	T	O	
		3	4	8	
	+	1	2	7	
		4	6	5	
			1		

a) What mistake has Tiny made?

b) What is the correct answer?

[

Think

Explore

6a. What could the missing digits be in the subtraction calculation below?

		6	8
-		4	3
<hr/>			
	7	2	5

Find all the possibilities.



PS

- Note: Using mathematical vocabulary/ diagrams from show or do journey

Solve



Roll two dice and add up the numbers together. Now roll one die again and subtract that from the total.

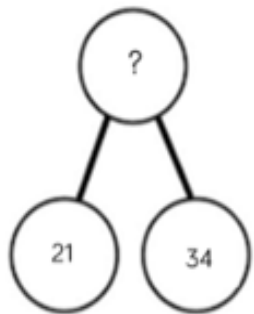
1. What are the final answers by doing the addition and subtraction each time?
2. What are all the different possible numbers sentences you could make?
3. Is there a good way of making sure you find them all?

Solve

CPA example - addition

Variation (conceptual) - what something is and what it isn't

Conceptual variation; different ways to ask children to solve $21 + 34$



?	
21	34

Word problems:

In year 3, there are 21 children and in year 4, there are 34 children. How many children in total?

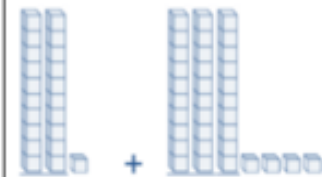
$21 + 34 = 55$. Prove it

$$\begin{array}{r} 21 \\ +34 \\ \hline \end{array}$$

$$21 + 34 =$$

$$\boxed{} = 21 + 34$$

Calculate the sum of twenty-one and thirty-four.



Missing digit problems:

10s	1s
	?
?	5

Maths – End of Year 3 Expectations

New National Curriculum Objectives

Number and Place Value	count from 0 in multiples of 4, 8, 50 and 100;
	find 10 or 100 more or less than a given number
	compare and order numbers up to 1 000
	identify, represent and estimate numbers using different representations
	read and write numbers up to 1 000 in numerals and in words
	tell and write the time from an analogue clock, including using Roman numerals
	recognise the place value of each digit in a three digit number (hundreds, tens, ones)
	solve number problems and practical problems involving above ideas.
Addition and Subtraction	add and subtract numbers mentally, including: a three-digit number and ones / a three-digit number and tens / a three-digit number and hundreds
	add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
	estimate the answer to a calculation and use inverse operations to check answers
	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction
Multiplication and Division	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one digit numbers, using mental and progressing to formal written methods
	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects
Fractions, Decimals and Percentages	count up and down in tenths
	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
	recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.
	Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
	compare and order unit fractions, and fractions with the same denominators
	recognise and show, using diagrams, equivalent fractions with small denominators
	add and subtract fractions with the same denominator within one whole. E.g one seventh + 3 sevenths = 4 sevenths.
Measurement	Solve problems that involve all of the above using fractions.
	compare durations of events, for example to calculate the time taken by particular events or tasks
	add and subtract amounts of money to give change, using both £ and p in practical contexts
	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
	measure the perimeter of simple 2-D shapes
	know the number of seconds in a minute and the number of days in each month, year and leap year
	measure, compare, add & subtract using common metric measures

What is my child taught?
What are the age related expectations?

Telling the time	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight
	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight
Geometry Shape and Position	draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
	recognise angles as a property of shape or a description of a turn
	identify right angles, recognise that two right angles make a half turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
Statistics	identify horizontal and vertical lines and pairs of perpendicular and parallel lines
	interpret and present data using bar charts, pictograms and tables
	solve one-step and two step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.

Mental Maths

- ▶ Big focus on mental maths time tables - new approach in school
- ▶ Sessions dedicated to mental arithmetic
- ▶ Building fluency and speed for mental maths papers
- ▶ Continuous recall of the 4 operations

Sumdog and TTRS



factor \times factor = product

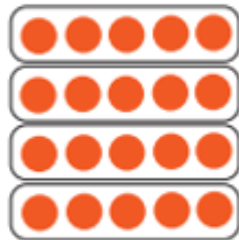
$$4 \times 5 = 20$$



factor

factor

product



twinkl

dividend \div divisor = quotient

$$10 \div 5 = 2$$



dividend

divisor

quotient



twinkl

End of Key Stage 2 expectations

Working at the expected standard

The pupil can:

- demonstrate an understanding of place value, including large numbers and decimals (e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three digits; $8.09 = 8 + \frac{9}{100}$; $28.13 = 28 + \square + 0.03$)
- calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. $53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18$; $20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700$; $53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8$)
- use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?)
- recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as $\frac{1}{5}$ or 0.2 or 20% of the whole cake)
- calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as $\frac{7}{21}$, and that this is equal to $\frac{1}{3}$; 15% of 60; $1\frac{1}{2} + \frac{3}{4}$; $\frac{7}{9}$ of 108; 0.8×70)
- substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle)
- calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm)
- use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).

How can I help at home?

- ▶ Talk about numbers!
- ▶ Four operations in the real world e.g. when shopping
- ▶ Learn number bonds to 100
- ▶ Times Table Rockstars and Sum Dog
- ▶ Telling the time!
- ▶ Make use of the maths support booklets on the website

