Year 3

Coffee and Calculations

Aims of the National Curriculum

Fluent recall of **mental maths facts** e.g. times tables, number bonds. Etc.

To **reason** mathematically – children need to be able to **explain** the mathematical concepts with number sense; they must explain **how** they got the answer and **why** they are correct.

Problem solving – applying their skills to real-life contexts.

Place Value

National Curriculum Objectives

count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number

- recognise the place value of each digit in a three-digit number (hundreds, tens, ones)

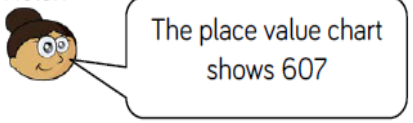
- compare and order numbers up to 1000

- identify, represent and estimate numbers using different representations

- read and write numbers up to 1000 in numerals and in words

100s	10s	1s
●● ●● ●●		●● ●● ●●●

Helen



The place value chart shows 607

Dave

I think it shows 670

Who is correct?

Explain your reasoning.

A counter has dropped off the place value chart.

Hundreds	Tens	Ones
● ● ●		●

What number could it have been?

I am thinking of a number.

It is between 300 and 500

The digits add up to 14

The difference between the greatest digit and smallest digit is 2

What could my number be?

Is there only one option?

Explain your method of working it out.

1 What number is shown in the place value chart?

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

If one more (10) is added. What number would be shown?

2 True or false?
The place value grid shows 615

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

3 Put <, > or = in the circles to make the statement correct.

100s	10s	1s	○	100s	10s	1s	○	100s	10s	1s
●	●●	●●		●●	●●	●		●●	●	●●

Addition and Subtraction

National Curriculum Objectives:

- 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

Addition

Year 3	**Partitioning** the numbers for TU + TU across 100	**Special cases**	**Partitioning** Adding ones and tens to a 3digit number	**Addition of three digit + 2 digit numbers and 3-digit + 3 digit**
Add and subtract numbers mentally, including: ▪ a three-digit number and ones ▪ a three-digit number and tens ▪ a three-digit number and hundreds Two 2-digit numbers across 100 (non-statutory guidance)	**55 + 78** 70 + 50 = 120 8 + 5 = 13 120 + 13 = 133 **55 + 78** 78 + 50 = 128 128 + 2 + 3 = 133	**66 + 79** 80 +66 – 1 = 145 **Using doubles** **76 + 78** Double 70 + double 6 + 2 Double 70 + double 8 – 2	**356 + 8** 356 + 4 + 4 = 364 **356 + 70** 350 + 70 + 6 = 420 **356 + 600** 300 + 600 + 56 = 956	268 79 200 130 17 347 268 179 17 130 300 447
Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Recall of facts to 20 and by adding multiples of 10 will support this thinking	Recall of facts to 20 and by adding multiples of 10 will support this thinking		

Addition

Which questions are harder to calculate?

$234 + 3 =$
$506 + 8 =$
$455 + 7 =$
$521 + 6 =$

Explain your answer.

Balraj

589 – 70 is equal to 582

Spot the mistake.

Which is the odd one out? Why?

$336 + 80$
$453 + 60$
$347 + 70$
$285 + 80$

Charlotte

When I calculated 392 – 20 I used my known fact 9 – 2 = 7

Explain Charlotte's method.

Sort these calculations.
You can sort them in different ways.
Justify your answer.

$257 + 60$
$70 + 637$
$40 + 234$
$20 + 391$

Addition Rally Coaching

Subtraction

Expanded column subtraction

347 – 165 = 182

200	140	7
~~300~~	40	7
100	60	5
100	80	2

436 – 177 = 259

300	120	16
~~400~~	~~30~~	7
100	70	7
200	50	9

Subtraction

Find the missing numbers and explain how you found them.

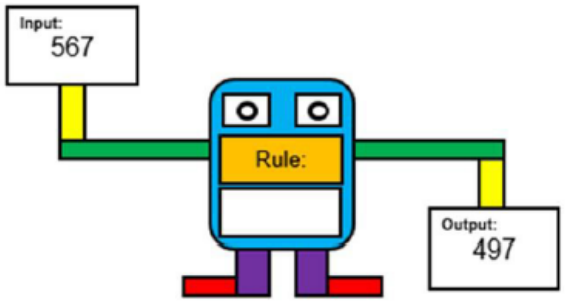
13☐ – 50 = 85

334 – ☐ = 294

545 = ☐ – 70

Sally thinks the rule for the function machine is subtract 60

Is she correct? Explain.



Sammy

306 + 300 = 906 – 300

Is she correct?

Explain how you know.

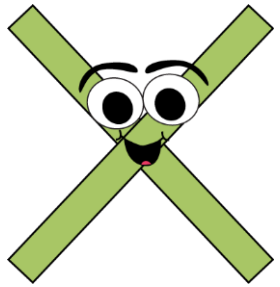
Terry starts with the number 356
He adds a multiple of 100
His new number is greater than 500 but less than 800
Complete the table.

Numbers he couldn't have added	Number he could have added

How many different methods could you use to solve 837 – 90 =

Share your methods with a partner.

Subtraction Rally Coaching



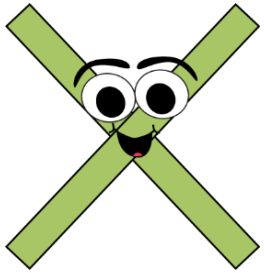
MULTIPLICATION AND DIVISION

National Curriculum Objectives:

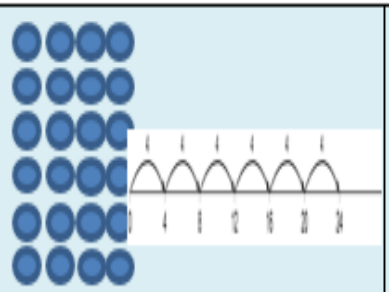
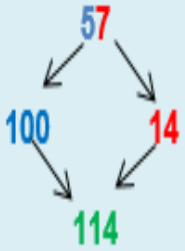
- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

- 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

- solve problems, including missing number problems, involving multiplication and division



MULTIPLICATION

Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Multiply single digits by 20,30,40,50 and 80	 4 × 6 = 24 Use arrays and number lines to count in multiples	Using partitioning to multiply 57 × 2 = 114 50 × 2 7 × 2 100 + 14 =114  	Scaling Making a 5cm line 4 times longer 5cm × 4 = 20cm 	48 × 3 = 144 (Partitioning) × 40 8 3 120 24 4 × 10 × 3 or 4 × 3 × 10 120 + 24 = 144

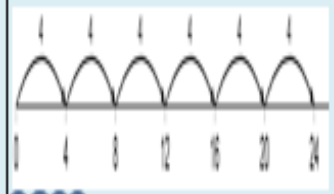
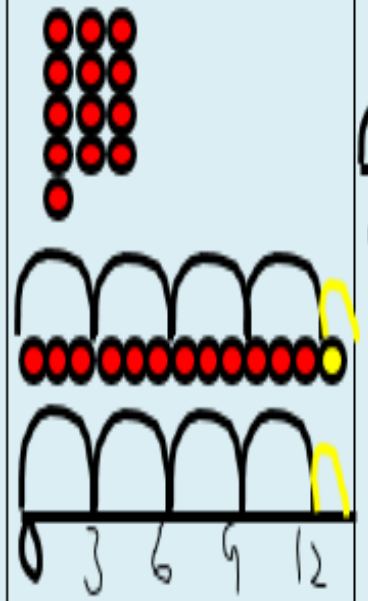
Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

Counting Stick Multiplication

Times Table Rockstars

Multiplication Rally Coaching

DIVISION

Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Counting	Division as grouping	Division as grouping
Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers divided one-digit numbers, using mental and progressing to formal written methods	Use facts for numbers up to 10 times the divisor Eg 28 ÷ 3 This is between 27 ÷ 3 = 9 and 30 ÷ 3 = 10 So 9 remainder 1	Relate division to counting and multiplication facts. Count in 4s to see that there are 6 4s in 24   Arrays show 6 groups of 4 so 24 ÷ 4 = 6	13 ÷ 3 = 4 r1 	43 ÷ 3