Teaching Maths in Year 5 and 6
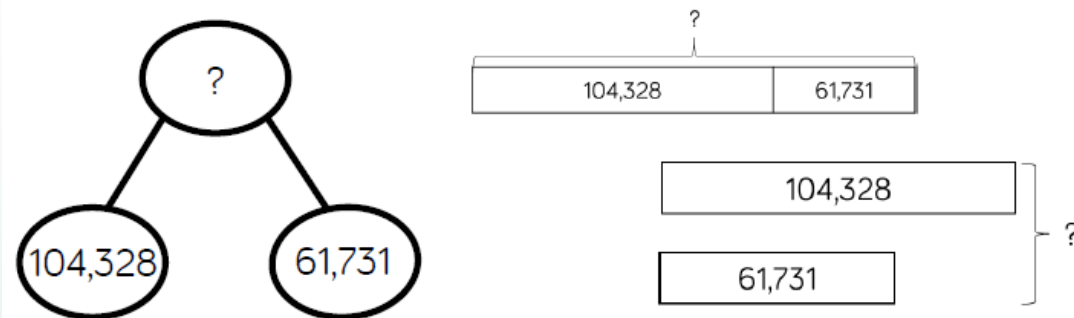
Parent Workshop – Thursday 23rd March 2023

Aims

- To understand how we teach the four operations in Year 5 and Year 6

- To understand the importance of knowing the multiplication tables

- To know how bar models can be used to support with word problems

- To know how to support a positive attitude to maths

Year 5 and Year 6 Addition Adding with more than 4-digits

Place value counters or plain counters on a place value grid are the most effective concrete resources when adding numbers with more than 4 digits.

At this stage, children should be encouraged to work in the abstract, using the column method to add larger numbers efficiently.

Skill: Add numbers with more than 4 digits

$$104,328 + 61,731 = 166,059$$

| HTh	TTh	Th	H	T	O

Year 5 and 6 Addition
Adding decimals

Place value counters and plain counters on a place value grid are the most effective manipulatives when adding decimals with 1, 2 and then 3 decimal places.

Ensure children have experience of adding decimals with a variety of decimal places. This includes putting this into context when adding money and other measures.

Skill: Add with up to 3 decimal places
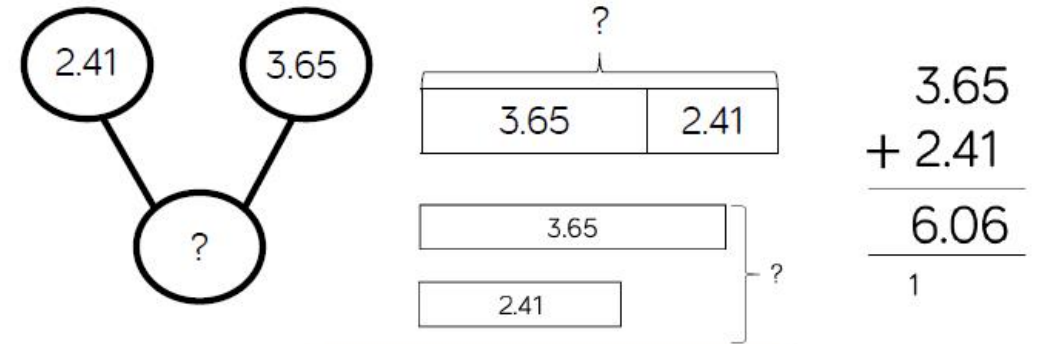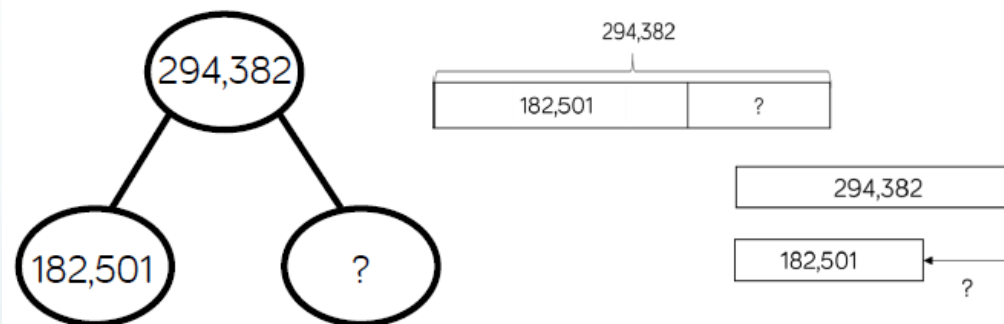
$$3.65 + 2.41 = 6.06$$
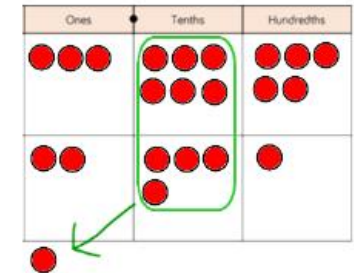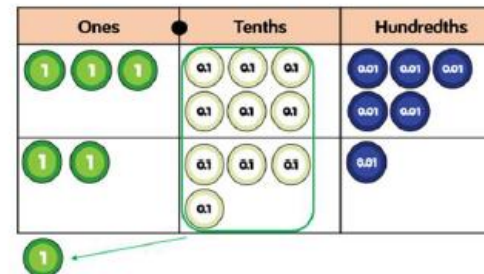
Year 5 and 6 Subtraction Subtracting with more than 4 - digits

Place value counters or plain counters on a place value grid are the most effective concrete resource when subtracting numbers with more than 4 digits.

At this stage, children should be encouraged to work in the abstract, using column method to subtract larger numbers efficiently.


Skill: Subtract numbers with more than 4 digits

$$294,382 - 182,501 = 111,881$$

Year 5 and 6 Subtraction Subtracting decimals

Place value counters and plain counters on a place value grid are the most effective manipulative when subtracting decimals with 1, 2 and then 3 decimal places.

Ensure children have experience of subtracting decimals with a variety of decimal places. This includes putting this into context when subtracting money and other measures.

Skill: Subtract with up to 3 decimal places

$$5.43 - 2.7 = 2.73$$
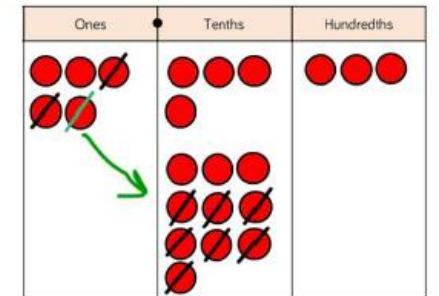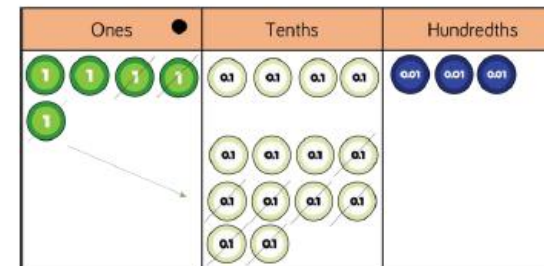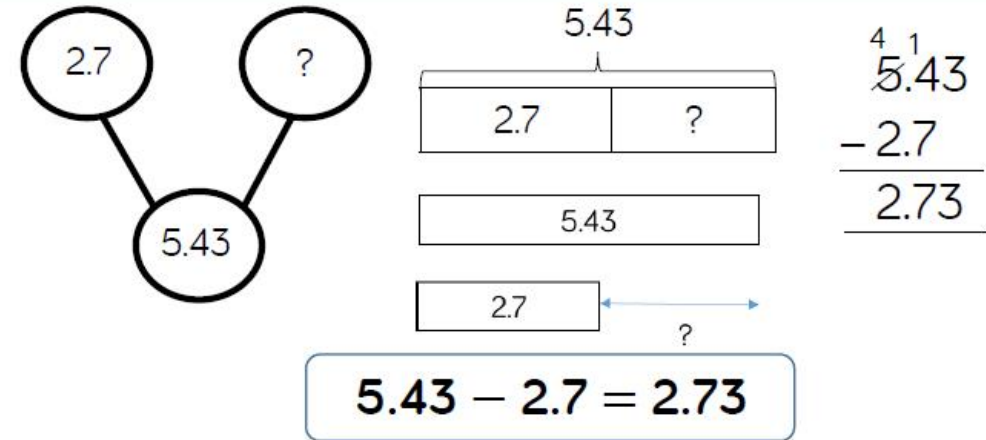
Year 5 and 6 Multiplication 4-digit by 1-digit

When multiplying 4-digit numbers, place value counters are the best manipulative to use to support children in their understanding of the formal written method.

If children are multiplying larger numbers and struggling with their times tables, encourage the use of multiplication grids so children can focus on the use of the written method.

Skill: Multiply 4-digit numbers by 1-digit numbers
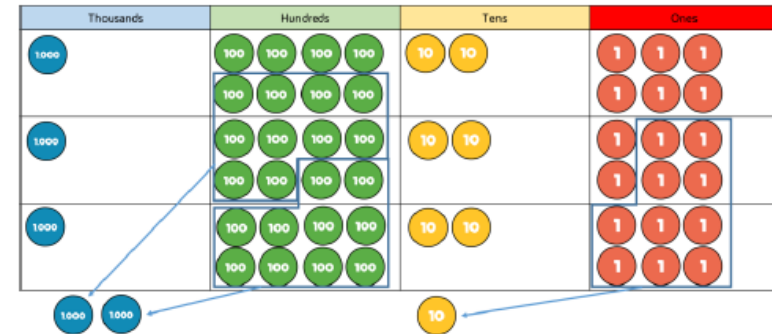
$$1,826 \times 3 = 5,478$$

	Th	H	T	O
		1	8	2	6
×				3
	5	4	7	8
		2		1	

Year 5 and 6 Multiplication
4-digit by 1-digit

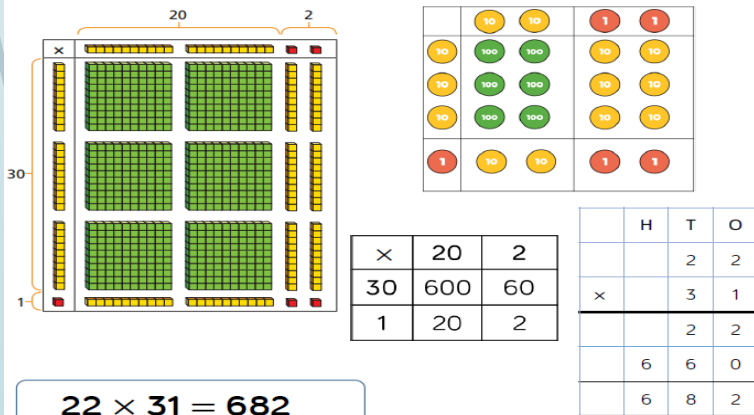When multiplying 4-digits by 2-digits, children should be confident in using the formal written method.
If they are still struggling with times tables, provide multiplication grids to support when they are focusing on the use of the method.
Consider where exchanged digits are placed and make sure this is consistent.

It is vital that children know all of their multiplication tables up to 12x12 (end of year expectation).

Skill: Multiply 4-digit numbers by 2-digit numbers

$2,739 \times 28 = 76,692$

Skill: Multiply 3-digit numbers by 2-digit numbers

$234 \times 32 = 7,488$

×	200	30	4
30	6,000	900	120
2	400	60	8

Skill: Multiply 2-digit numbers by 2-digit numbers

×	20	2
30	600	60
1	20	2

$22 \times 31 = 682$

Year 5 and 6 Division
3-digit by 1-digit, then
4-digit by 1-digit (with and
without remainders)

Children can continue to use
grouping to support their
understanding of short
division.

Place value counters or plain
counters can be used on a
place value grid to support
this understanding. Children
can also draw their own
counters and group them
through a more pictorial
method.

Skill: Divide 3-digits by 1-digit (grouping)
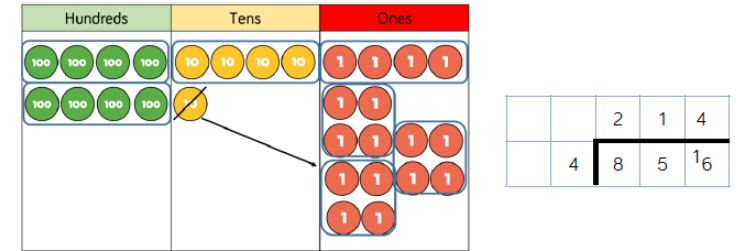
$856 \div 4 = 214$
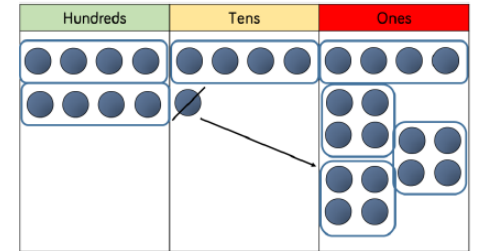
Skill: Divide 4-digits by 1-digit (grouping)

$8,532 \div 2 = 4,266$

Year 6 Division
Long division

Children can also divide by 2-digit numbers using long division.

Children can write out multiples to support their calculations with larger remainders.

Children will also solve problems with remainders where the quotient can be rounded as appropriate.

Skill: Divide multi-digits by 2-digits (long division)

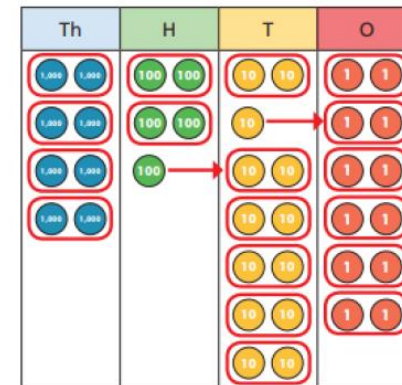|			0	3	6
1	2	4	3	2	
	−		3	6	0
			7	2	
	−			7	2
					0

(×30)
(×6)

$12 \times 1 = 12$
$12 \times 2 = 24$
$12 \times 3 = 36$
$12 \times 4 = 48$
$12 \times 5 = 60$
$12 \times 6 = 72$
$12 \times 7 = 84$
$12 \times 8 = 96$
$12 \times 7 = 108$
$12 \times 10 = 120$

$$432 \div 12 = 36$$

		0	4	8	9
15	7	3	3	5	
−	6	0	0	0	
	1	3	3	5	
−	1	2	0	0	
		1	3	5	
−		1	3	5	
				0	

(×400)
(×80)
(×9)

$1 \times 15 = 15$
$2 \times 15 = 30$
$3 \times 15 = 45$
$4 \times 15 = 60$
$5 \times 15 = 75$
$10 \times 15 = 150$

$$7,335 \div 15 = 489$$

Skill: Divide multi digits by 2-digits (short division)

		0	3	6
	12	4	4 3	7 2

$$432 \div 12 = 36$$

		0	4	8	9
	15	7	7 3	13 3	13 5

$$7,335 \div 15 = 489$$

15	30	45	60	75	90	105	120	135	150

Bar Models

Maths problems can be visualised through bar modelling, using rectangles to represent known and unknown amounts. This helps to bring together all relevant information.

Bar modelling is not a method of calculation. It provides a diagram to help understand what working out should be done to solve a problem.

The bar model supports understanding of the relationship between addition and subtraction in that both can be seen within the one representation and viewed as different ways of looking at the same relationships.

This diagram encapsulates all of the following relationships;

$a = b + c$; $a = c + b$; $a - b = c$; $a - c = b$

Bar Models

Missing number problems

_____ + 3854 = 7919
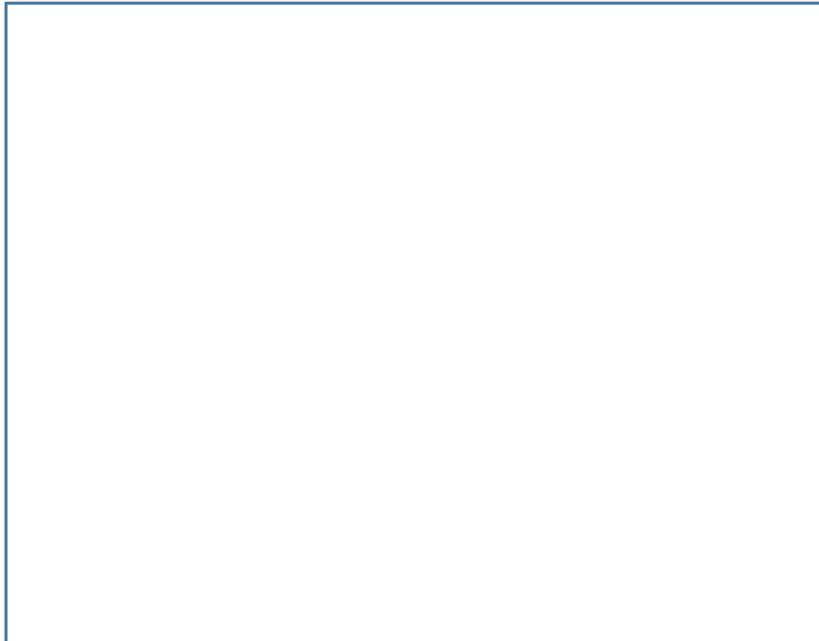
6920 - ____ = 1736

Bar Models

1 Eva has 20 counters.
6 of them are red.
The rest are yellow.
How many more yellow than red counters are there?
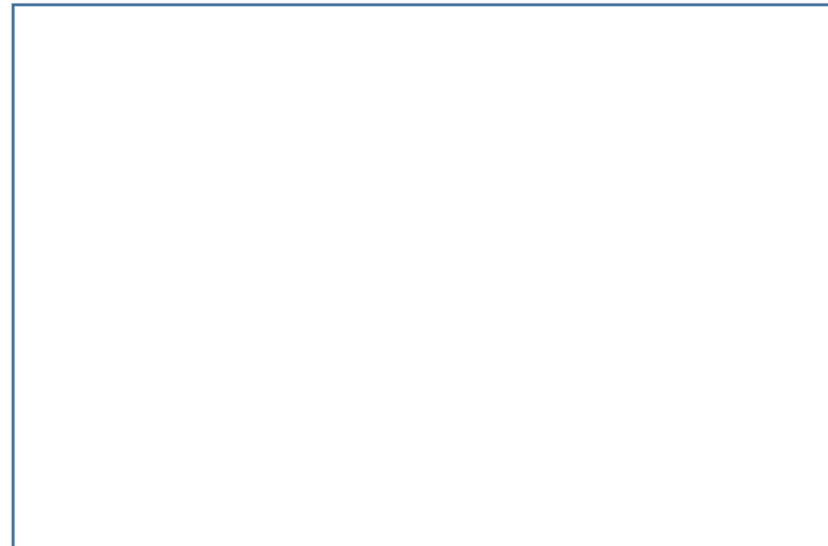
2 A mug costs £12

A toy costs £5 less than the mug.

How much does a mug and toy cost altogether?
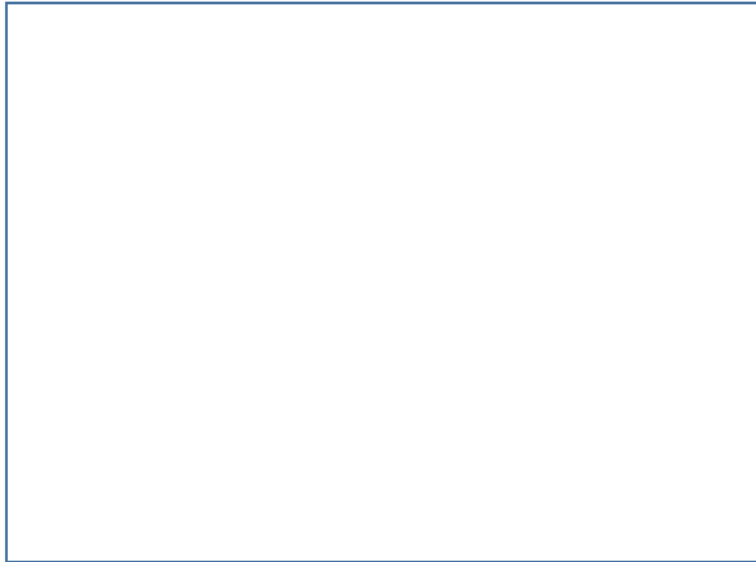
Bar Models

3 A baker sold 93 more pies on Tuesday than Monday.
She sold 55 fewer pies on Tuesday than on Wednesday.
She sold 236 pies on Tuesday.
How many pies did she sell in total?

4 A shape is made of 3 rectangles.
The total area of the shape is 150 cm^2
The area of rectangle A is 33 cm^2
Rectangle B is half the area of C.
What is the area of rectangle C?
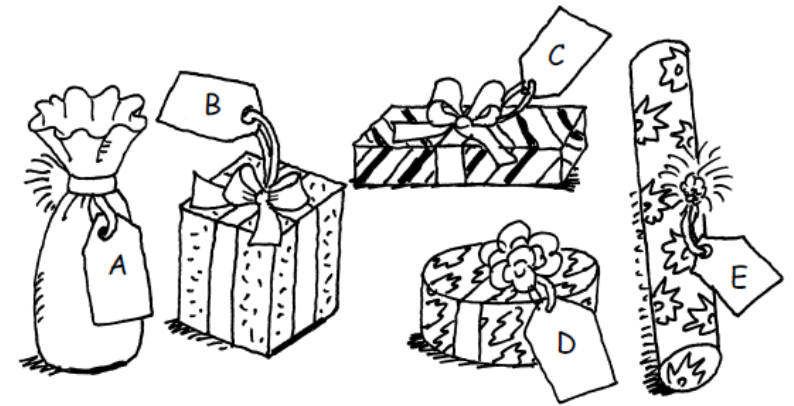
How do we challenge our pupils?

- Applying the skills and knowledge that the children have learnt into context.

- Problem Solving and Reasoning

Presents

Gurmit paid £21 for five presents.

For A and B he paid a total of £6.
For B and C he paid a total of £10.
For C and D he paid a total of £7.
For D and E he paid a total of £9.

How much did Gurmit pay for each present?

How do we challenge our pupils?

The Puzzler

There are five people in the Lane family.

Their combined age is a total of 120 years.

Mr and Mrs Lane's combined ages is $\frac{2}{3}$ of the total.

Two of the children are twins. The sum of their ages is $\frac{1}{5}$ of the total.

The sum of the children's ages is $\frac{8}{9}$ of Mr Lane's age.

How old is each member of the Lane family?

Write about how you worked them out.

Orange Drink

Age 7 to 11
Challenge Level ★★

This is a 750 ml bottle of concentrated orange squash.

It is enough to make fifteen 250 ml glasses of diluted orange drink.

How much water is needed to make 10 litres of this drink?

Multiplication Tables

How you can help

➡ We will of course continue to teach the full curriculum, and would love your continued support to **HELP PRACTISE** the times tables with your children.

➡ Some easy ways to do this include:

- **ASKING QUESTIONS** such as "What's 7 x 8?"

- reciting times tables by **ROTE** (4 times 1 is 4, 4 times 2 is 8, etc)

- **SINGING** times tables songs (there are loads online)

- using **APPS AND GAMES** (like Times Table Rock Stars)

How can you help?

- Everyone can achieve in Maths
- Children's belief in their potential is heavily influenced by perceptions of the adults around them
- Hard work, effort and commitment all contribute towards success.

I can't do maths

I wasn't good at maths as a child

Encouraging a growth mindset

DEVELOPING A **GROWTH MINDSET**

INSTEAD OF.....	TRY THINKING....
I'm not good at this	What am I missing?
I give up	I'll use a different strategy
It's good enough	Is this really my best work?
I can't make this any better	I can always improve
This is too hard	This may take some time
I made a mistake	Mistakes help me to learn
I just can't do this	I am going to train my brain
I'll never be that smart	I will learn how to do this
Plan A didn't work	There's always Plan B
My friend can do it	I will learn from them

Any questions?