Parents workshop Y5/6 - 9th October 2024

Agenda

- **Calculation methods** - addition and subtraction, multiplication and division

- **Fractions** - multiplication and division

- **Questions**

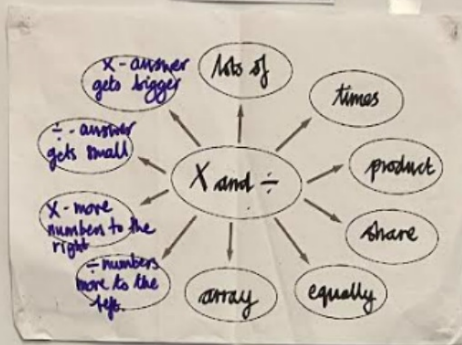**CONCRETE -**
using physical objects
to solve maths problems.

PICTORIAL -
using drawings
to solve maths problems.

ABSTRACT -
solving maths problems
using only numbers.

Maths Working Wall

Abstract

$14:5$
$2+3$

ABSTRACT
solving maths problems
using only numbers

$$24 \quad 8 \quad 1$$
$$6$$
$$(24)$$
$$4 \quad 2$$
$$12 \quad 3$$

$$3 \times 5 = 15$$

Vocabulary

X - answer gets bigger
÷ - answer gets small
X - more number to the right
÷ - numbers more to the left

lots of
times
product
share
array
equally

X and ÷

This weeks focus...

Multiples, factors and prime numbers

Pictorial

PICTORIAL
using diagrams
to solve maths problems

$$3 \times 4 = 12$$

What are all the factors of 12?

What are all the multiples of 12?

Factor - a whole number that divides exactly into another number with no remainders. E.g. 4 is a factor of 12, so are 1, 2, 3.6 and 12)
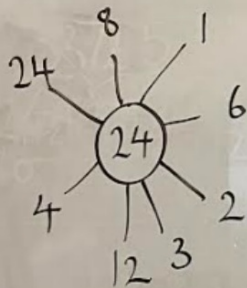
Multiple - made by multiplying together two numbers. E.g. 15 is a multiple because 3 x 5 = 15)

Prime number - can be divided by itself and 1 with no remainders. (NOT 1)

Concrete

CONCRETE
using physical objects
to solve maths problems

Different arrays for 24

Prime Numbers

Addition

Skill: Add numbers with more than 4 digits

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

HTh	TTh	Th	H	T	O
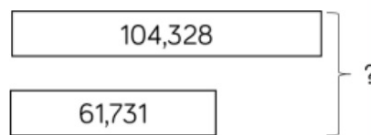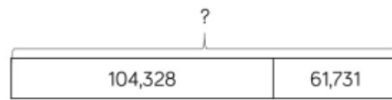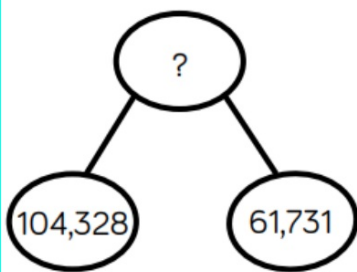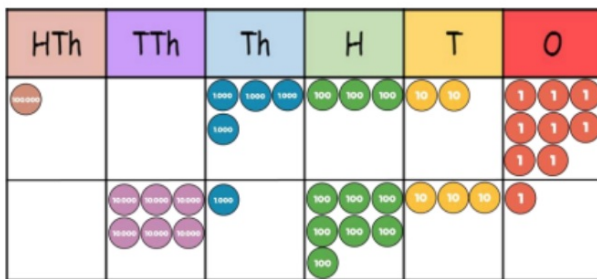
	1	0	4	3	2	8
+		6	1	7	3	1
	1	6	6	0	5	9
			1			

- part, whole
- bar modelling
- place value grid
- number sentence
- formal method
  (column addition)

Addition

Skill: Add with up to 3 decimal places

2.41   3.65

?

?

| 3.65 | 2.41 |

| 3.65 |

| 2.41 |

?
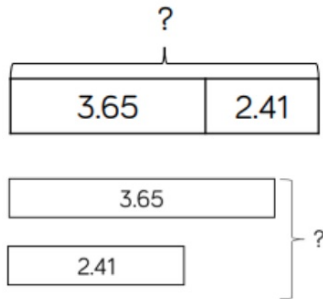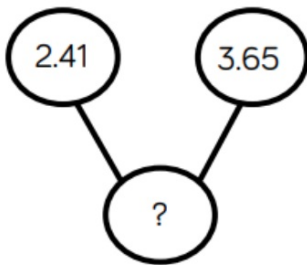
$$3.65 + 2.41 = 6.06$$

$$\begin{array}{r} 3.65 \\ + 2.41 \\ \hline 6.06 \\ \scriptstyle 1 \end{array}$$

Ones		Tenths		Hundredths

Ones		Tenths		Hundredths

- part,whole
- bar modelling
- place value grid
- number sentence
- formal method
  (column addition)

What Is Bar Modelling?

Bar modelling is where pictures or 'bars' are
used to represent calculations and word problems.

Why Use Bar Modelling?

Sometimes calculations and word problems are difficult to visualise
in your head. Bar models help you to *see* the maths more clearly.

Once you become confident in using bar models, you can use
them to help your learning in many different areas of maths.

Using Bar Models to Solve Word Problems

A lorry driver was on a 436 mile journey.
He stopped after 278 miles for a break.
How many miles does he have left to travel?

436	
278	

Now it's your turn!

1	3698
2	11810
3	2912
4	10016
5	1357
6	14934
7	3236
8	8984
9	1107
10	9123
11	2091
12	9027
13	715
14	10195
15	3810
16	8089
Challenge.	
1	7532 - 4625 = 2907
2	5582 + 4539 = 10121
3	9564 - 6723 = 2841
4	6755 + 1302 = 8057

DO THE EVEN NUMBERS QUESTIONS

Subtraction

Skill: Subtract numbers with more than 4 digits

294,382

182,501   ?
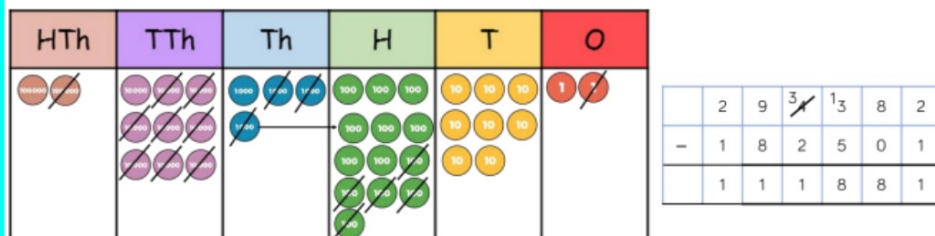
294,382

| | 182,501 | ? |

294,382

182,501 | ←──→ |
         ?

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

HTh	TTh	Th	H	T	O

	2	9	3̸ ¹3	8	2
−	1	8	2	5	0	1
	1	1	1	8	8	1

- part, whole
- bar modelling
- place value grid
- number sentence
- formal method
  (column subtraction)

Subtraction

Skill: Subtract with up to 3 decimal places
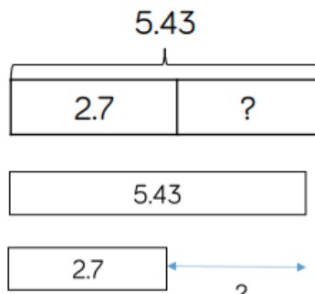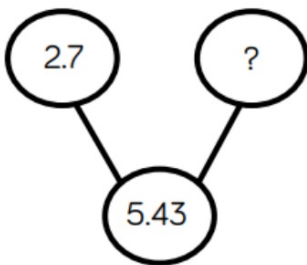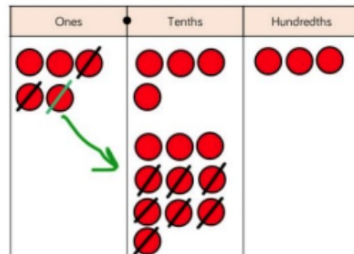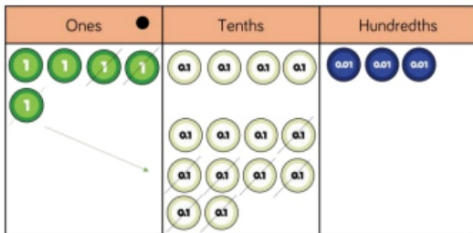
$$5.43 - 2.7 = 2.73$$

- part,whole
- bar modelling
- place value grid
- number sentence
- formal method
  (column subtraction)

DO THE ODD NUMBER QUESTIONS

Your turn again!

1	3698
2	11810
3	2912
4	10016
5	1357
6	14934
7	3236
8	8984
9	1107
10	9123
11	2091
12	9027
13	715
14	10195
15	3810
16	8089
Challenge.	
1	7532 - 4625 = 2907
2	5582 + 4539 = 10121
3	9564 - 6723 = 2841
4	6755 + 1302 = 8057

```
   8  9  9  1
  9001
- 5672
  3329
```

(exchange 1000)
900 + 90 + 10 = 1000

Multiplication

(Secure knowledge of times tables very important)

Skill: Multiply 3-digit numbers by 2-digit numbers
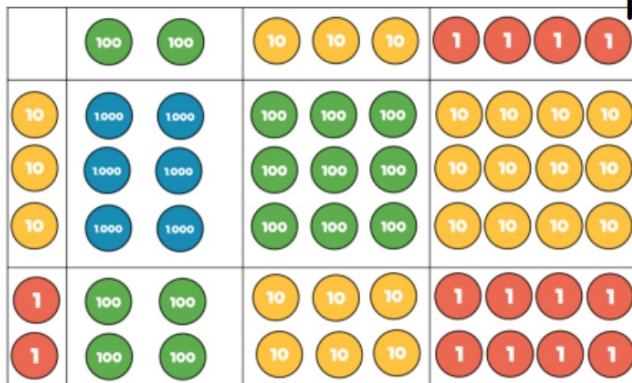
- place value counters
- grid method
- formal method
  (short/long multiplication

long multiplication

Th	H	T	O
	2	3	4
×		3	2
	4	6	8
$_1$7	$_1$0	2	0
7	4	8	8

(short multiplication)

Th	H	T	O
1	8	2	6
×			3
5	4	7	8
2		1	

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

$234 \times 32 = 7,488$

Multiplication

TTh	Th	H	T	O
	2	7	3	9
×			2	8
2 ₂	1 ₅	9 ₃	1 ₇	2
5 ₁	4	7 ₁	8	0
7	6	6	9	2

- long multiplication

And again...

1.

		1	6	1
x			2	3
		4	8	3
	3	2	2	0
	3	7	0	3

2.

		2	3	2
x			2	6
	1	3	9	2
	4	6	4	0
	6	0	3	2

3.

		6	1	4
x			1	8
	4	9	1	2
	6	1	4	0
1	1	0	5	2

4.

		9	6	9
x			9	5
	4	8	4	5
8	7	2	1	0
9	2	0	5	5

5.

		7	4	0
x			9	6
	4	4	4	0
6	6	6	0	0
7	1	0	4	0

6.

		3	6	2
x			5	8
	2	8	9	6
1	8	1	0	0
2	0	9	9	6

7.

		3	0	5
x			7	1
		3	0	5
2	1	3	5	0
2	1	6	5	5

8.

		3	7	0
x			6	4
	1	4	8	0
2	2	2	0	0
2	3	6	8	0

9.

		5	8	4
x			1	5
	2	9	2	0
	5	8	4	0
	8	7	6	0

10.

		8	5	1
x			8	9
	7	6	5	9
6	8	0	8	0
7	5	7	3	9

11.

		7	4	9
x			9	8
	5	9	9	2
6	7	4	1	0
7	3	4	0	2

12.

		4	8	2
x			2	3
	1	4	4	6
	9	6	4	0
1	1	0	8	6

13.

		6	4	6
x			1	0
				0
	6	4	6	0
	6	4	6	0

14.

		7	0	9
x			1	7
	4	9	6	3
	7	0	9	0
1	2	0	5	3

15.

		9	1	4
x			5	7
	6	3	9	8
4	5	7	0	0
5	2	0	9	8

16.

		7	1	8
x			4	5
	3	5	9	0
2	8	7	2	0
3	2	3	1	0

Division

Skill: Divide 4-digits by 1-digit (grouping)

- place value
- short divsion
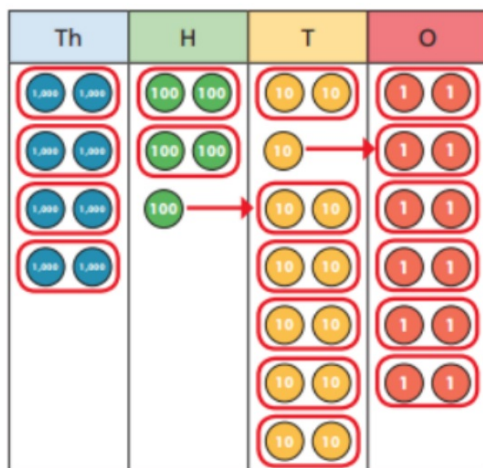
Division

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

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

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

$$432 \div 12 = 36$$

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

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

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

- long division

Last one.....................

question	answer
1	241 ÷ 17 = 14 r3
2	965 ÷ 31 = 31 r4
3	1415 ÷ 12 = 117 r11
4	4465 ÷ 19 = 235
5	1946 ÷ 31= 62 r24
6	1371 ÷ 40 = 34 r11
7	6527 ÷ 31 = 210 r17
8	4895 ÷ 46 = 106 r19
9	8572 ÷ 39 = 219 r31
10	9109 ÷ 50 = 182 r9
11	9758 ÷ 48 = 203 r14
12	15 245 ÷ 62 = 245 r55

Fractions multiply - 'just do it'

$$\frac{2}{4} \times \frac{3}{6} = \frac{6}{24} = \frac{1}{4}$$

Fractions divide - 'keep-change-flip'

$$\frac{2}{5} \div \frac{2}{3} \qquad \frac{2}{5} \times \frac{3}{2} = \frac{6}{10} = \frac{3}{5}$$

Questions