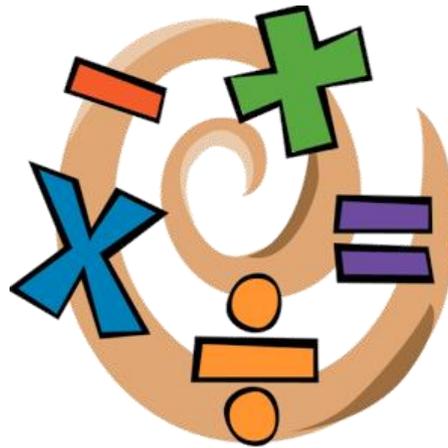


Welcome to the Year 6 Arithmetic Workshop



Wednesday 20th November - Miss Gethin-Jones

Firstly, thank you for all your support with encouraging the children to read!



Maths - times tables

(Now part of weekly homework)

Times Table Challenge

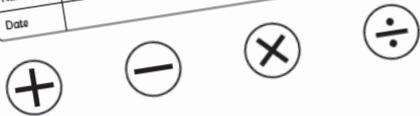
X	6	7	4	8	10	2	5	12	9	3	11	1
6	✓		24 ✓		60 ✓	12 ✓	30 ✓			18 ✓	66 ✓	6 ✓
7			28 ✓		70 ✓	14 ✓	35 ✓			21 ✓	77 ✓	7 ✓
4			16 ✓		40 ✓	8 ✓	20 ✓			12 ✓	44 ✓	4 ✓
8					80 ✓	16 ✓	40 ✓			24 ✓	88 ✓	8 ✓
10	60 ✓	70 ✓	40 ✓	80 ✓	100 ✓	20 ✓	50 ✓	120 ✓	90 ✓	30 ✓	110 ✓	10 ✓
2	12 ✓	14 ✓	8 ✓	16 ✓	20 ✓	4 ✓	10 ✓	24 ✓	18 ✓	6 ✓	22 ✓	2 ✓
5	30 ✓	35 ✓	20 ✓	40 ✓	50 ✓	10 ✓	25 ✓	60 ✓	45 ✓	15 ✓	55 ✓	5 ✓
12					120 ✓	24 ✓	60 ✓			36 ✓	132 ✓	12 ✓
9					90 ✓	18 ✓	45 ✓			27 ✓	99 ✓	9 ✓
3	18 ✓	21 ✓	12 ✓	24 ✓	30 ✓	6 ✓	15 ✓	36 ✓	27 ✓	9 ✓	33 ✓	3 ✓
11	66 ✓	77 ✓	44 ✓	88 ✓	110 ✓	22 ✓	55 ✓	132 ✓	99 ✓	33 ✓	121 ✓	11 ✓
1	6 ✓	7 ✓	4 ✓	8 ✓	10 ✓	2 ✓	5 ✓	12 ✓	9 ✓	3 ✓	11 ✓	1 ✓

Aims for the session:

- ▶ To explore the **arithmetic skills** required in Year Six for the Arithmetic SATS paper, with a particular focus on **division**

Year 6 Mathematics Arithmetic: Paper 3

Name	
Date	



Addition - Year Five

- Add whole numbers with more than 4 digits, including using formal written method (columnar addition)

NB Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.

Continue to teach the use of **empty number lines** with larger numbers (and decimals), as appropriate.

Continue to develop the **formal written method for addition** with larger numbers (and decimal numbers) and with the addition of three or more numbers:

$$21848 + 1523 = 23371$$

Why does it matter?

- ▶ Life!
- ▶ If these skills can be mastered now, it makes secondary school maths a lot easier.
- ▶ Arithmetic paper
- ▶ Accessing other areas of the curriculum
- ▶ Problem solving
- ▶ **Increased confidence**

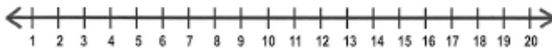
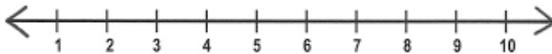
Our teaching approach...

Physical



Visual

1	2	3	4	5	6	7	8	9	10	
11	12	13	14	15	16	17	18	19	20	
21	22	23	24	25	26	27	28	29	30	
31	32	33	34	35	36	37	38	39	40	
41	42	43	44	45	46	47	48	49	50	
51	52	53	54	55	56	57	58	59	60	
61	62	63	64	65	66	67	68	69	70	
71	72	73	74	75	76	77	78	79	80	
81	82	83	84	85	86	87	88	89	90	<small>CLEAR</small>
91	92	93	94	95	96	97	98	99	100	<small>PRINT</small>
										<small>MARK</small>



Abstract

Addition and subtraction

789 + 642 becomes

$$\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ \hline \end{array}$$

Answer: 1431

874 - 523 becomes

$$\begin{array}{r} 874 \\ - 523 \\ \hline 351 \\ \hline \end{array}$$

Answer: 351

932 - 457 becomes

$$\begin{array}{r} 932 \\ - 457 \\ \hline 475 \\ \hline \end{array}$$

Answer: 475

932 - 457 becomes

$$\begin{array}{r} 932 \\ - 457 \\ \hline 475 \\ \hline \end{array}$$

Answer: 475

Addition



- ▶ Add whole numbers with more than 4 digits, including using formal written method (column addition)

$$(2546 + 1243 =)$$

- ▶ Use the formal written method for the addition of decimal numbers:

$$(\pounds 24.65 + \pounds 12.50 =) \quad (1.75\text{kg} + 2.1\text{kg} =)$$

Addition

	Th	H	T	U
	2	3	3	4
+	5	1	2	7
<hr/>				
	7	4	6	1
<hr/>				
				1

Carry **below** the line

Addition with decimals

3

$7.1 + 0.2 =$

$$\begin{array}{r} 7.1 \\ + 0.2 \\ \hline \end{array}$$



1 mark

3

$7.1 + 0.2 =$

$$\begin{array}{r} 7.1 \\ 0.2 \\ \hline 7.3 \end{array}$$



1 mark

Subtraction

- ▶ Subtract whole numbers with 4 digits, including using formal written method (column subtraction)

$$(4625 - 2135 =)$$

- ▶ Use the formal subtraction method for the subtraction of decimal numbers

$$(\pounds 125.63 - \pounds 12.50 =) \quad (51\text{kg} - 22.5\text{kg} =)$$

~~“Borrowing”~~ / ~~“Going next door”~~ / “Exchange”

Subtraction

- Subtracting from 4 digit numbers

$$\begin{array}{r} 5 \\ 12\cancel{6}^13 \\ - 128 \\ \hline 135 \end{array}$$

17

$307 - 24.7 =$

$$\begin{array}{r} 2 \quad 6 \\ \cancel{3}0 \quad \cancel{7}.10 \\ \underline{24.7} \\ 282.3 \end{array}$$

← Insert a 'place holder (a zero)

1 mark

Multiplication



Children need to be able to recall times tables up to **12 x 12** quickly and accurately AND the related facts...

15	8 x 800 =
I know $8 \times 8 = 64$	
so I also know $8 \times 80 = 640$	
... and $8 \times 800 = 6400$	
	1 mark

~~“Just do 8×8 then add two zeros”~~

We use the compact long method for multiplication

When children are confident with long multiplication extend with three-digit numbers multiplied by a two-digit number, returning to the grid method first, if necessary:

$$124 \times 26 = 3224$$

$$\begin{array}{r} 124 \\ \times 26 \\ \hline 744 \\ + 2480 \\ \hline 3224 \\ 11 \end{array}$$

Use the language of place value to ensure understanding.

Add the partial products.

The prompts (in brackets) can be omitted if children no longer need them.

This is something that most children in the class need more work on...

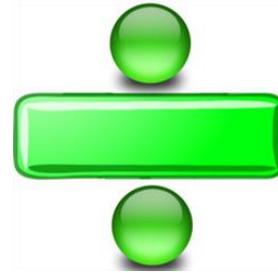
24

$57 \times 28 =$

$$\begin{array}{r} 57 \\ \times 28 \\ \hline 456 \\ 1140 \\ \hline 1596 \end{array}$$

2 marks

Division in Year 6



- ▶ Dividing up to 4 digit numbers by a 2 digit number.
- ▶ Dividing with remainders and decimals

SHORT division (bus stop)

LONG division (\div x-↓)

'SHORT' Division

$$155 \div 5 =$$

$$\begin{array}{r} 0 \\ 5 \overline{) 155} \end{array}$$

List the multiples first!

1. Divide
2. Multiply
3. Subtract
4. Bring down
5. REPEAT!

35

$3034 \div 41 =$

4	1	3	0	3	4
---	---	---	---	---	---

2 marks

Fractions

- ▶ **ADD or SUBTRACT:** Use equivalent fractions to make the **DENOMINATORS** the same. Then, add the **NUMERATORS**.
- ▶ **MULTIPLY A FRACTION BY A WHOLE NUMBER:** Put the whole number over 1 to make it into a fraction, then multiply the numerator by the numerator and the denominator by the denominator.
- ▶ **MULTIPLY A FRACTION BY A FRACTION:** Multiply the numerator by the numerator and the denominator by the denominator.
- ▶ **DIVIDE A FRACTION BY A WHOLE NUMBER:** Use equivalent fractions to make the **NUMERATOR** a multiple of the divisor. Then, just divide the **NUMERATOR** by the divisor. (*Sneaky trick: just x the denominator by the divisor*)

Thank you for coming!

Now for the children to join us!

- ▶ Try out the division questions. Do they know the difference between the ‘short’ division method and the ‘long’ division method? Do they remember the method from the video?
- ▶ I will come around and give you a copy of a different Arithmetic paper which your child completed yesterday morning. Take a look at their mistakes and go through them with your child.

Useful resources

- ▶ **Hit the Button** - great for learning times tables
- ▶ **'Maths Antics'** - an American website with some excellent video tutorials on mathematical concepts
- ▶ **Mathletics** - the children get two pieces of Mathletics homework each week but they are able to have a go on the other activities, even ones which haven't been set for them. This covers the whole Y6 curriculum!
- ▶ **Khan Academy** - useful maths tutorials