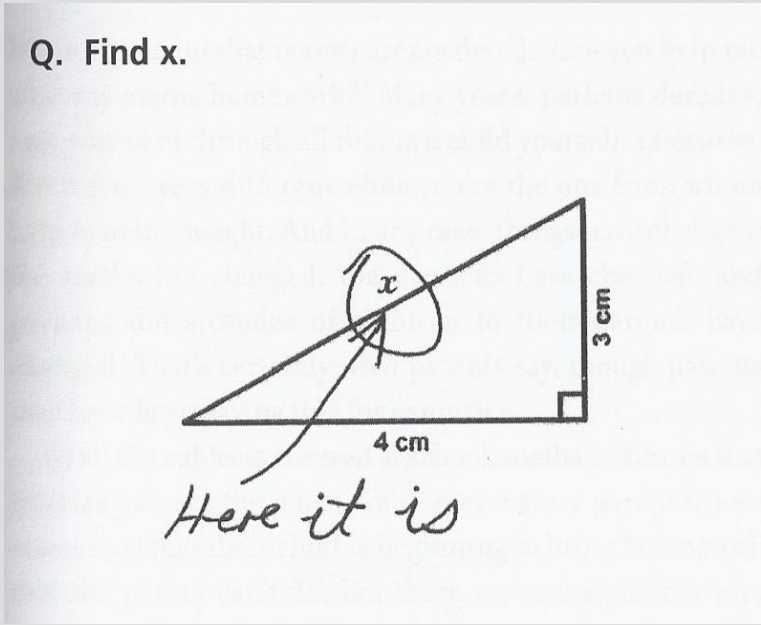


Maths for Mums and Dads

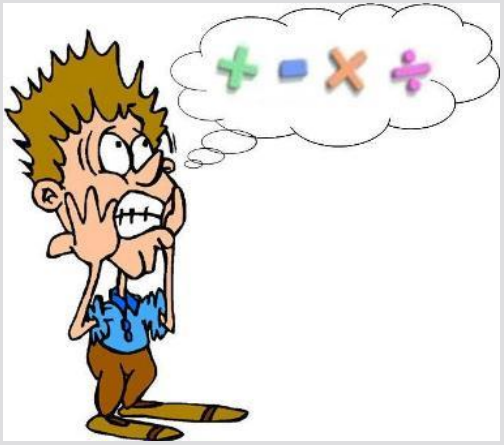
Friday 2nd February 2018

How do you feel about Maths?

https://www.youtube.com/watch?v=Xs9aGVUZ3YA

The Big Ideas

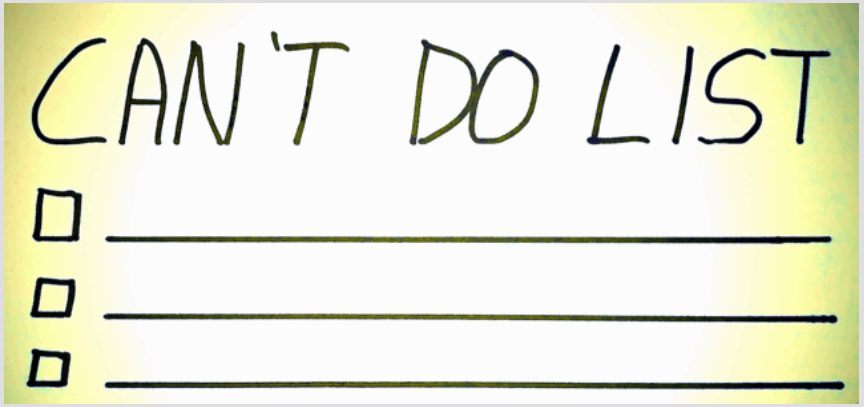
"They do it differently these days!"



Emphasis in schools is about the *how* and the *why* of maths, not just the method. It's not about getting a correct answer but the process.

The Big Ideas

“I’m hopeless at Maths!”



You are probably better at Maths than you think!

The Big Ideas

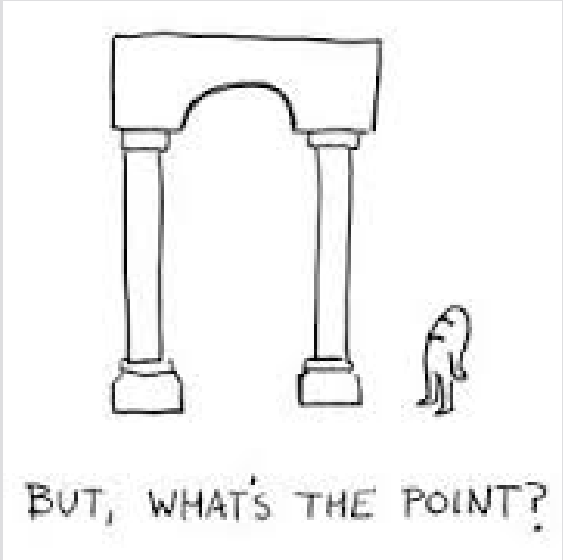
“But Maths is boring!”

Learning doesn’t happen in an instant.

It takes time and mistakes.

The Big Ideas

“I’ve never needed to use this since I left school!”



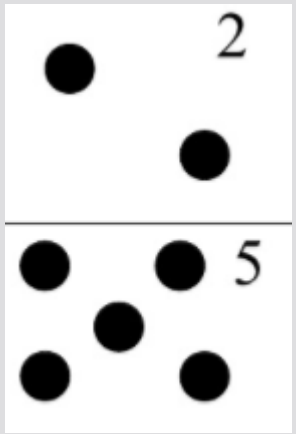
Maths is a central foundation of living life!

A few homework tips!

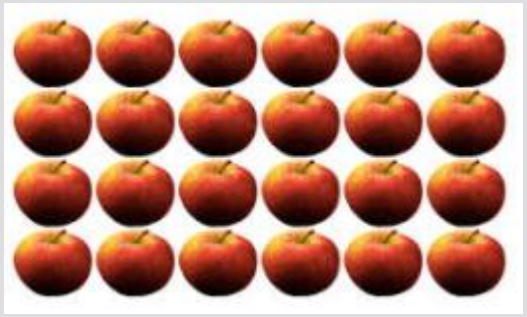
- We are not expecting you to learn methods and teach the children! Jot down on a page what they have struggled with, so the teacher can see – Sumdog tells us this already!
- Don’t do it for them!
- Give them plenty of time.
- Be positive!
- If you spot your child making a mistake, ask them how they worked it out and see if they spot the error themselves.
- Remember that anything children do outside their normal school day which contributes to their learning is amazing!
- If you are really stuck, just ask!

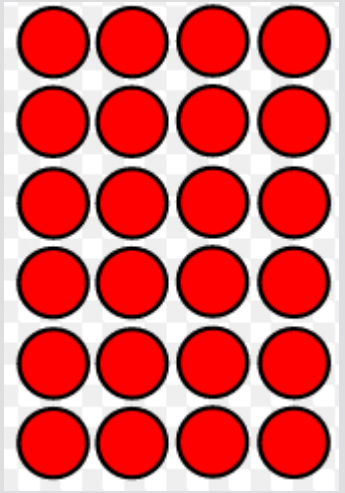
All methods start with objects and dots

- 2 + 5



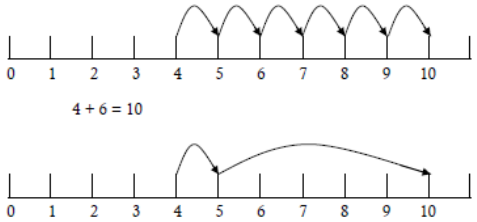
6 x 4





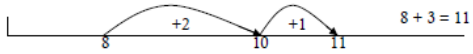
Addition Methods Progression

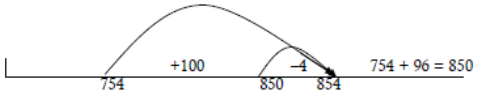
The number line



Be able to count on in ones and then more efficient jumps on a numbered line.

Be able to count on using an empty number line, choosing jumps of a sensible size. This can then progress for use with numbers of two or more digits.





96 is near to 100, so it is easier to add 100, then take away the additional 4.

Partitioning

- add the tens and then the ones to form partial sums and then add these partial sums.
- partitioning both numbers into tens and ones mirrors the column method where ones are placed under ones and tens under tens. This also links to mental methods.

Put the largest number first.

47 + 76 = 76 + 40 = 116
116 + 7 = 123

40 + 70 + 6 + 7 = 110 + 13 = 123

40 + 7
70 + 6
110 + 13 = 123

Expanded Method in Columns

- Move to a layout showing the addition of the tens to the tens and units to units.
- Either the tens or units can be added together first but children should eventually move on to adding the units first.

```
 47      47
+76     +76
----    ----
110      13
 13     110
----    ----
123     123
```

The expanded method leads to the more compact method once children are secure with number facts and place value.

Compact Column Method

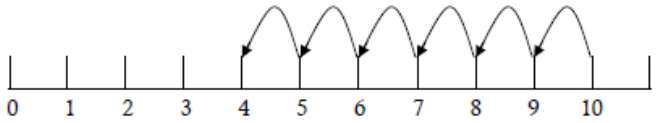
- Carry digits are recorded below the line, using the words 'carry ten' or 'carry one hundred', **not** 'carry one'.
- Later extend to adding three two-digit numbers, two three-digit numbers, numbers with different numbers of digits and decimal numbers.

Be careful with the language of carrying. In this example: 7 + 6 = 13; 3 units and carry/exchange 10 units for 1 ten. 4 tens + 7 tens plus the 1 ten carried = 12 tens.

```
 47      34      283     55.2
+76     51      +768    +65.9
----    +67     ----    ----
123     ----    1051    121.1
----    152     ----    ----
 1      ----     1 1     1 1
        1
```

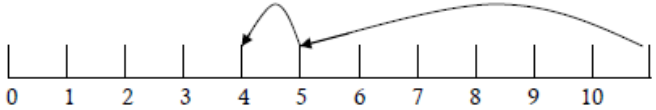
Subtraction Methods Progression

The number line



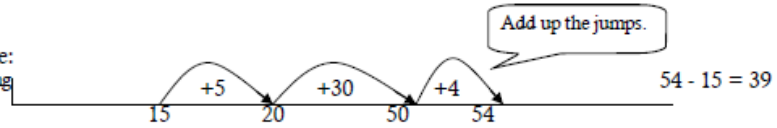
Be able to count back in ones and then more efficient jumps on a numbered line.

10 - 6 = 4

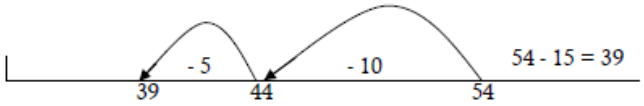


Understand the link between subtraction as '*finding the difference*' and '*taking away*'.

Finding the difference:
(often used when shopping but useful any time)



Taking away:



Expanded Method in Columns leading to Compact Method in Columns

First the number is partitioned into tens and units. However, we cannot take 5 away from 4...

...so the 54 is partitioned into 40 and 14. We can now take 5 away from 14.

Always start by subtracting the units

5 4	→	50 + 4	→	40 + 14
- 1 5		10 + 5		- 10 + 5
3 9	←			30 + 9

This can be reinforced by demonstrating with tens and units equipment.

$$\begin{array}{r} {}^{4}\not{5}\ {}^{1}4 \\ -\ 1\ 5 \\ \hline 3\ 9 \end{array}$$

5 4 2	→	500 + 40 + 2	→	400 + $^{130}\not{1}40$ + $^{12}\not{2}$
- 1 5 7		100 + 50 + 7		100 + 50 + 7
3 8 5	←			300 + 80 + 5

$$\begin{array}{r} {}^{4}\not{5}\ {}^{13}\not{4}\ {}^{1}2 \\ -\ 1\ 5\ 7 \\ \hline 3\ 8\ 5 \end{array}$$

Multiplication Methods Progression

- partition both numbers if you can, and use these to multiply each other, then add the total in each box across to the right.

x	20	5	25 x 4
4	80	20	= 100

x	20	5	25 x 42
40	800	200	= 1000
2	40	10	= 50
			1050

Make sure the answers are totalled **across** the rows ...

...and then these answers are totalled **down** the column

x	20	5	25 x 422
400	8000	2000	= 10000
20	400	100	= 500
2	40	10	= 50
			10550

Expanded form:

When ready to move on from the grid method to the column method it is useful to show the two side by side so that children can see the relationship between the two methods.

```
  2 5
x 4 2
-----
  1 0  (2 x 5)
  4 0  (2 x 20)
2 0 0  (40 x 5)
8 0 0  (40 x 20)
-------
1 0 5 0
```

```
  2 5
x 4•2
------
  1•0  (0.2 x 5)
  4•0  (0.2 x 20)
2 0•0  (4 x 5)
8 0•0  (4 x 20)
-------
1 0 5•0
```

Compact form:

Remember that multiplication can be done in any order but for the compact form it is easier to put the largest number at the top.

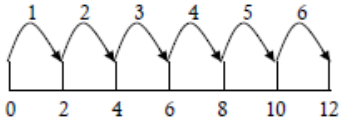
```
  2 5
  x 4
-----
1 0 0  (4 x 25)
```

```
  4 2
  x 2 5
-------
2 1 0  (5 x 42)
  '
8 4 0  (20 x 42)
---------
1 0 5 0
```

```
  4 2 2
  x 2 5
-------
2 1 1 0  (5 x 422)
  ' '
8 4 4 0  (20 x 422)
-----------
1 0 5 5 0
```

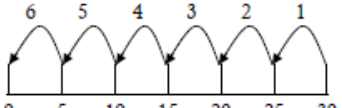
Division Methods Progression

Use a number line to calculate how many jumps of 2, 5 or 10 are needed to reach a given number.



$12 \div 2 = 6$

Understand division as repeated addition ...



$30 \div 5 = 6$

... and as repeated subtraction.

Expanded method

$97 \div 9$

$9 \overline{)97}$

$-\ 90$ (9 x 10)

7

Answer: 10 R7

Ask: 'How many nines in 90?' Subtract this chunk from the dividend to leave the remainder or further possibilities of chunking.

$196 \div 6$

$6 \overline{)196}$

$-\ 60$ (6 x 10)

136

$-\ 60$ (6 x 10)

76

$-\ 60$ (6 x 10)

16

$-\ 12$ (6 x 2)

4 $\quad 32$

Answer: 32 R4

Based on subtracting multiples of the divisor from the number to be divided - the dividend, also known as '**chunking**'. This links with using repeated subtraction along a numberline

To be more efficient these chunks can be reduced: so 6 by 10 , 20, 30, ... to find that 6 x 30 = 180. Subtract this from 196.

Long Division

$24 \div 560$

$\quad\ 23$ R8

$24 \overline{)560}$

$-\ 480$ (24 x 20)

80

$-\ 72$ (24 x 3)

8

Generally used for tackling HTU ÷ TU. Not all children will have reached this step by the time they leave year 6.

How else can I help my child with Maths outside of their homework?

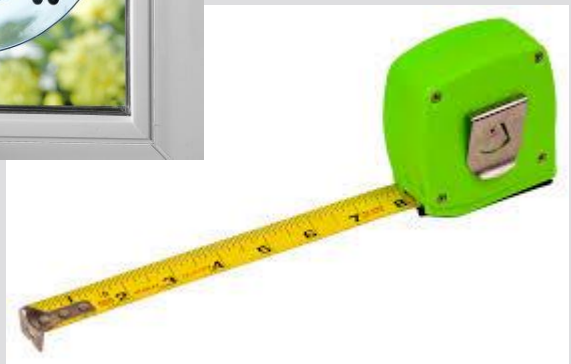
Cash

Clocks

Cooking

Games

Maths Props for Home!



Please spend some time trying some activities using the cards! If anyone has any questions about specific methods their child uses in any area of maths, just ask!

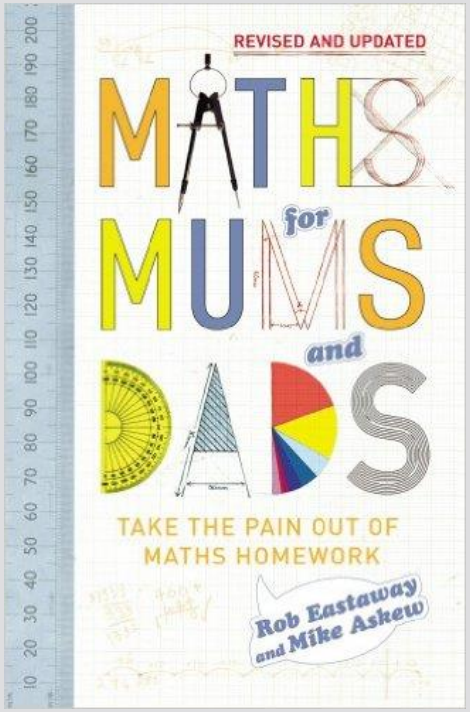
DO's and DON'Ts

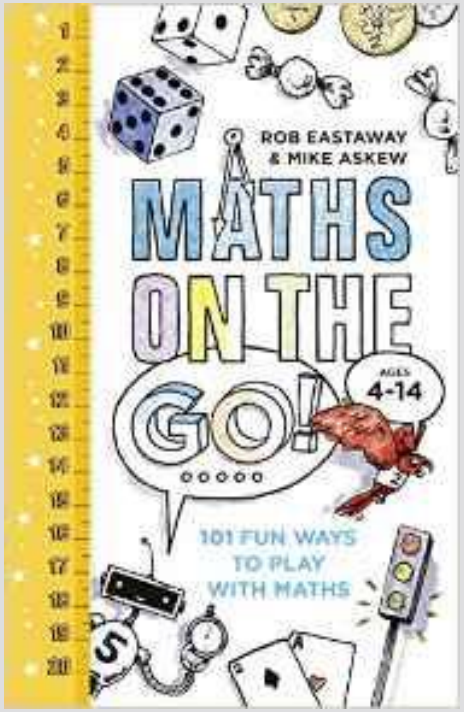
DO

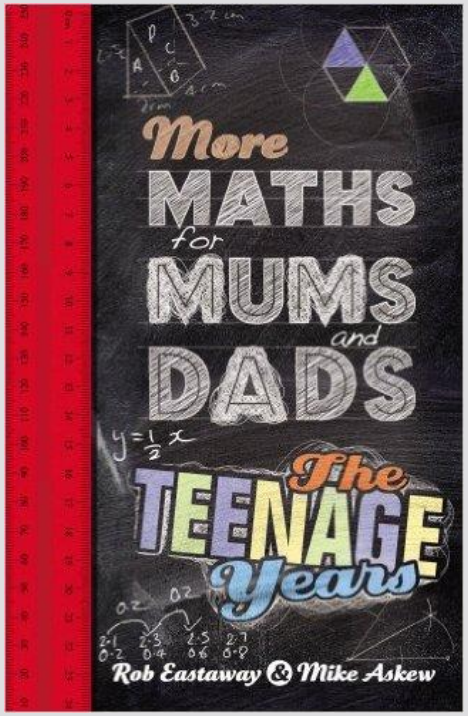
- Play Maths with your child
- Let your child win (or be better than you!)
- Make maths an everyday part of life

DON'T

- Be afraid to be a bit geeky
- Tell your child you're hopeless at Maths

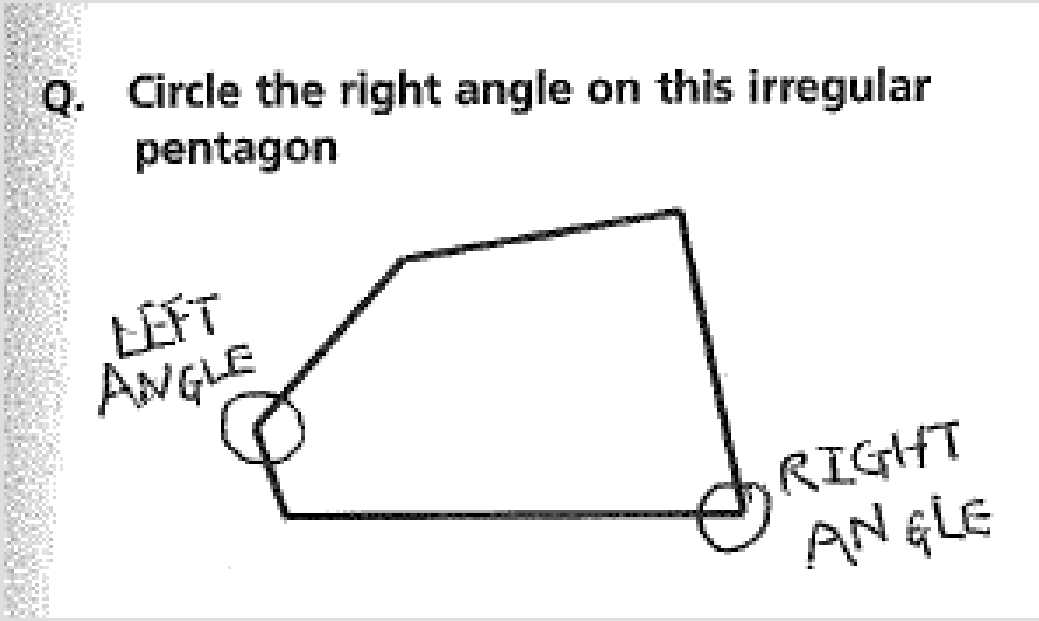






“Maths for Mums and Dads” Series by Mike Askew and Rob Eastaway

Is there anything else we can do to support Maths at home?



Q. One of these numbers below is a multiple of 5.

Put a ring around it.

17 8 52 35 22

On closer examination you can see that the child has drawn a (diamond) ring around the word 'it'.

Thank you!