

Aims of the Session

- ▶ To understand the **programme of study** in mathematics.
- ▶ To understand what is meant by **'mastery'** in mathematics.
- ▶ To understand how maths is taught in our schools, including recent changes.
- ▶ To help your child at home and help them to make maths meaningful in their lives.

What is 'mastery'?

Mastery in Maths is an approach to teaching and learning that aims for children to develop a deep understanding of Maths rather than memorising key concepts or resorting to rote learning.


What does Maths look like?

Mastery starts right from the Early Years


Mastery is –

- Multi-dimensional not one dimensional
- Believing maths can be accessible to everyone
- That we can use concrete/pictorial and abstract resources **(concrete resources do not disappear after the Early Years)**


The CPA Approach



CONCRETE -
using physical objects
to solve maths problems.



PICTORIAL -
using drawings
to solve maths problems.

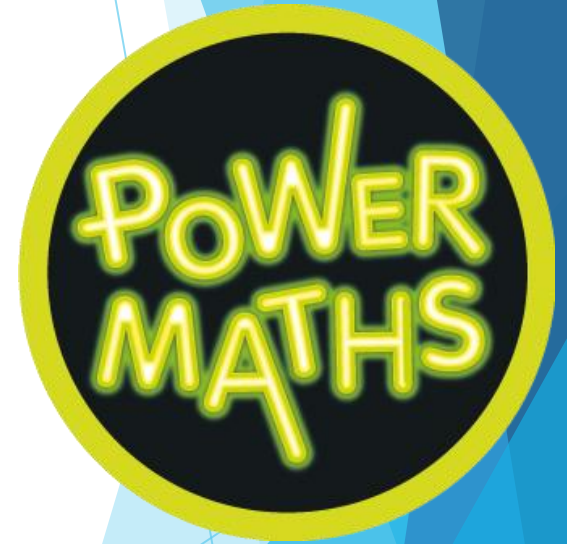


ABSTRACT -
solving maths problems
using only numbers.

www.thirdspacelearning.com

Why Power Maths?

- The only mastery programme perfectly aligned to the White Rose Maths progressions and schemes of learning.
- Written specifically for UK curriculum classrooms by leading mastery experts from around the world and recommended by the UK's Department for Education.
- An enriched approach that cleverly combines interactive teaching tools, rich and quality textbooks and practice books.
- Built around a child-centred lesson design that models and embeds a growth mindset approach to maths and focuses on helping all children to build a deep understanding of maths concepts.
- Half-termly and end of year tests to reliably track children's progress against Age Related Expectations.



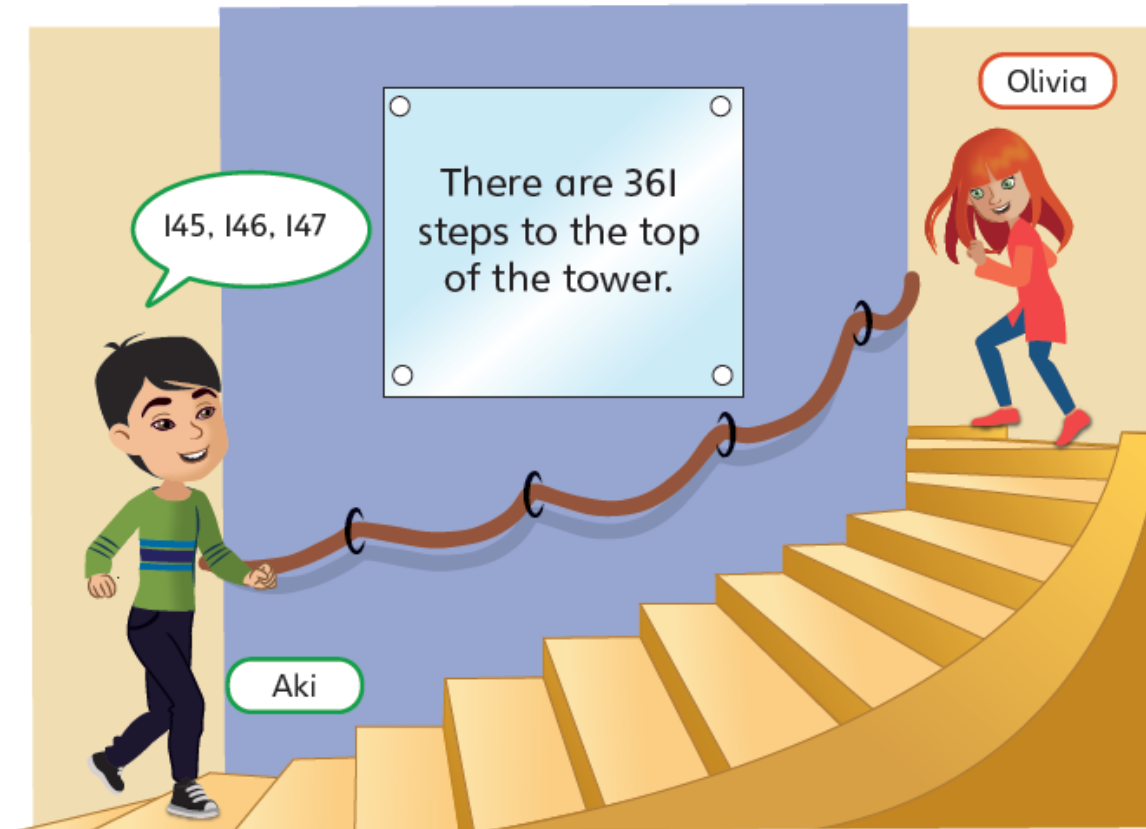
What does Power maths look like in KS1 & KS2?

A typical maths lesson from Year 1 up to Year 6 will look like this:

- 1) Starter - engage prior knowledge that is essential for the success of this lesson.
 - 2) 'Discover' – through careful questioning, children explore new learning through a real-world context using physical manipulatives.
 - 3) **JOURNALING** – children are given time to process and represent this new learning.
 - 4) 'Share' – this is often a confirmation of what the children have discovered themselves, rather than a time for drawn out teacher explanation. *"Let's see how Power Maths did it... Oh look, they copied us!"*
- *When preparing lessons, the 'Share' section *might* provide teachers with a good idea of what journaling might look like.
- 5) 'Think Together' – applying the new learning in discussion with talk partners.
 - 6) Independent practise.

Explore

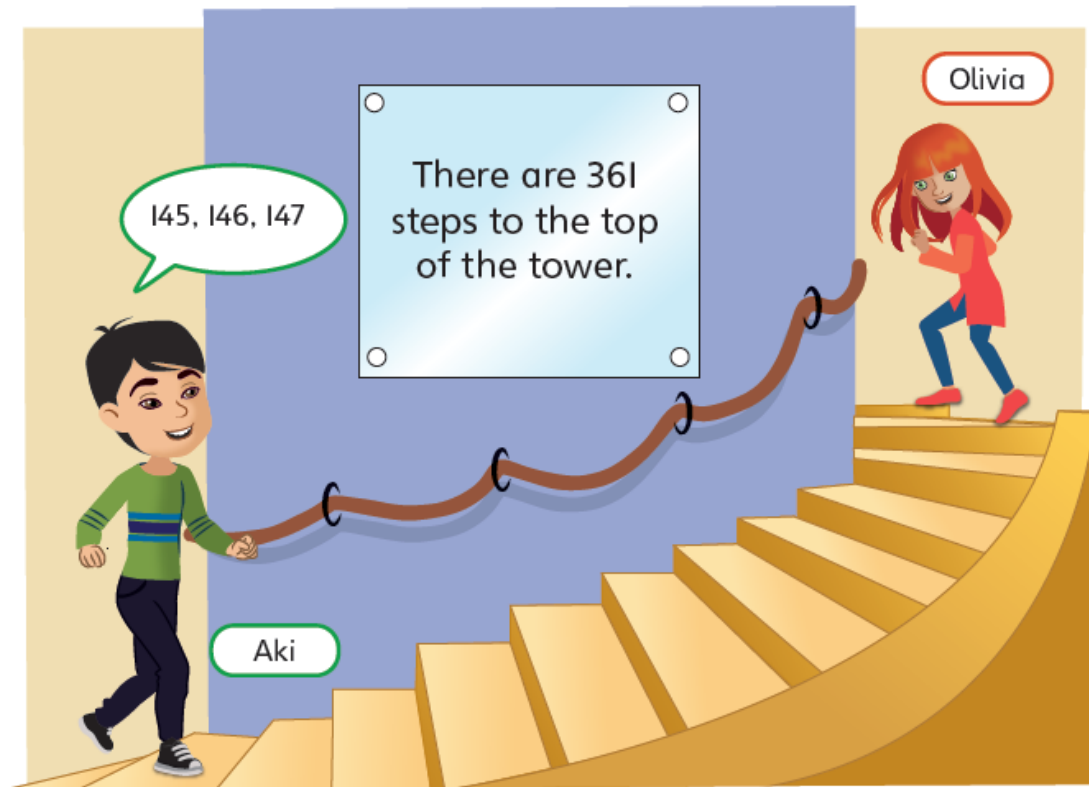
Discover



- 1 a) Make the number 361 using base 10 equipment.
- b) How many steps does Aki have left to climb?

Discussion

Discover



- 1 a) Make the number 361 using base 10 equipment.
- b) How many steps does Aki have left to climb?

ASK

- Question 1 a): *How does the base 10 equipment link to the digits in the number?*
- Question 1 b): *What is the part that is being subtracted?*

Journaling

27.9.14 Evaluation

$420 \times 42 =$

1. Long multiplication.

$$\begin{array}{r} 210 \\ \times 42 \\ \hline 420 \\ + 8400 \\ \hline 8820 \end{array}$$

2. Split

210

200 10

$200 \times 42 = 8400$

$10 \times 42 = 420$

8400

8820

This method is good because it is quick and simple, but also bad because if you buy it out wrong it's very easy to get the answer wrong.

This method is good because it consists of nice 'comfortable' multiplication, but it's also bad because if you split it wrong you will get the answer wrong.

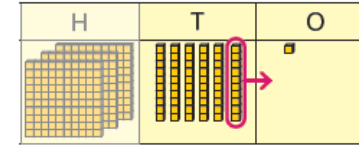
What are comfortable numbers?

Comfortable numbers are ones that end in 0, as they are easy to process. Our brains normally work in 0s, 2s, and 5s.

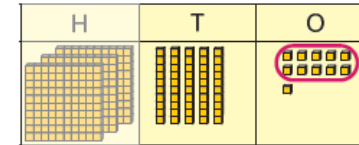
Share

a) and b) $361 - 147 =$

Exchange 1 ten for 10 ones.

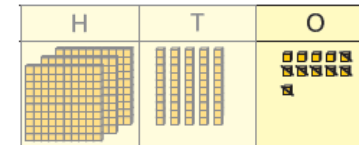


There are now 5 tens and 11 ones.



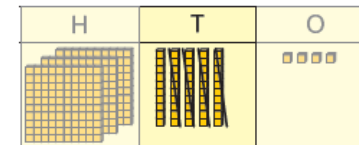
	H	T	O
	3	5	11
-	1	4	7

Subtract the 1s.



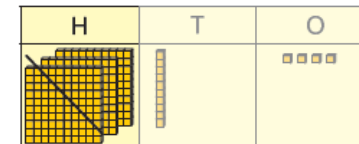
	H	T	O
	3	5	1
-	1	4	7
			4

Then subtract the 10s



	H	T	O
	3	5	1
-	1	4	7
		1	4

Then subtract the 100s.



	H	T	O
	3	5	1
-	1	4	7
	2	1	4

$361 - 147 = 214$

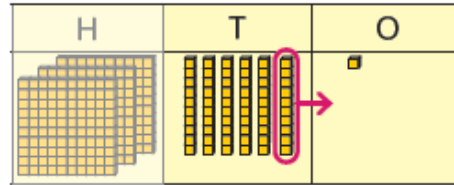
Aki has 214 steps left to climb.

Share

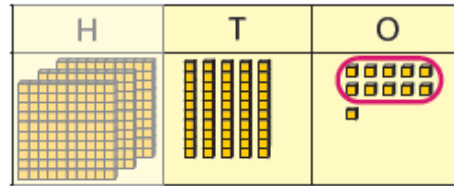
Share

a) and b) $361 - 147 = \square$.

Exchange 1 ten for 10 ones.

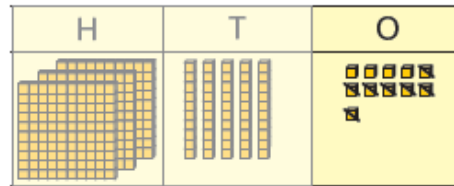


There are now 5 tens and 11 ones.



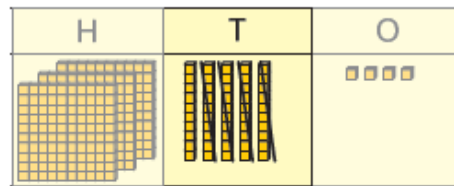
	H	T	O
	3	6	1
-	1	4	7

Subtract the 1s.



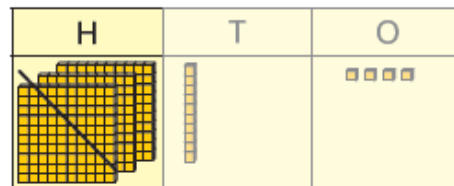
	H	T	O
	3	6	1
-	1	4	7
			4

Then subtract the 10s



	H	T	O
	3	6	1
-	1	4	7
		1	4

Then subtract the 100s.



	H	T	O
	3	6	1
-	1	4	7
	2	1	4

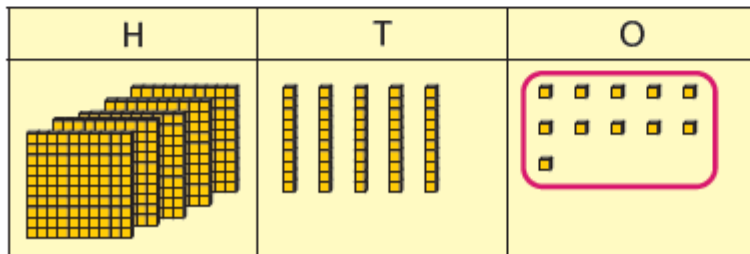
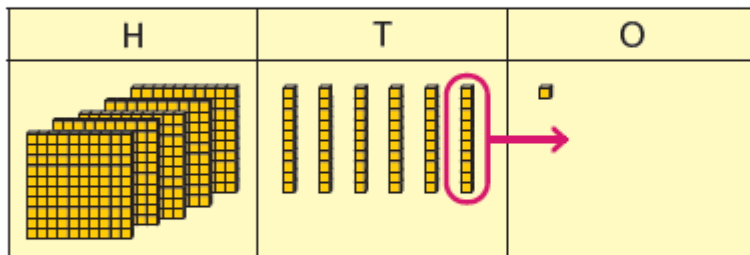
$361 - 147 = 214$

Aki has 214 steps left to climb.

Guided Practice

Think together

- 1 There are 561 steps to the top of a skyscraper. Lexi has climbed 325. How many steps does she still have to climb?



	H	T	O
	5	5 ¹	1
-	3	2	5

ASK

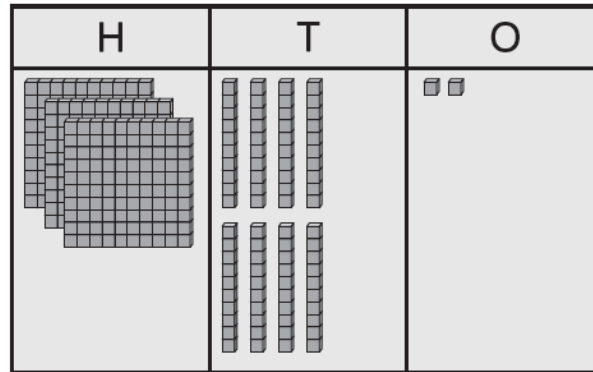
- Question 1: *What is the whole? What is the part being subtracted?*
- Question 2: *How can you tell a mistake has been made? What is the mistake?*

Independent Practice

Subtract two numbers (across 10)

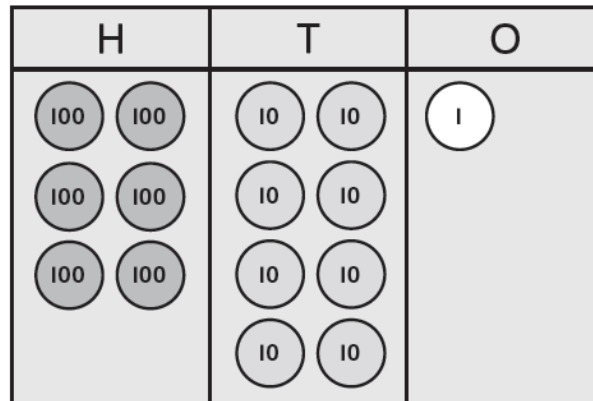
I Work out

a) $382 - 154 =$



	H	T	O	
	3	8	2	
-	1	5	4	

b) $681 - 235 =$



	H	T	O	
	6	8	1	
-	2	3	5	

Assessing Maths in KS1 & KS2

Ongoing assessments (verbal feedback; live marking; questioning)

End of block assessments (Power Maths / White Rose)

Power maths termly assessments (used to measure progress and identify gaps in learning)

Year 4 MTC

End of KS2 Assessments (SATs)

The bigger picture...

- ▶ Maths isn't an extra thing to do...and it isn't just a lesson in school. It should be incorporated in our children's everyday experiences.



What is the date today?

What will it be tomorrow?

How many days are there in the month we are in?

How many more days are there until the end of the month?

How many days are there until the next school holiday?



How many Saturdays are there in the month we are in?

How many months have 30 days?
How many have 31 days?

Calendars

How many months is it until your birthday?
... until Christmas?

What page number are you on in your book?
Is this an odd or even number?

How many pages have you read so far?

What is the longest word you can find in your book?
How many letters has it got?

How many more pages do you need to read to finish your book?



How many words on this page start with a vowel?

Can you find a seven letter word in your book?

Reading a book

What is the shortest and longest book you can find?

Read the page numbers together. Can you find a number e.g. 27? ... 13?

Which team(s) scored the most goals?

Which team(s) scored the least number of goals?

Did your favourite team score more than many other teams?

What is the difference between the highest score and the lowest score?

ARSENAL	P	LIVERPOOL	P
Pools Panel assessed: HT: No score draw; FT: Home win			
ASTON VILLA Angel 61 HT: 0-2	1	MAN CITY S Wright-Phillips 5 Musampa 12 Att: 39,645	2
BLACKBURN Neill 5 HT: 1-1 Sent off: Short (Blackburn) 69; Rosenior (Fulham) 70	1	FULHAM Malbranque 20, 77 McBride 53 Att: 18,991	3
CHELSEA Makelele 90 HT: 1-0	1	CHARLTON Att: 42,065	0
C PALACE Hall 34 Ventola 72 HT: 1-1 Sent off: Crouch (Southampton) 58; Sorondo (C Palace) 59	2	SOUTHAMPTON Crouch 37 (pen) Higginbotham 90 Att: 26,066	2
EVERTON Weir 43, Cahill 59 HT: 1-0	2	NEWCASTLE Att: 40,438 Sent off: Aneobi (Newcastle) 56	0
MAN UTD Giggs 21 HT: 1-0	1	WEST BROM Earnshaw 63 (pen) Att: 67,827	1
MIDDLESBROUGH Boateng 11 HT: 1-0	1	TOTTENHAM Att: 34,766	0
NORWICH Ashton 45 (pen) HT: 1-0	1	BIRMINGHAM Att: 25,477 Sent off: Johnson (Birmingham) 31	0
PORTSMOUTH Yakubu 72 HT: 0-1	1	BOLTON Diouf 11 Att: 20,188	1

Football scores

Which game(s) had the most goals scored?

If you add all of the goals together what is the total?

How many teams scored:
1 goal?
2 goals?
3 goals?

How many teams have names beginning with a vowel?

Who has got the biggest shoe in the family? How many cm long is it?

How many pairs of socks have you got? How many socks is that?

Which is longer: the legs of your trousers or the arms of your jumper? How much longer?

How many T-shirts do you have? Sort them by colour. How many more blue T-shirts do you have than red?

Are any of your clothes symmetrical?

Look at the labels in your clothes for a waist size, chest size or height. Measure yourself to check you have the right sized clothes.



Look at the labels in your clothes. Can you find out what temperature the water should be when your clothes are washed?

Measure the zip on your jacket and an adult's jacket. Which is longer? How much longer?

Shoes and clothes

TTRS

Builds confidence

Resilience

Fun, friendly competitions

In-house battles and national tournaments

Good practice for Year 4 MTC



99 Club Challenge



99 Club Progression



"44 Club" Silver



1)	$1 \times 4 =$	2)	$5 \times 3 =$	3)	$36 \div 3 =$
4)	$3 \times 8 =$	5)	$4 \times 11 =$	6)	$33 \div 3 =$
7)	$21 \div 3 =$	8)	$8 \times 3 =$	9)	$6 \times 3 =$
10)	$36 \div 4 =$	11)	$33 \div 11 =$	12)	$4 \times 4 =$
13)	$16 \div 4 =$	14)	$10 \times 6 =$	15)	$50 \div 10 =$
16)	$3 \times 1 =$	17)	$24 \div 3 =$	18)	$5 \times 4 =$
19)	$4 \times 3 =$	20)	$21 \div 7 =$	21)	$3 \times 3 =$
22)	$10 \times 8 =$	23)	$20 \div 4 =$	24)	$28 \div 4 =$
25)	$12 \times 4 =$	26)	$7 \times 2 =$	27)	$5 \times 8 =$
28)	$3 \times 9 =$	29)	$48 \div 4 =$	30)	$7 \times 3 =$
31)	$30 \div 3 =$	32)	$9 \times 5 =$	33)	$60 \div 12 =$
34)	$4 \times 9 =$	35)	$24 \div 4 =$	36)	$27 \div 4 =$
37)	$3 \times 12 =$	38)	$25 \div 5 =$	39)	$12 \times 2 =$
40)	$9 \times 3 =$	41)	$12 \div 3 =$	42)	$10 \times 3 =$
43)	$12 \div 4 =$	44)	$11 \times 4 =$		

Bronze - multiplication facts:

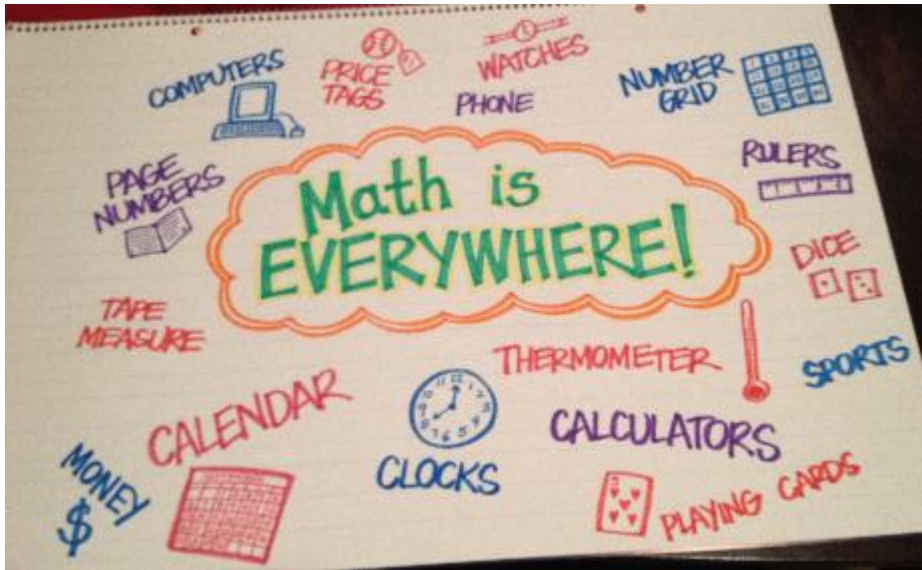
- 11 Club - 11 questions on the 1x table (1.5 mins)
- 22 Club - 22 questions involving doubling numbers from one to ten and 2x (2 mins)
- 33 Club - 33 questions introducing the 2x, 5x and 10x tables (2.5 mins)
- 44 Club - 44 questions introducing the 3x and 4x tables (3 mins)
- 55 Club - 55 questions introducing the 8x and 6x tables (3.5 mins)
- 66 Club - 66 questions introducing the 9x tables (4 mins)
- 77 Club - 77 questions introducing the 7x tables (4.5 mins)
- 88 Club - 88 questions introducing the 11x and 12x tables (5 mins)
- 99 Club - 99 questions on missing number facts (5.5 mins)

Silver - multiplication and division facts:

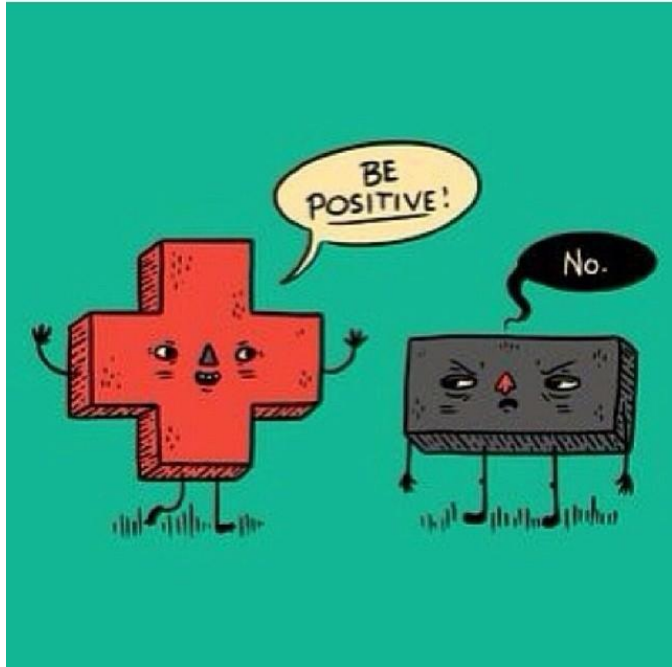
- 11 Club - 11 questions on the 1x table (1.5 mins)
- 22 Club - 22 questions involving doubling and halving numbers from one to ten and 2x (2 mins)
- 33 Club - 33 questions on the 2x, 5x and 10x tables (2.5 mins)
- 44 Club - 44 questions on the 3x and 4x tables (3 mins)
- 55 Club - 55 questions on the 8x and 6x tables (3.5 mins)
- 66 Club - 66 questions on the 9x tables (4 mins)
- 77 Club - 77 questions on the 7x tables (4.5 mins)
- 88 Club - 88 questions on the 11x and 12x tables (5 mins)
- 99 Club - 99 questions on missing number facts (5.5 mins)

Gold - multiplication facts, division facts and wider skills (e.g. indices, fractions of amounts...)

Maths really is everywhere...



A final thought...



THERE ARE 3 KINDS OF
PEOPLE IN THIS WORLD
THOSE WHO ARE GOOD AT MATH,
AND THOSE WHO AREN'T

Around 34% of adults openly admit that they are 'bad at maths'
in front of their children.

Would we say this so openly about reading and writing?

Any Questions?

