

The background consists of a sheet of white lined paper with a dashed midline. Several yellow sticky notes are scattered across the page, each containing a simple mathematical equation. The equations are written in various colors: green, yellow, orange, red, and purple. The central text 'Maths in KS2' is written in a large, bold, black font.

Maths in KS2

$$7 \div 2 = 2$$

$$3 + 3 = 6$$

$$\frac{3}{8}$$

$$+ 5 = 20$$

$$7 - 2 = 5$$

$$9 - 3$$

$$\begin{array}{r} 10 \\ + 5 \\ \hline 15 \end{array}$$

Aims of this evening

- To show you how we teach the four operations (+ - x ÷) in KS2
- To look at what you can do at home to support your child in maths

What's different and why?

- A greater emphasis on mental recall
- Ensure children have a good understanding of the whole number and its real value
- Provide children with variety of methods and an understanding of how they work
- A greater emphasis on problem solving and reasoning

First priority:
Number facts

$7 \div 2 = 2$ $3 + 3 = 6$

$\frac{3}{8}$

$6 =$

$+$
 4

$+ 5 = 20$

$7 - 2 = 5$

$9 - 3$

10
 15
 15

Early number facts...

COUNTING

- 1, 2, 3 ...
- 3, 5, 7 ...
- 10, 20, 30 ...
- 0.1, 0.2, 0.3 ...
- 3, 8, 13, 18 ...
- 99, 89, 79 ...
- 25, 50, 75 ...

Turn it into a game:

Throw a ball

Clap a rhythm...

Number bonds

- **Up to 10** $3 + 7, 6 + 4$
 - **Within 10** $3 + 5 = 8, 3 + 4 + 7$
 - **Up to 20/ 100/ 1000** $34 + 66 = 100$
 - **Up to 1** $0.3 + 0.7, 0.18 + 0.82$
-
- Ping pong number bonds
 - Card games/flash cards

Times Tables

- Rapid recall of multiplication AND division facts will make later maths quicker and easier.

Times Tables

If I know that $4 \times 8 = 32$ I know that ...

$$8 \times 4 = 32$$

$$80 \times 4 = 320$$

$$32 \div 4 = 8$$

$$8 \times 400 = 3200$$

$$32 \div 8 = 4$$

$$3.2 \div 8 = 0.4$$

$$\frac{1}{4} \text{ of } 32 = 8$$

$$\frac{1}{8} \text{ of } 32 = 4$$

If I know my four times table, I can immediately spot that $28/32 = 7/8$

Card Games



- Remove picture cards (you can add them back in later to make things more challenging!)
- Decide on a rule e.g. Double/partner to 10/multiply by 8...
- Turn over top card
- First person to say the correct answer wins the card

Card Games



- Remove picture cards
- Split deck in half – one pile each face down
- Both turn over top card
- First person to say sum/difference/product wins the pair
- Make it a 2-digit number and give the fact to 100

- Look for patterns/rules:

Even/odd/last digit/digit sums...

- Make up a rhyme e.g.



I ate and ate till I was sick on the floor

8 times 8 is 64!

- Relate it to something real – make a mental picture
5 tables with 6 children round each one = a class of 30
- Just choose one fact and ask it as often as possible
and in different ways all week.



Evens...

- 2, 4, 6, 8, 10, 12... times tables:

Even times tables have **even** answers

Odds...

- 1, 3, 5, 7, 9, 11... times tables:

Odd times tables have alternate answers:
odd, even, odd, even...

9 times table

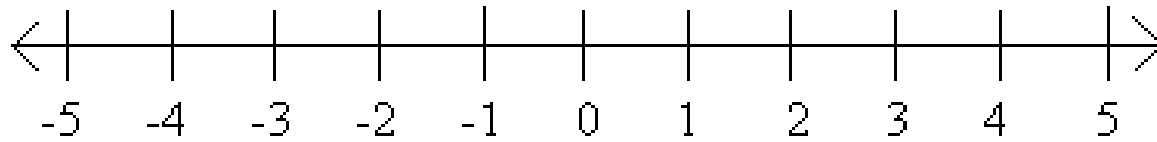
- The digits add up to 9
- Use your fingers to learn the pattern



Hundred Square

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
91	92	93	94	95	96	97	98	99	100

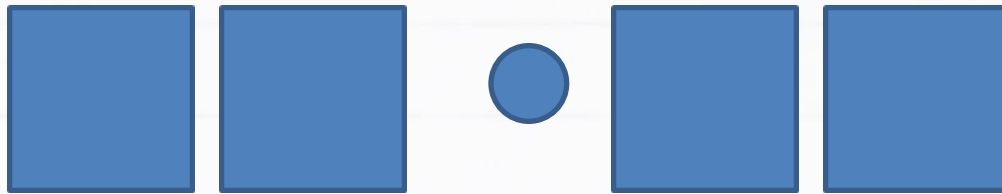
Number lines



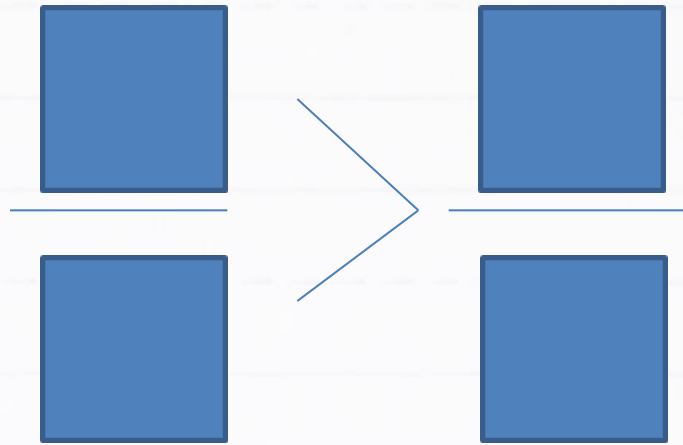
Understanding place value and the size of numbers.



Biggest number wins!



Number closest to
50 wins



First fraction
greater than
second
fraction wins



Addition



Step 1: Empty number line

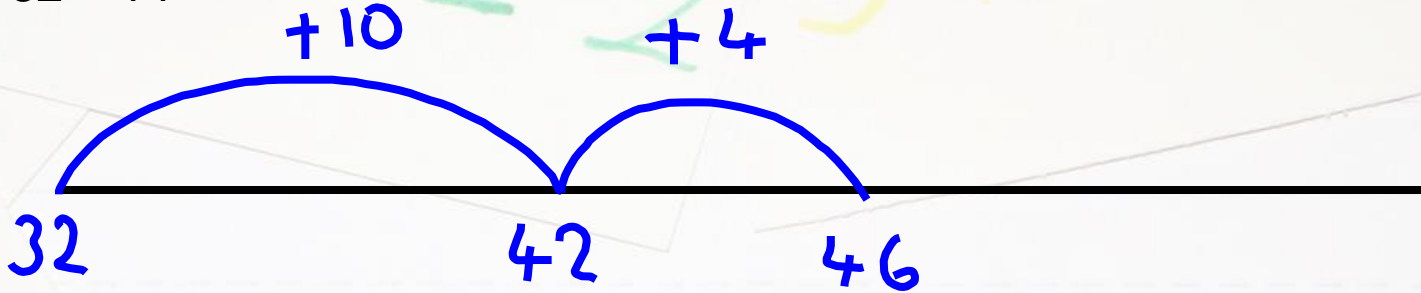
Step 2: Partitioning

Step 3: Expanded column method

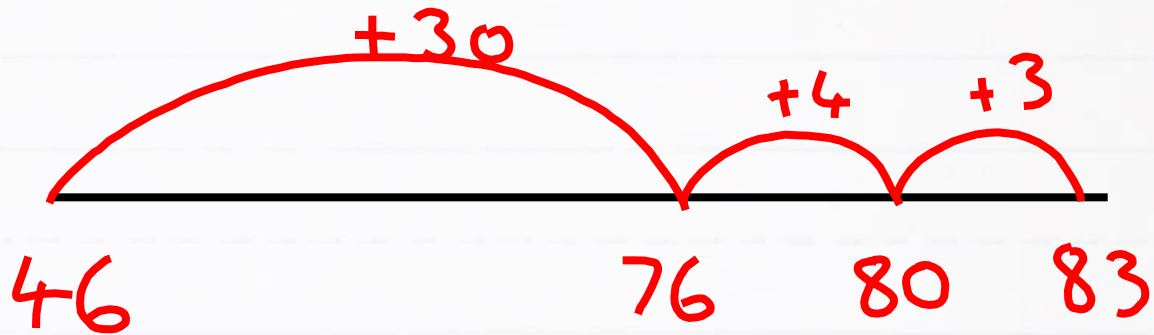
Step 4: Column method

Empty Number Line

$32 + 14$



Bridging 10
 $46 + 37$



Partitioning - pulling the number into bits

$$46 + 32$$

$$30 + 2$$

$$46 + 30 = 76$$

$$76 + 2 = 78$$

Expanded vertical method

235

+ 752

7
80
900

987

Compact vertical method

Column method

235

+ 752

987



Subtraction

Step 1: The empty number line

counting back

counting up

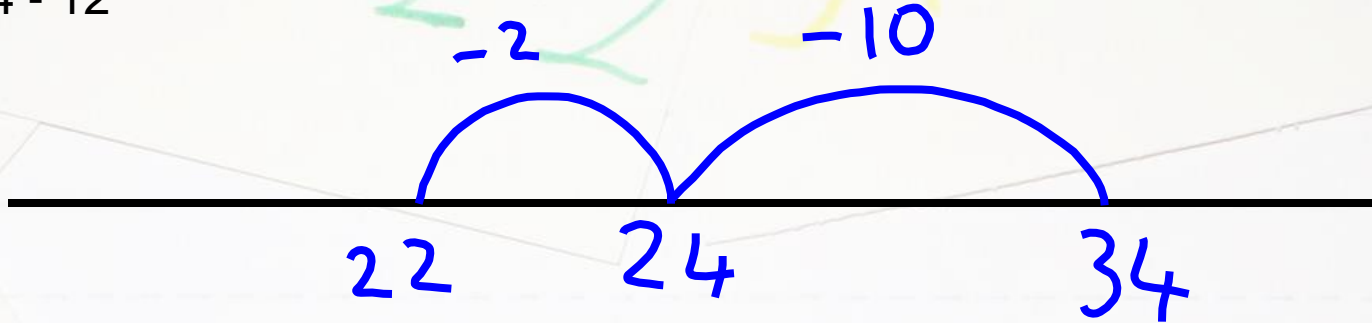
Step 2: Partitioning

Step 3: Expanded column method

Step 4: Column method

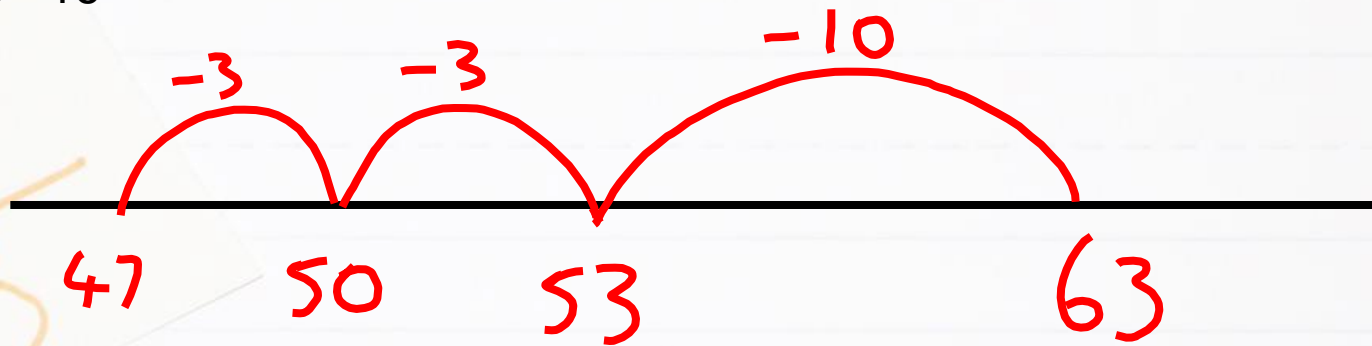
Empty Number Line counting back

$34 - 12$



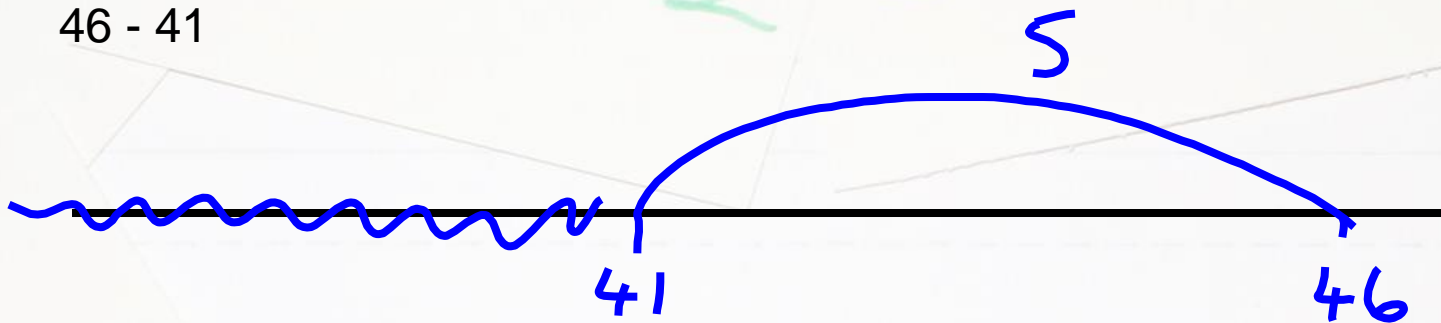
Bridging ten

$63 - 16$

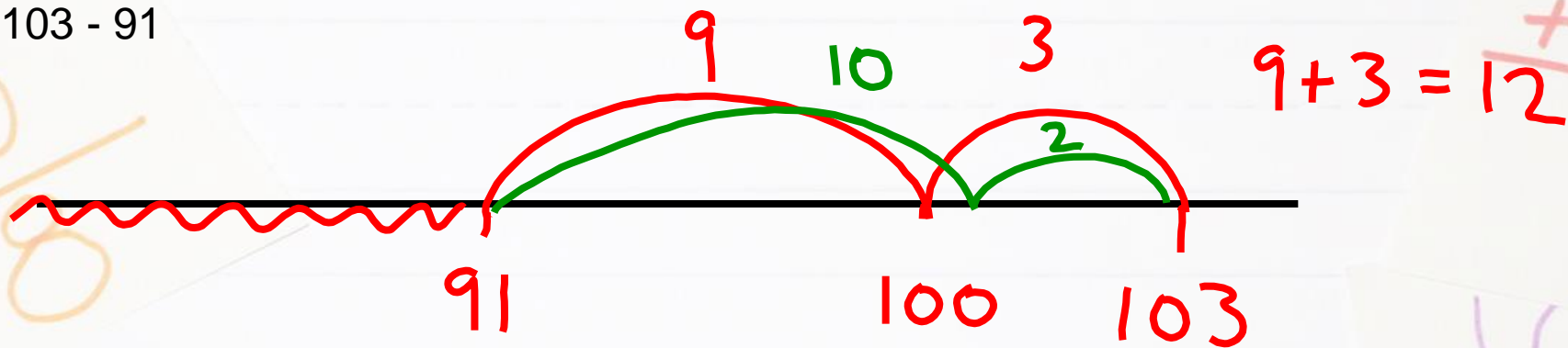


Empty Number Line counting forward: finding the difference

$46 - 41$



$103 - 91$



Partitioning

$147 - 34$

$$\begin{aligned} 147 - 30 - 4 \\ = 117 - 4 \\ = 113 \end{aligned}$$

$253 - 45$

$$\begin{aligned} 253 - 40 - 5 \\ = 213 - 5 \\ = 208 \end{aligned}$$

Expanded column method

$$343 - 127$$

$$\begin{array}{r} 30 + 13 \\ 300 + 40 + 3 \\ - 100 + 20 + 7 \\ \hline \end{array}$$

$$\underline{\underline{200 + 10 + 6}} = 216$$

Compact column method

$$\begin{array}{r} 343 \\ - 127 \\ \hline 216 \\ \hline \end{array}$$



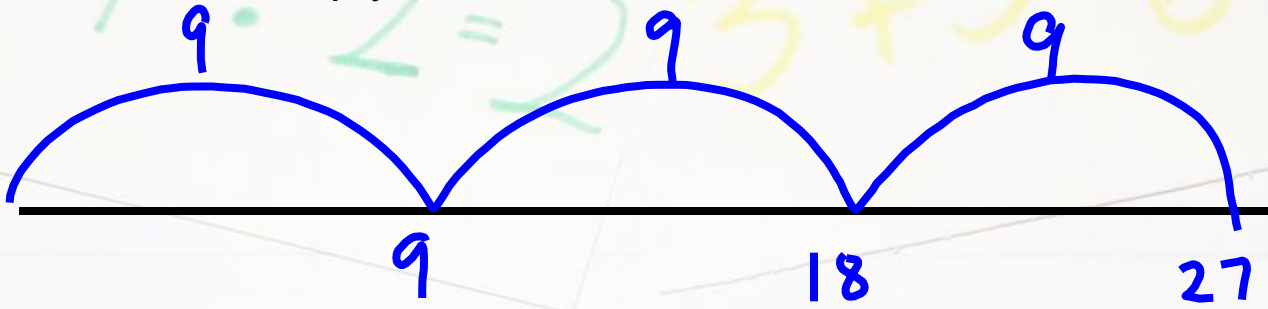
Multiplication



- Step 1: Empty number line – repeated addition
- Step 2: Partitioning
- Step 3: Grid method
- Step 4: Expanded column method
- Step 5: Compact method

Empty number line

9×3



9×3



Partitioning

Grid method

143×6

$$\begin{array}{r} 100 \times 6 = 600 \\ 40 \times 6 = 240 \\ 3 \times 6 = 18 \\ \hline 858 \end{array}$$

$$\begin{array}{r|l} \times & 6 \\ \hline 100 & 600 \\ 40 & 240 \\ \hline 3 & 18 \\ & \hline & 858 \end{array}$$

Expanded column
method

$$\begin{array}{r} 143 \\ \times 6 \\ \hline 18 \\ 240 \\ 600 \\ \hline 858 \end{array}$$

Compact column
method

$$\begin{array}{r} 143 \\ \times 6 \\ \hline 858 \\ \hline 21 \end{array}$$

Partitioning

Grid method

Expanded column method

43×67

$$\begin{array}{r} 40 \times 60 = 2400 \\ 40 \times 7 = 280 \\ 3 \times 60 = 180 \\ 3 \times 7 = 21 \\ \hline 2881 \end{array}$$

x	40	3
60	2400	180
7	280	21

$$2680 + 201 = 2881$$

$$\begin{array}{r} 43 \\ \times 67 \\ \hline 21 \\ 280 \\ 180 \\ 2400 \\ \hline 2881 \end{array}$$

Compact method

$$\begin{array}{r} 236 \\ \times 47 \\ \hline 1652 \\ \times 7 \\ \hline 9440 \\ \times 40 \\ \hline 11092 \end{array}$$



Division



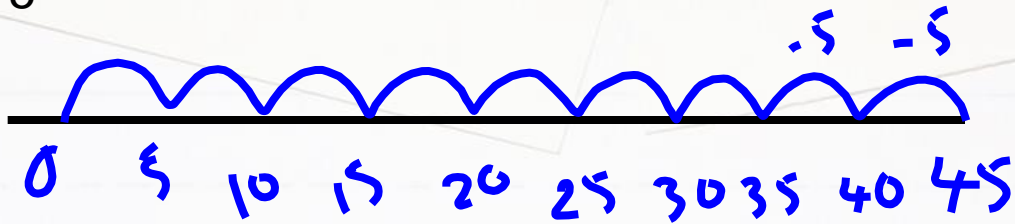
Step 1: Empty number line – repeated subtraction

Step 2: Chunking

Step 3: Short division

Empty number line - repeated subtraction

$$45 \div 5$$



$$= 9$$

Chunking

$$\begin{array}{r} 345 \div 3 \\ - 300 \\ \hline 45 \\ - 30 \\ \hline 15 \\ - 15 \\ \hline 0 \end{array} \quad \begin{array}{l} = 115 \\ (\underline{100} \times 3) \\ (\underline{10} \times 3) \\ (\underline{5} \times 3) \end{array}$$

$$\begin{array}{r} 345 \div 23 \\ - 230 \\ \hline 115 \\ - 115 \\ \hline 0 \end{array} \quad \begin{array}{l} = 15 \\ (\underline{10} \times 23) \\ (\underline{5} \times 23) \end{array}$$

$$\begin{array}{r} 500 \\ - 335 \\ \hline 165 \end{array}$$

$$\begin{array}{r} \overline{) 67} \\ \underline{5} \times 67 \\ \hline \end{array}$$

$$= 7 \text{ r } 31$$

$$\begin{array}{r} - 134 \\ \hline 31 \\ \hline \end{array}$$

$$\begin{array}{r} \underline{2} \times 67 \\ \hline \end{array}$$

$$\frac{3}{8}$$

$$\frac{+}{4}$$

$$\frac{10}{15}$$

$$+ 5 = 2$$

$$7 - 2 = 5$$

$$9 - 3$$

'Bus Shelter' - short division

$$\begin{array}{r} 1914 \\ 3 \overline{) 5742} \end{array}$$

$$\frac{3}{8}$$

$$+5=2$$

$$7-2=5$$

$$9-3=$$

$$\begin{array}{r} + \\ 10 \\ 15 \\ 15 \end{array}$$

$$3+3=6$$

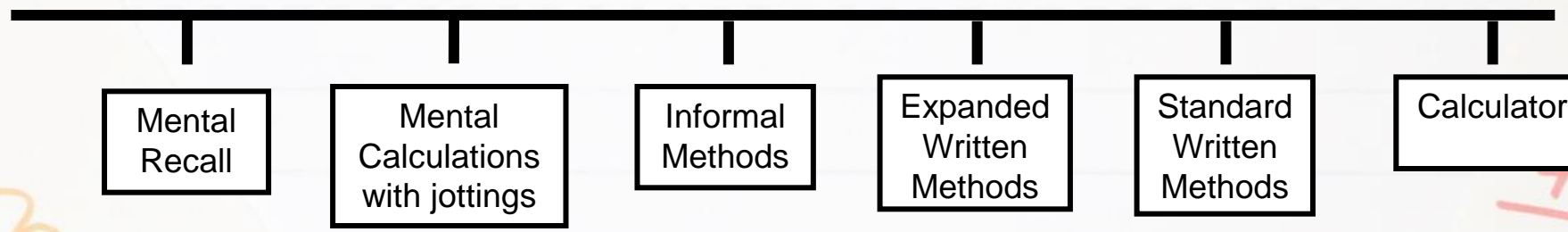
$$6=$$

$$7-2=2$$

$$7 \div 2 = 2$$

$$3 + 3 = 6$$

$$6 =$$



$$38$$

$$10$$
$$15$$
$$15$$

$$+ 5 = 2$$

$$7 - 2 = 5$$

$$9 - 3 =$$

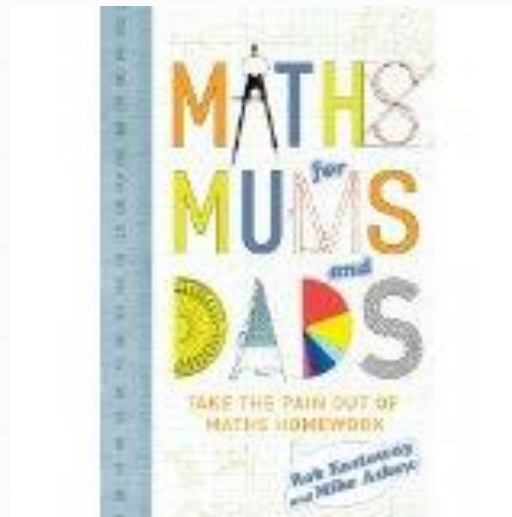
Talking about maths – make it real

- Numbers
- Time
- Measurements – length, height, weight, capacity, distance...
- Estimating
- Fractions
- Shape
- Directions

Recommended Book

Maths for Mums and Dads

By Rob Eastaway and Mike Askew



Apps

- Math Bingo
- Squeebles
- 6 Numbers
- Primary Games Ltd, especially
 - Stop the clock
 - Ghostbusters
 - Eggs on Legs

Websites

www.woodlands-junior.kent.sch.uk/maths/index.html

A fantastic website packed full of games, resources, investigations and much more

www.bbc.co.uk/schools/ks2bitesize/maths/

Explanations and games

www.teachingtime.co.uk

Great site for learning time, includes an interactive clock

www.mathsisfun.com

Maths games, puzzles and activities

www.coolmath.com

Fun maths games

www.activityvillage.co.uk/maths_games.htm

Lots of brilliant interactive games

<http://nrich.maths.org/frontpage>

Problem solving and enrichment activities

www.puzzlemaker.com

A tool for making and customising maths puzzles

The school website

- Parents section then 'Our Curriculum'
- Understanding progression in mathematics: A guide for parents.
- These slides.
- Continue to 'policies' to find our calculation policy with many more examples of the calculations I have shown tonight.