



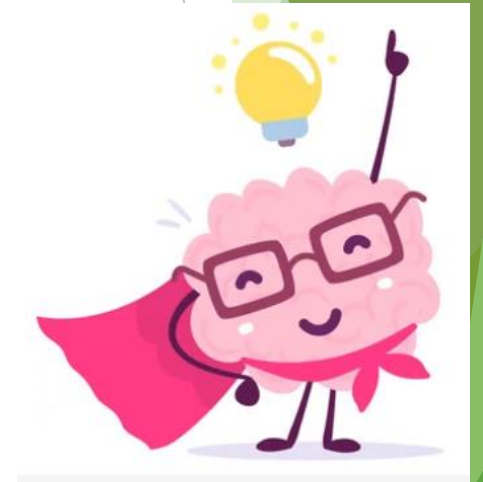
# PARENTS MATHS WORKSHOP

## Year 4



# Aims of the Session:

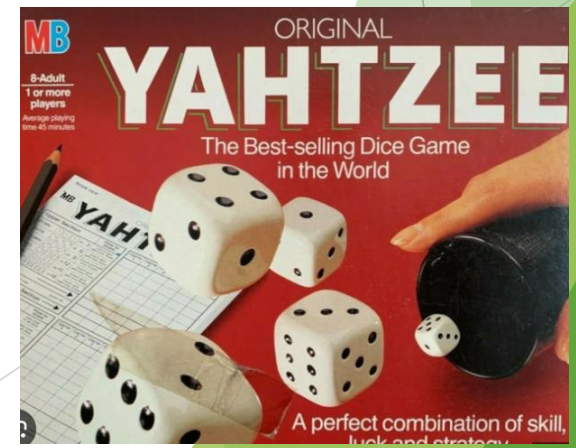
- Share with you some of the things your child will be learning in school
- Improve your confidence in helping your child with maths
- Explore some games and activities you can play with your child at home to help them develop fluency and become more automatic with number facts.



## Why engage with your child's learning?

Research evidence suggests that when parents are engaged in their children's learning, outcomes for children can be improved.

# Games you can play at home!



# Measurement...

Telling the time!



Measuring capacity, weighing ingredients, measuring lengths/ heights...



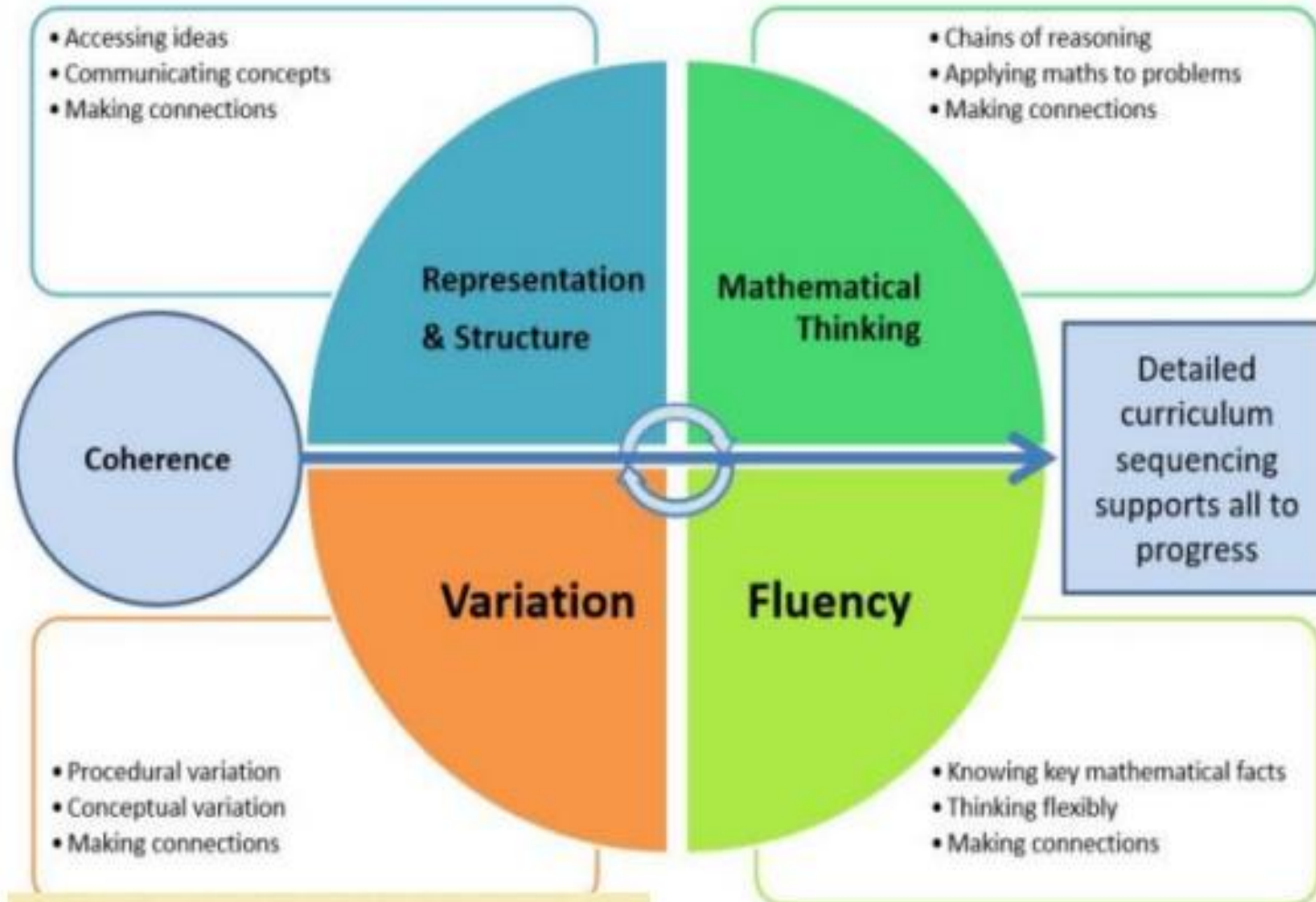
100cm - 1 metre  
1000m - 1km  
1000ml - 1 litre  
1000g - 1kg



# Watches From £22



## Teaching for Mastery



# Not racing up a ladder!

When the children learn a concept in maths, they need time to embed the skills and apply them to problems.



In Year 4, we continue to build on previous knowledge.

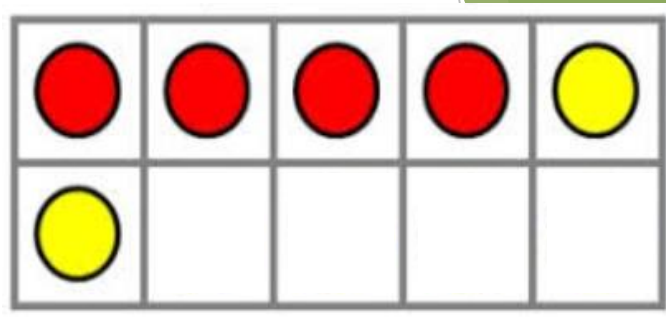
I know that 6 is made of 4 and 2 so I will also know...



$$40 + 20$$

$$400 + 200$$

$$258 + 16 = 274$$

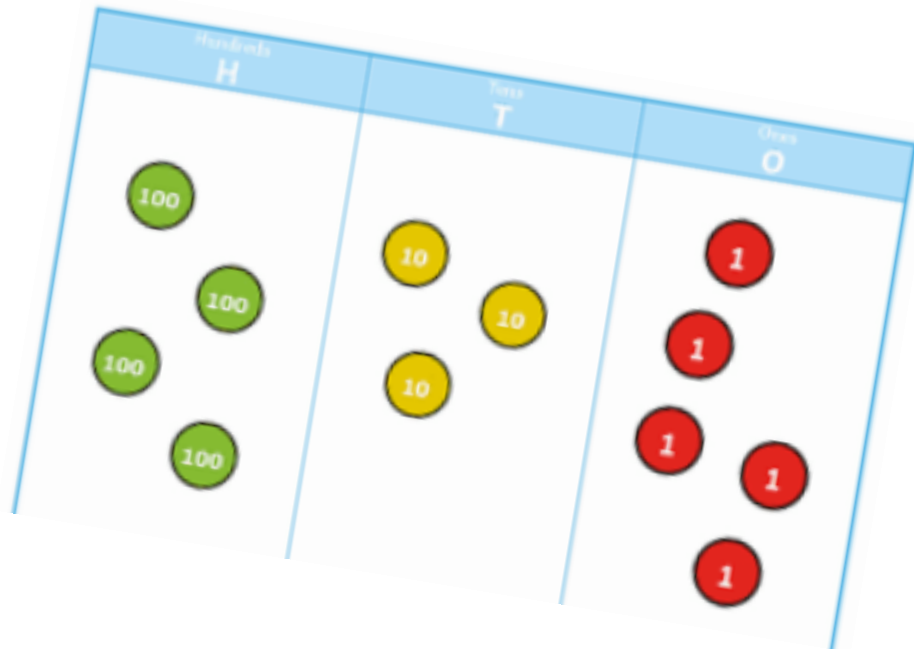
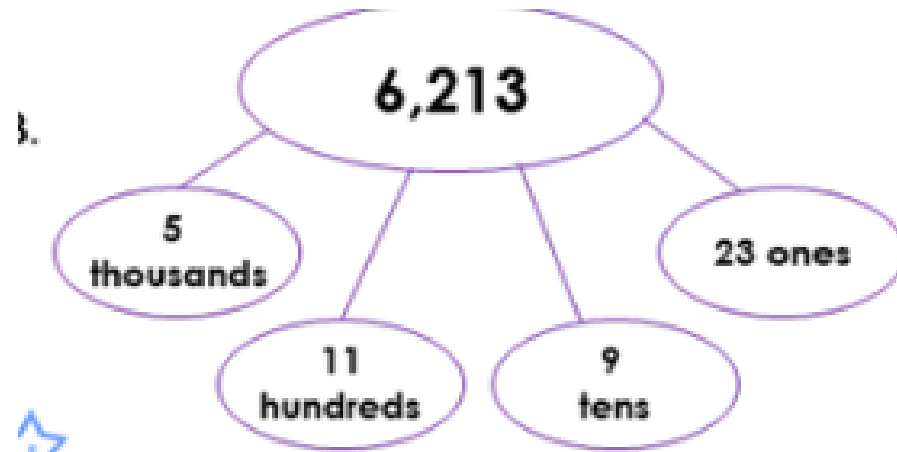
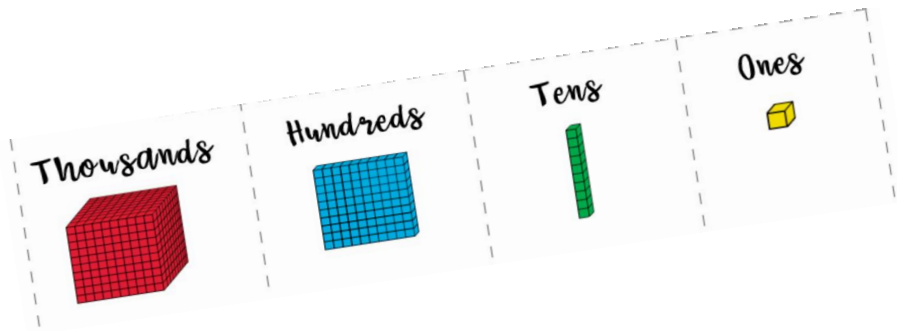


$$6 - 2$$

$$60 - 20$$

$$0.4 + 0.2$$

# We use partitioning...

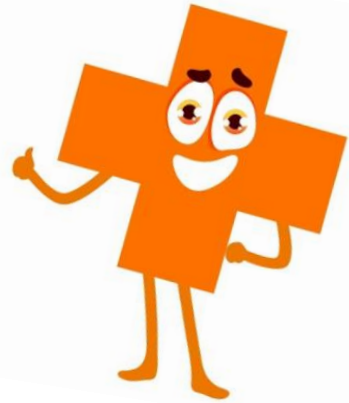


$$4.6$$

4      0.6

Handwritten decomposition of the number 4.6. The number '4.6' is written at the top. Below it, the digit '4' is circled and connected to the integer part of the number. The decimal part '0.6' is also circled and connected to the fractional part of the number.

# Developing Fluency:



<b>Autumn</b>	<ul style="list-style-type: none"><li>* count up in 25s, 50s and 100s.</li><li>* find 1000 more or less than any given number.</li><li>* add or subtract two 2 digit numbers mentally</li><li>* know my multiplication and division facts for the 4, 8 and 3 times tables</li></ul>
<b>Spring</b>	<ul style="list-style-type: none"><li>* round any number to the nearest 10, 100 or 1000</li><li>* multiply and divide numbers by 10 and 100.</li><li>* know my multiplication and division facts for the 6, 9 and 7 times tables</li></ul>
<b>Summer</b>	<ul style="list-style-type: none"><li>* Counting on and back in 10ths as decimals.</li><li>* read the time to the nearest minute and convert times between 12 hour and 24 hour clocks.</li><li>* convert measures</li><li>* know my multiplication and division facts for the 11 and 12 times tables</li><li>* know all my times table facts to 12x12</li></ul>



CPA - approach to maths!

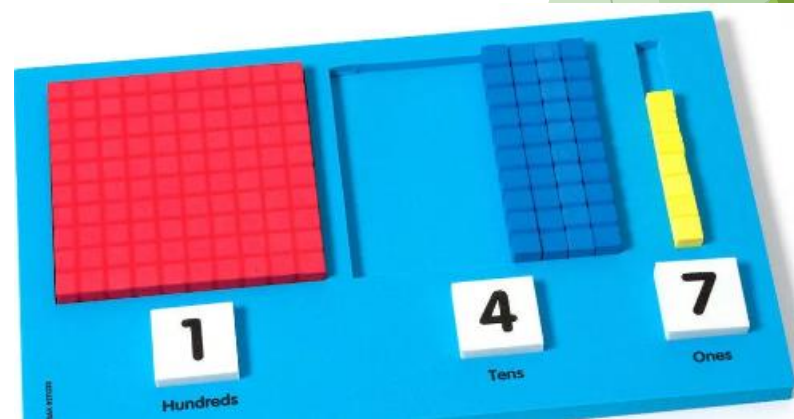
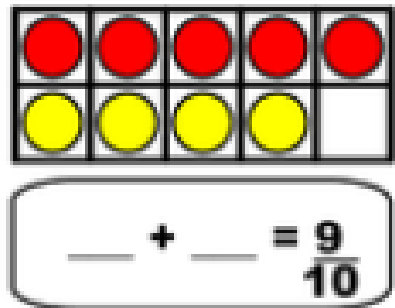
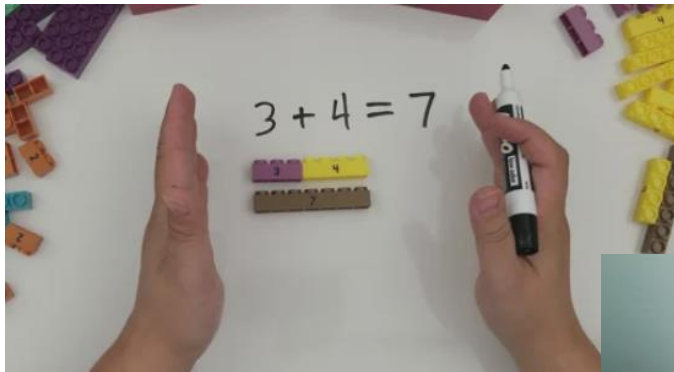
Concrete

Pictorial

Abstract

# CPA - approach to maths!

## Concrete



# Tenths and Hundredths Place Value Grid



Hundreds

Tens

Ones

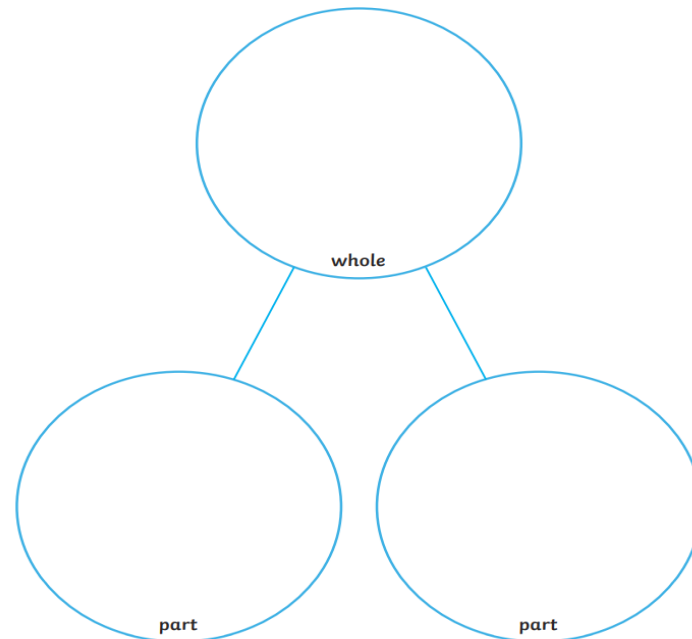
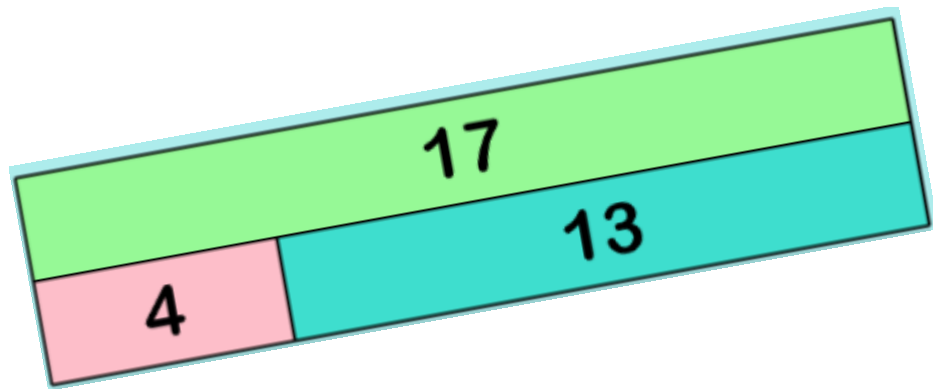


Tenths

Hundredths

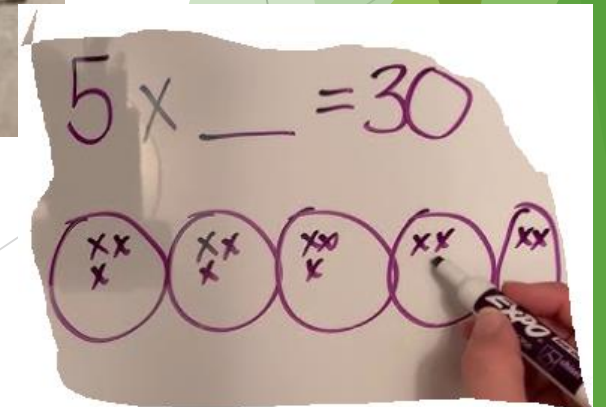
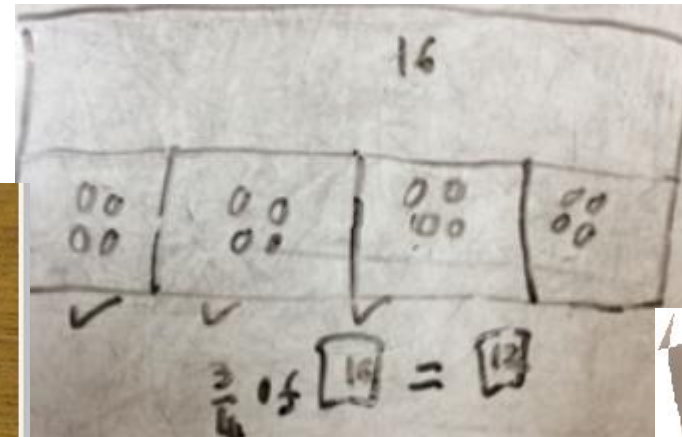
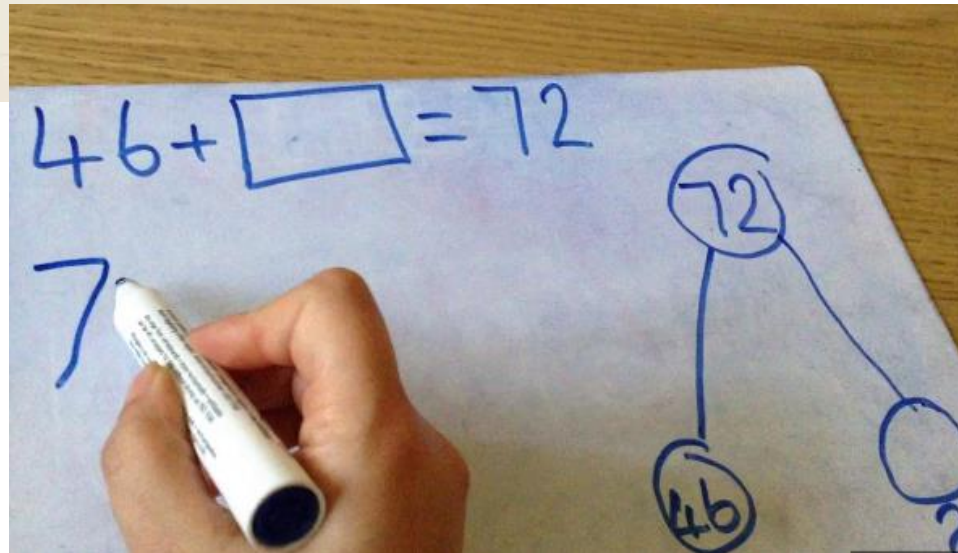
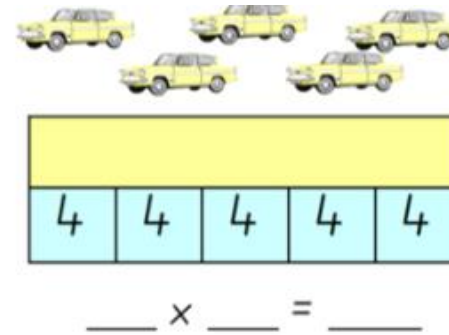
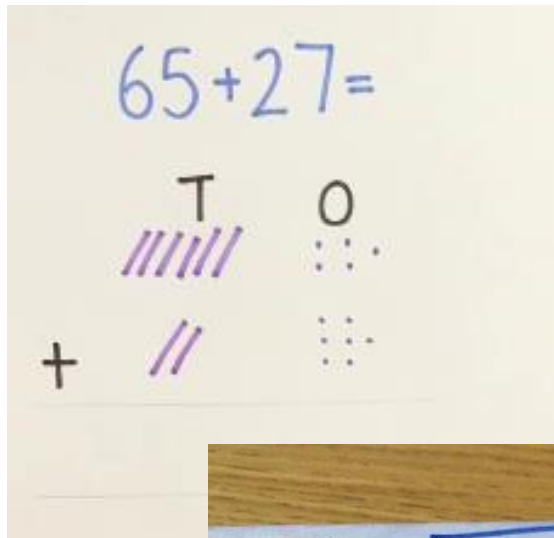
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X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144



CPA - approach to maths!

# Pictorial



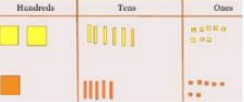
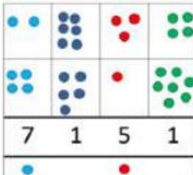
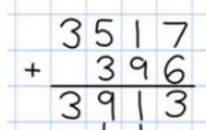

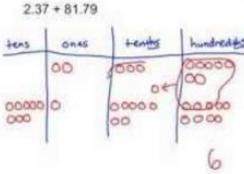

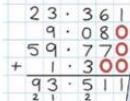
CPA - approach to maths!

# Abstract

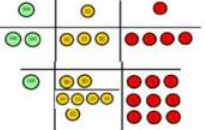
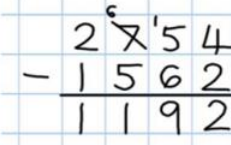
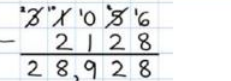
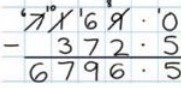
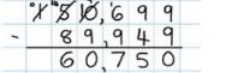
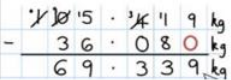
$$298 + 48 =$$

# How we teach formal methods?

# Addition & Subtraction:

Objective & Strategy	Concrete	Pictorial	Abstract
Y4—add numbers with up to 4 digits	Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand. 	 Draw representations using pv grid.	 Continue from previous work to carry hundreds as well as tens. Relate to money and measures.
Y5—add numbers with more than 4 digits.  Add decimals with 2 decimal places, including money.	As year 4  Introduce decimal place value counters and model exchange for addition.		$\begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \\ 11 \end{array}$ 
Y6—add several numbers of increasing complexity  Including adding money, measure and decimals with different numbers of decimal points.	As Y5	As Y5	$\begin{array}{r} 81,059 \\ 3,668 \\ 15,301 \\ + 2,0551 \\ \hline 120,579 \end{array}$  Insert zeros for place holders.

Y4-6  
ADDITION

Objective & Strategy	Concrete	Pictorial	Abstract
Subtracting tens and ones  Year 4 subtract with up to 4 digits.  <i>Introduce decimal subtraction through context of money</i>	234 - 179   Model process of exchange using Numicon, base ten and then move to PV counters.	Children to draw pv counters and show their exchange—see Y3	  Use the phrase 'take and make' for exchange
Year 5- Subtract with at least 4 digits, including money and measures.  <i>Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal</i>	As Year 4	Children to draw pv counters and show their exchange—see Y3	  Use zeros for place holders. 
Year 6—Subtract with increasingly large and more complex numbers and decimal values.			  

Y4-6  
SUBTRACTION

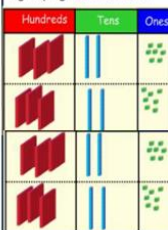
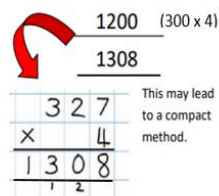
Can you make an exchange?

# How we teach formal methods?

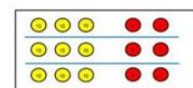
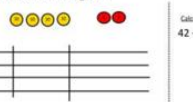
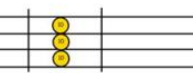
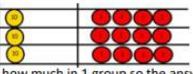
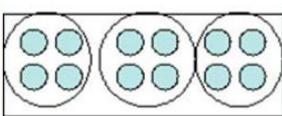
# Division & Multiplication:

Y4

MULTIPLICATION

Objective & Strategy	Concrete	Pictorial	Abstract
Column multiplication	<p>Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. <math>321 \times 2 = 642</math></p>  <p>It is important at this stage that they always multiply the ones first.</p> <p>The corresponding long multiplication is modelled alongside</p>		$\begin{array}{r} 327 \\ \times 4 \\ \hline 28 \quad (7 \times 4) \\ 80 \quad (20 \times 4) \\ 1200 \quad (300 \times 4) \\ \hline 1308 \end{array}$ <p>This may lead to a compact method.</p> 

How large can the remainder be?

Objective & Strategy	Concrete	Pictorial	Abstract
Divide at least 3 digit numbers by 1 digit.	<p>96 ÷ 3</p> <p>Tens      Units</p> <p>3            2</p>  <p>Use place value counters to divide using the bus stop method alongside</p>  <p>42 ÷ 3 =</p> <p>Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.</p>  <p>We exchange this ten for ten ones and then share the ones equally among the groups.</p>  <p>We look how much in 1 group so the answer is 14.</p>	<p>Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups.</p>  <p>Encourage them to move towards counting in multiples to divide more efficiently.</p>	<p>Begin with divisions that divide equally with no remainder.</p> $\begin{array}{r} 218 \\ 3 \overline{) 872} \end{array}$ <p>Move onto divisions with a remainder.</p> $\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \end{array}$ <p>Finally move into decimal places to divide the total accurately.</p> $\begin{array}{r} 14.6 \\ 35 \overline{) 511.0} \end{array}$ $\begin{array}{r} 0663 \text{ r } 5 \\ 8 \overline{) 5309} \end{array}$

Y4-6  
DIVISION

Let's play some games with the children!



# Recognising place value...

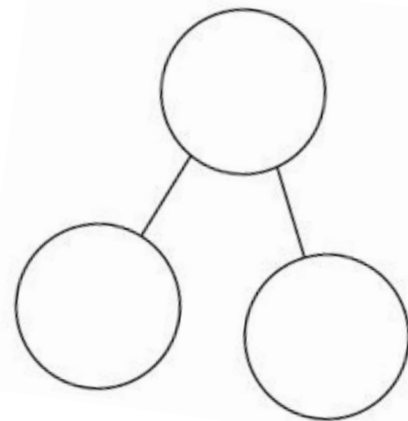
- 1000, 100 or 10 more/ less

$$43 + 1000$$

$$2089 - 89$$

$$1432 + 200$$

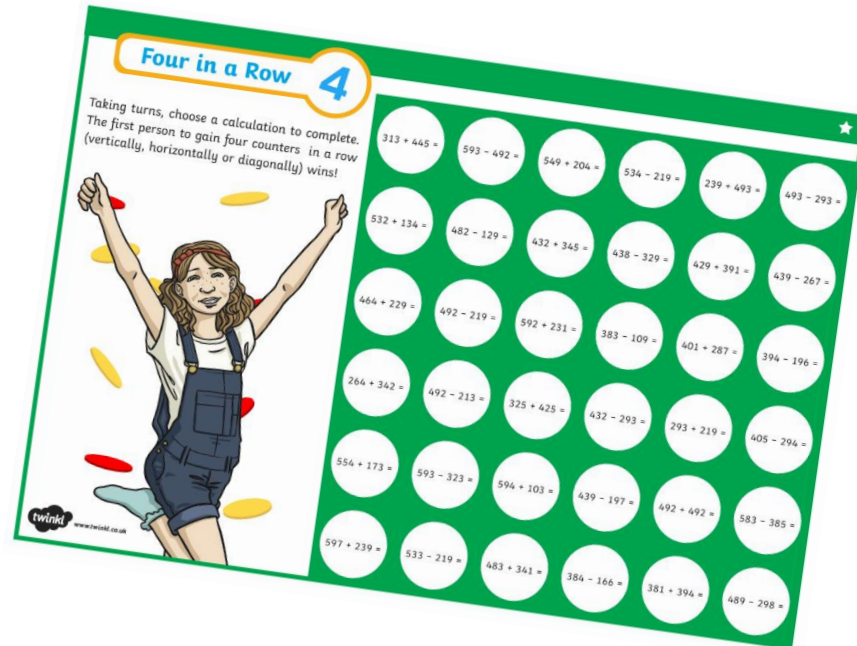
$$3.0 + 0.2$$



Tenths and Hundredths Place Value Grid				
Hundreds	Tens	Ones	Tenths	Hundredths

# Addition and Subtraction Games

- 1 more/ 10 more/ 100 more/ 1000 more
- Crossing the boundaries
- Counting backwards
- 1 less/ 10 less/ 100 less/ 1000 less



# Developing multiplication knowledge

- Counting up
- Songs and using fingers
- chanting
- Referring to grids/ charts
- Dividing and multiplying by 10 and 100.

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

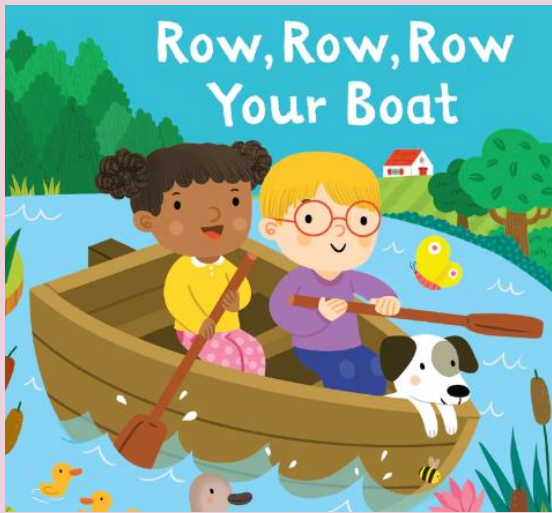
1 x	2 x	3 x	4 x	5 x	6 x
1 x 1 = 1	2 x 1 = 2	3 x 1 = 3	4 x 1 = 4	5 x 1 = 5	6 x 1 = 6
1 x 2 = 2	2 x 2 = 4	3 x 2 = 6	4 x 2 = 8	5 x 2 = 10	6 x 2 = 12
1 x 3 = 3	2 x 3 = 6	3 x 3 = 9	4 x 3 = 12	5 x 3 = 15	6 x 3 = 18
1 x 4 = 4	2 x 4 = 8	3 x 4 = 12	4 x 4 = 16	5 x 4 = 20	6 x 4 = 24
1 x 5 = 5	2 x 5 = 10	3 x 5 = 15	4 x 5 = 20	5 x 5 = 25	6 x 5 = 30
1 x 6 = 6	2 x 6 = 12	3 x 6 = 18	4 x 6 = 24	5 x 6 = 30	6 x 6 = 36
1 x 7 = 7	2 x 7 = 14	3 x 7 = 21	4 x 7 = 28	5 x 7 = 35	6 x 7 = 42
1 x 8 = 8	2 x 8 = 16	3 x 8 = 24	4 x 8 = 32	5 x 8 = 40	6 x 8 = 48
1 x 9 = 9	2 x 9 = 18	3 x 9 = 27	4 x 9 = 36	5 x 9 = 45	6 x 9 = 54
1 x 10 = 10	2 x 10 = 20	3 x 10 = 30	4 x 10 = 40	5 x 10 = 50	6 x 10 = 60
1 x 11 = 11	2 x 11 = 22	3 x 11 = 33	4 x 11 = 44	5 x 11 = 55	6 x 11 = 66
1 x 12 = 12	2 x 12 = 24	3 x 12 = 36	4 x 12 = 48	5 x 12 = 60	6 x 12 = 72

7 x	8 x	9 x	10 x	11 x	12 x
7 x 1 = 7	8 x 1 = 8	9 x 1 = 9	10 x 1 = 10	11 x 1 = 11	12 x 1 = 12
7 x 2 = 14	8 x 2 = 16	9 x 2 = 18	10 x 2 = 20	11 x 2 = 22	12 x 2 = 24
7 x 3 = 21	8 x 3 = 24	9 x 3 = 27	10 x 3 = 30	11 x 3 = 33	12 x 3 = 36
7 x 4 = 28	8 x 4 = 32	9 x 4 = 36	10 x 4 = 40	11 x 4 = 44	12 x 4 = 48
7 x 5 = 35	8 x 5 = 40	9 x 5 = 45	10 x 5 = 50	11 x 5 = 55	12 x 5 = 60
7 x 6 = 42	8 x 6 = 48	9 x 6 = 54	10 x 6 = 60	11 x 6 = 66	12 x 6 = 72
7 x 7 = 49	8 x 7 = 56	9 x 7 = 63	10 x 7 = 70	11 x 7 = 77	12 x 7 = 84
7 x 8 = 56	8 x 8 = 64	9 x 8 = 72	10 x 8 = 80	11 x 8 = 88	12 x 8 = 96
7 x 9 = 63	8 x 9 = 72	9 x 9 = 81	10 x 9 = 90	11 x 9 = 99	12 x 9 = 108
7 x 10 = 70	8 x 10 = 80	9 x 10 = 90	10 x 10 = 100	11 x 10 = 110	12 x 10 = 120
7 x 11 = 77	8 x 11 = 88	9 x 11 = 99	10 x 11 = 110	11 x 11 = 121	12 x 11 = 132
7 x 12 = 84	8 x 12 = 96	9 x 12 = 108	10 x 12 = 120	11 x 12 = 132	12 x 12 = 144

Using well known songs...

3x



4x





8x



# Times table games...

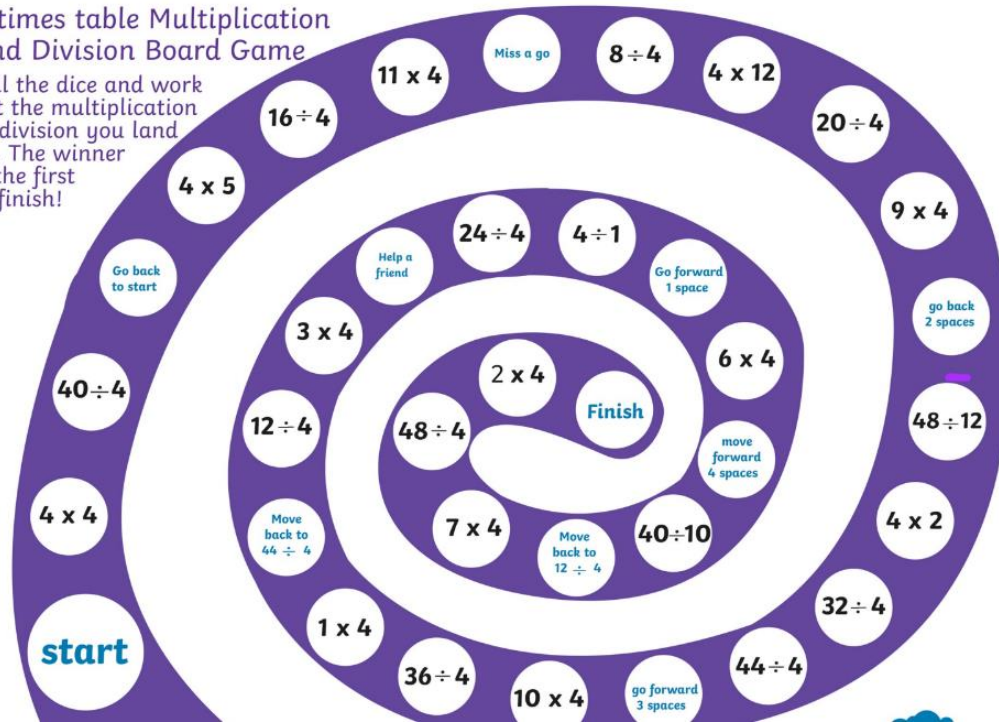
**8 Times Table Multiplication And Division Board Game**

Roll the dice and work out the multiplication or division you land on. The winner is the first to finish!

Start	<b>8 Times Table Multiplication And Division Board Game</b>				96÷8	88÷8	Go forward 1 space	12×8
8×10					Help a friend	Go forward 4 spaces		
80÷8					Go back to Start	8×2	64÷8	8×11
				72÷8	Move back to 32÷8	Move back to 96÷8		
16÷2	8×7	40÷8	Miss a go	8×10	3×8			
8×8					48÷8	8×8		
Go back 2 spaces					80÷8	8×1	8÷1	32÷8
<b>Finish</b>								

## 4 times table Multiplication And Division Board Game

Roll the dice and work out the multiplication or division you land on. The winner is the first to finish!



start

Miss a go

8 ÷ 4

4 × 12

20 ÷ 4

9 × 4

4 × 5

16 ÷ 4

11 × 4

4 ÷ 1

24 ÷ 4

4 × 1

6 × 4

40 ÷ 4

Go back to start

Help a friend

Go forward 1 space

3 × 4

2 × 4

48 ÷ 4

Finish

48 ÷ 12

4 × 4

7 × 4

40 ÷ 10

move forward 4 spaces

4 × 2

Move back to 44 ÷ 4

Move back to 12 ÷ 4

32 ÷ 4

1 × 4

36 ÷ 4

10 × 4

44 ÷ 4

Go forward 3 spaces

**Multiplication Muddle 3× Table**

Start

9 × 3

5 × 5

2 × 3

8 × 3

Miss a turn.

10 × 3

1 × 3

12 × 3

8 × 3

Cover any answer.

3

24

21

6

15

9

12

3

7 × 3

2 × 3

12

9

15

27

27

30

30

36

21

Move forward 3 spaces.

3 × 3

1 × 3

7 × 3

How to Play

- You will need dice, counters to move around the board and counters to cover the answers.
- Roll the dice and move the correct number of spaces.
- Solve the calculation on the square you land on or follow the instructions. Find the correct answer on one of the circles.
- Cover the answer to the calculation with a counter.
- If the answer is already covered, miss a turn.
- The winner is the player who covers the most answers.

Miss a turn.

12 × 3

3 × 3

11 × 3

4 × 3

6 × 3

9 × 3

Have an extra turn.

10 × 3

11 × 3

5 × 3

Move back 2 spaces.

6 × 3

×6	6×3	6×4	×6
6×2	81	24	6×5
6×9	54	96	9×6
×6	84	42	×6
6×9	8×9	6×7	×6



8 × 0

0 × 0

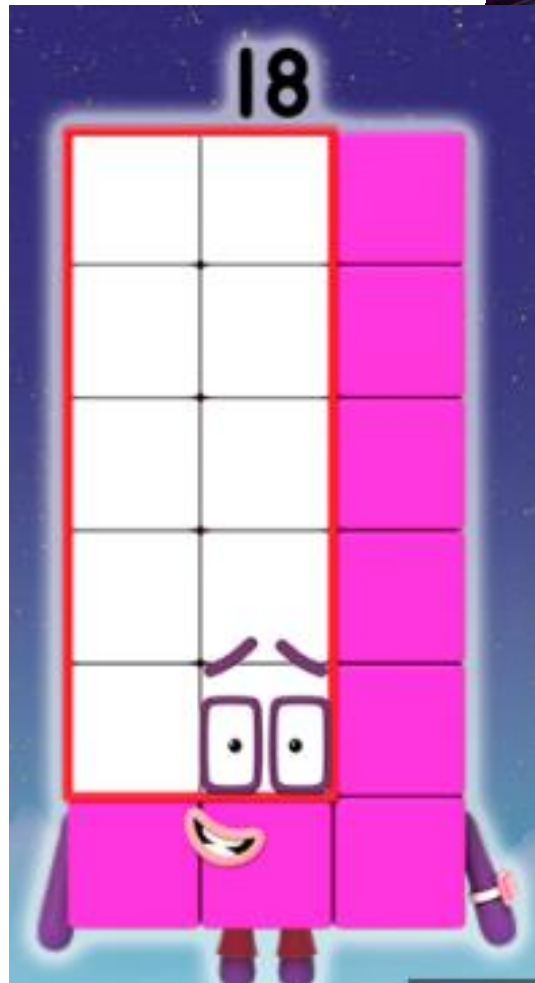
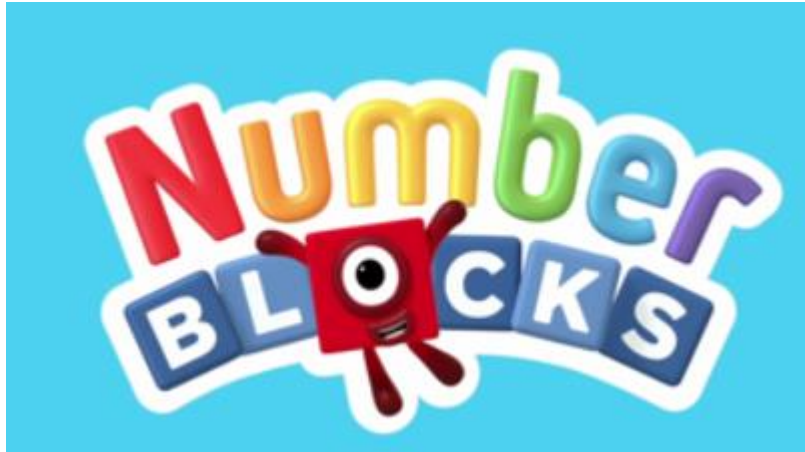
6 × 2

6 × 9

9 × 9

9 × 6

# Number Blocks!



Doodle Maths - great for retrieval!



doodlemaths

# TTRS & Numbots



THANK YOU