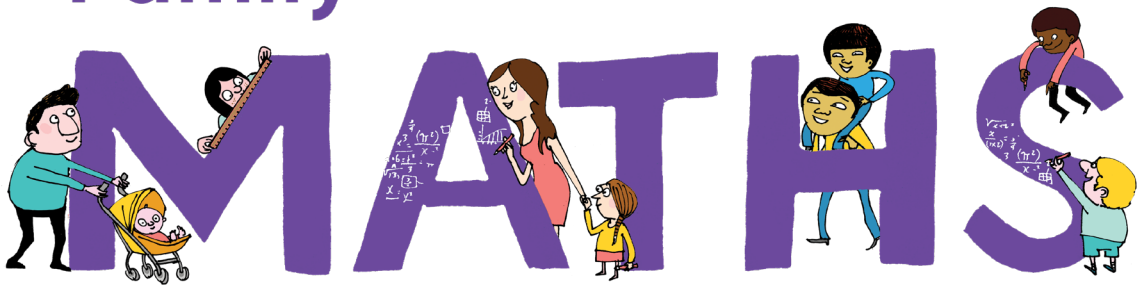
All Saints' Church of England Primary School, Newmarket

MATHS WORKSHOP

FOR PARENTS

Family MATHS



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TOGETHER
Included • Inspired • Involved

'Parents are a child's first and most enduring educators, and their influence cannot be overestimated. Parents should be at the centre of any plan to improve children's outcomes, starting with the early years and continuing right through schooling.'

Williams P. Independent Review of Mathematics Teaching in Early Years Settings and Primary Schools: final report DCSF, 2008

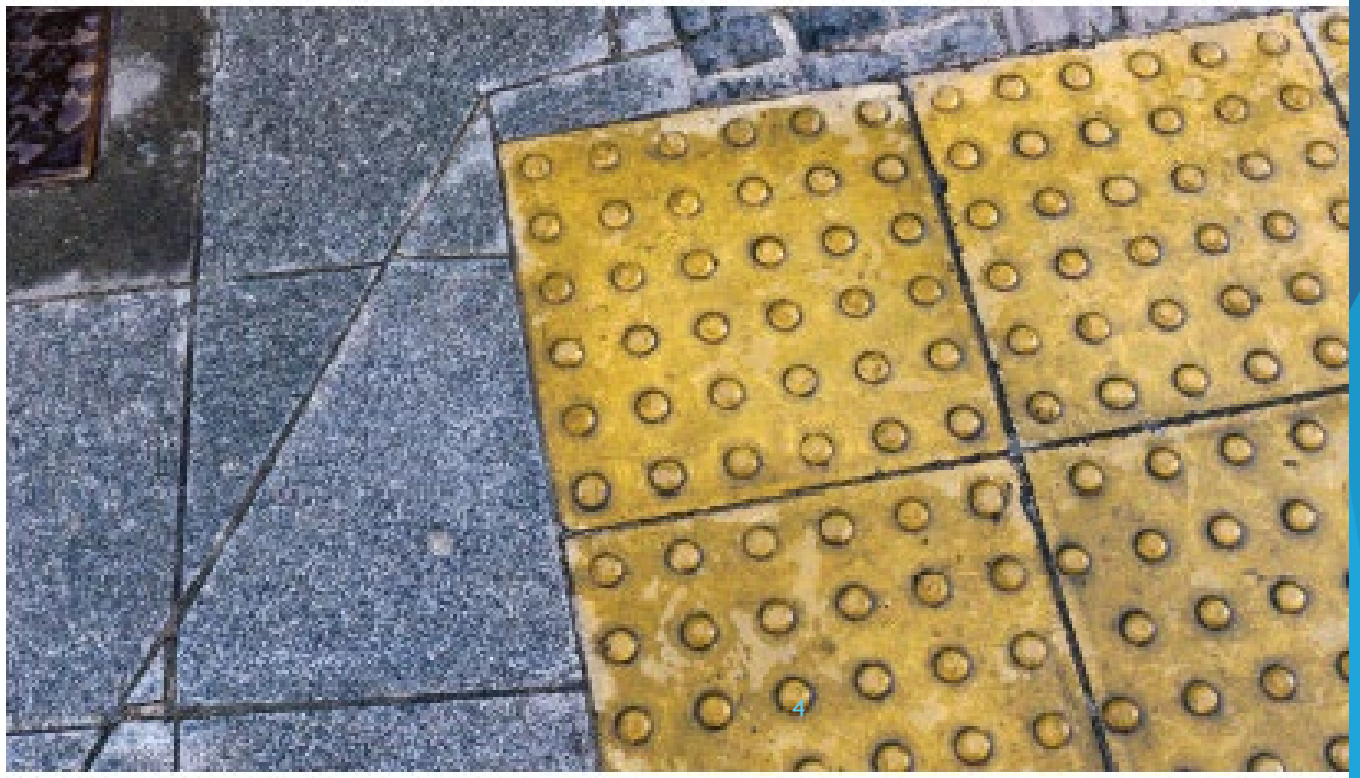
Aims of today

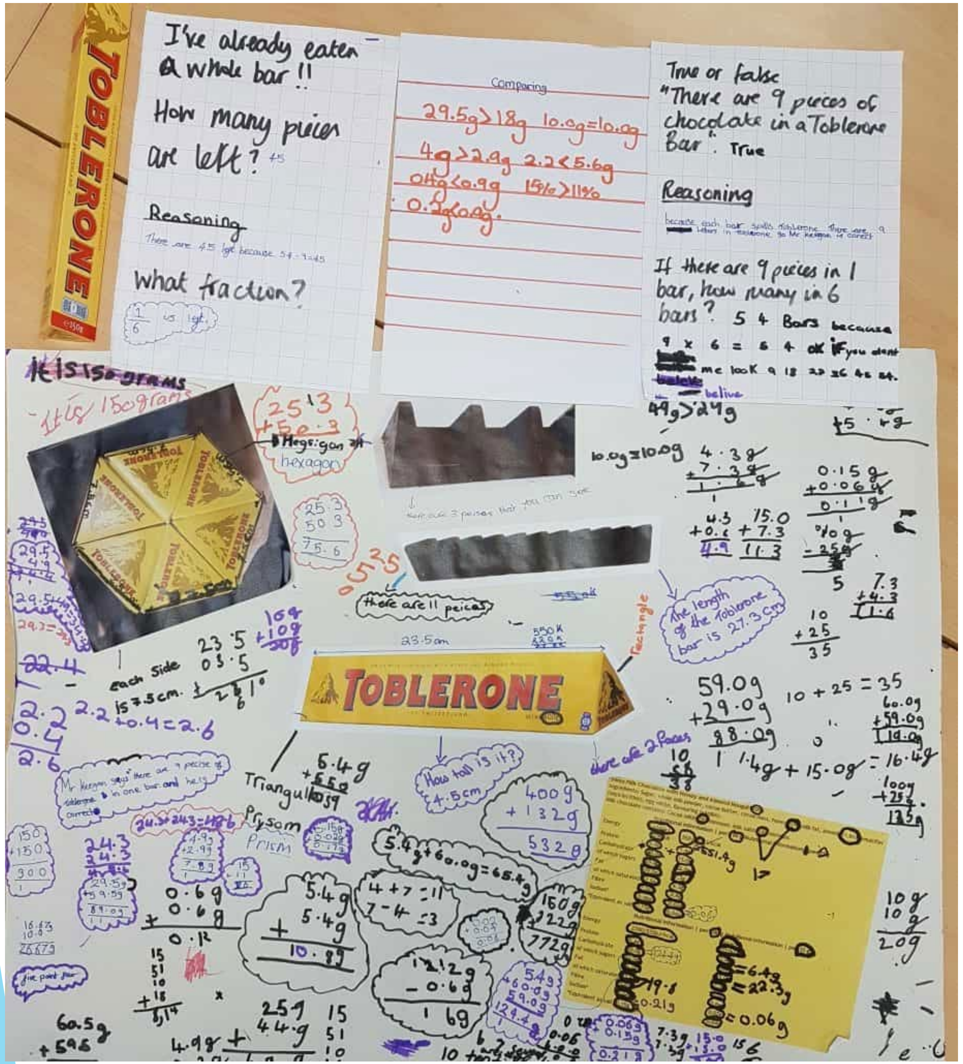
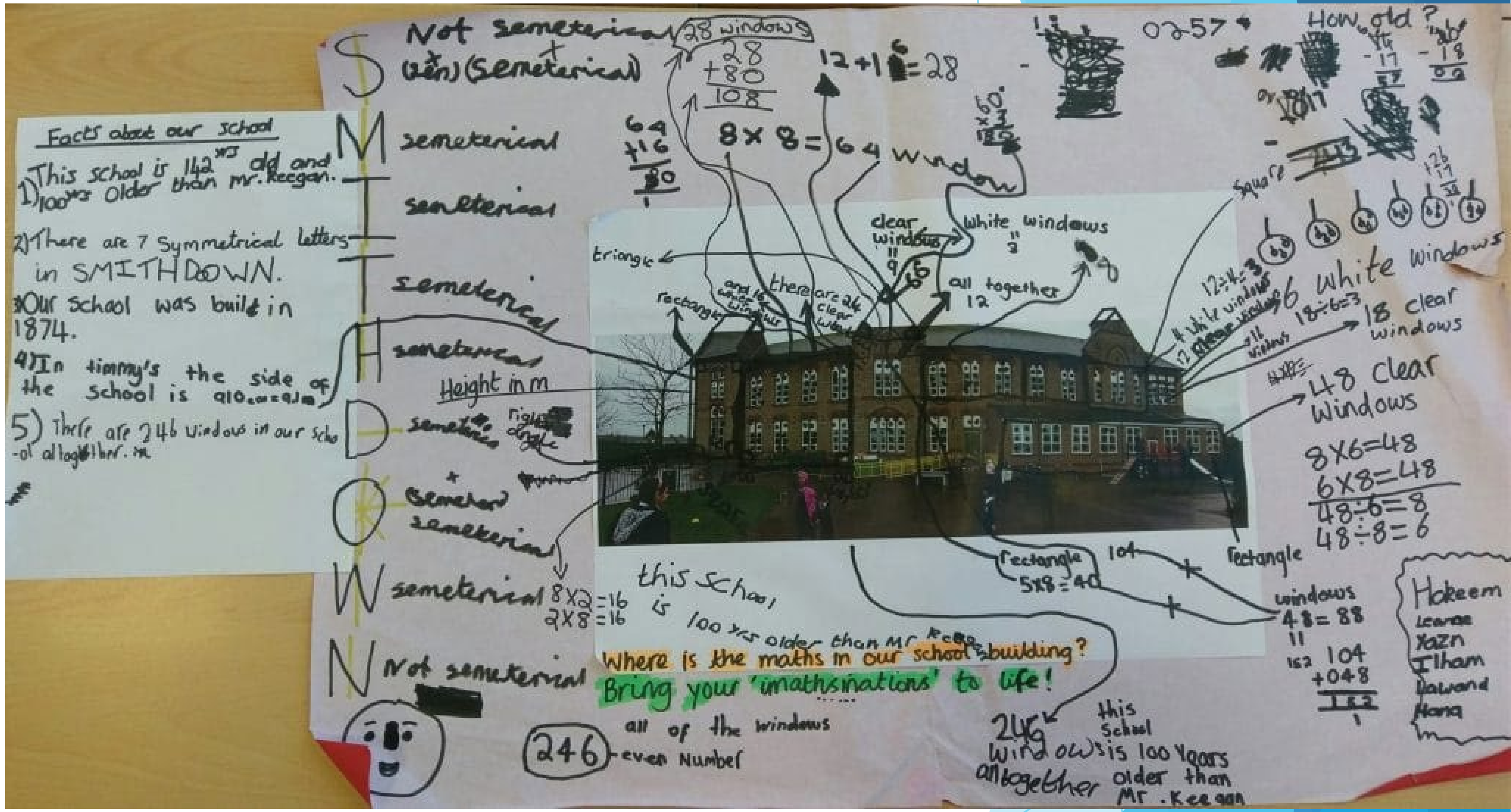
- To provide parents with an overview of the CPA approach and how it enables pupils to develop conceptual understanding.

- To raise parents' confidence in supporting pupils with their Maths.

- To enjoy sharing learning with your children.

- What does this picture remind you of?
- Does anyone know what the yellow squares might be used for on a footpath?
- Describe what you see.
- What would the different surfaces feel like to walk on?
- What shapes can you see?
- How could you count the circles on each square?
- Is there a quick way of counting them?
- Is there the same number of circles on each square?
- How many circles are hidden in the bottom yellow squares?
- What other shapes can you see (irregular pentagons, triangles, hexagons)?
- Can you see any straight lines on any shapes?
- Can you see any square numbers?
- Can you see any other square numbers?
- Can you use maths words to describe what you see?
- Is the pattern on all the yellow squares the same?




TOBLERONE
I've already eaten a whole bar!!
How many pieces are left?
Reasoning
What fraction?
Comparing
29.5g>18g 10.0g=10.0g
4g>2.9g 2.2<5.6g
0.4g<0.9g 15%>11%
0.2g<0.9g
True or false
"There are 9 pieces of chocolate in a Toblerone Bar". True
Reasoning
If there are 9 pieces in 1 bar, how many in 6 bars? 54 Bars because
9 x 6 = 54
It is 150 grams
Hexagon
there are 11 peices
Triangular Prism
TOBLERONE
How tall is it? 4.5cm
The length of the Toblerone bar is 27.3cm
59.0g
+29.0g
88.0g
400g
+132g
532g

Not semeterical
semeterical
Facts about our school
1) This school is 142 yrs old and 100 yrs older than Mr. Keegan.
2) There are 7 symmetrical letters in SMITHDOWN.
3) Our school was build in 1874.
4) In timmy's the side of the school is 910.
5) There are 246 windows in our school altogether.
28 windows
8 x 8 = 64 windows
12 + 16 = 28
How old?
clear windows
white windows
all together 12
triangle
rectangle
Height in m
6 white windows
18 clear windows
48 clear windows
8X6=48
6X8=48
48÷6=8
48÷8=6
Square
rectangle
this school is 100 yrs older than Mr Keegan
Where is the maths in our school building?
Bring your 'imathsinations' to life!
246 all of the windows even Number
246 windows altogether
this school is 100 Years older than Mr. Keegan
Hakeem
Yazn
Ilham

"Why do they do it differently these days?"

1. Learning has changed considerably since we were at school.
2. The expectations of children and their knowledge, skills and understanding is different.
3. The methods pupils are required to use are different.
4. The way children learn is very different
5. Why do you do it that way when this way is quicker?

Why?

- To allow our children to understand problems and see things in a different way.
- To enable our pupils to make good progress.
- To prepare them with the essential life skills to be successful now.

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TOGETHER
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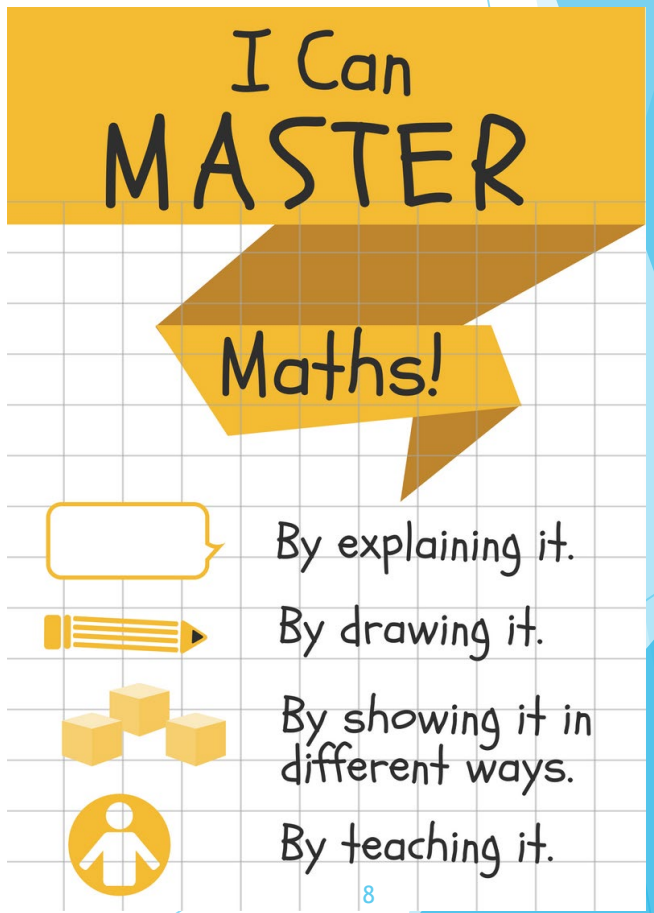
What were your experiences of Maths you had when you were a child?

The positive and negative?

To be successful in Maths, we recognise that pupils need to develop their conceptual understanding. In other words, pupils don't only need to be able to recall facts quickly, they also need to be able to apply their knowledge in a range of different contexts, including those that are new and unfamiliar.

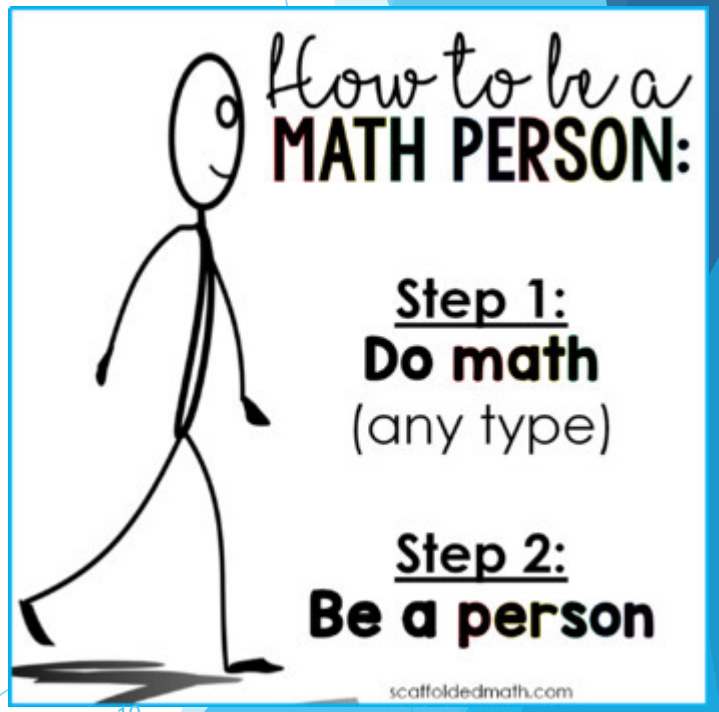
This is the idea at the heart of 'Maths Mastery', an approach to Maths based upon best practice found in Singapore.



Creating a positive attitude to maths

- ✓ Talk to your children about everyday maths
- ✓ Play maths games with them
- ✓ Value mistakes as learning opportunities
- ✓ Recognise that there is more than one way to work things out
- ✓ Praise children for effort over outcome
- ✓ Avoid saying things like "I'm useless at maths"

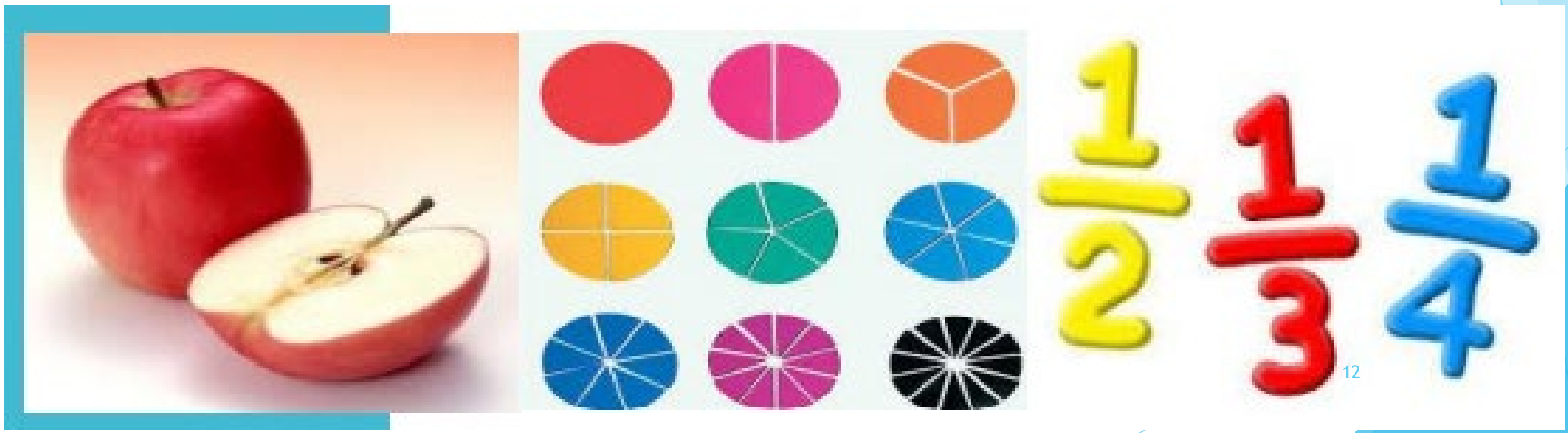
- We have a go.
- We make mistakes and learn from them.
- We ask questions.
- We think about what we are doing.
- We talk about what we are doing.
- We draw and write about what we are doing.
- We say 'I can't do that YET!'
- We use equipment/diagrams/bar models to help us.
- We celebrate our efforts.
- We keep going when it is difficult.
- We work together so we can all achieve.
- We take our time for deeper understanding.
- We are learning to be mathematicians.



Maths at All Saints'

- Greater Depth
- Class working together
- Longer time on topics
- Rapid graspers are not moved on to new content. They are given opportunities to explore concepts at greater depth
- Breadth and depth rather than speedy progress
- Encourage high quality 'maths talk' where children are encouraged to use the correct mathematical vocabulary
- Children are encouraged to ask why? How do we know?
- Use mathematical equipment
- Concrete, Pictorial, Abstract- Do it, Draw it, Write it
- Discussing mathematical ideas/thinking/verbalising and reasoning
- Thinking 'outside the box'

The CPA Approach

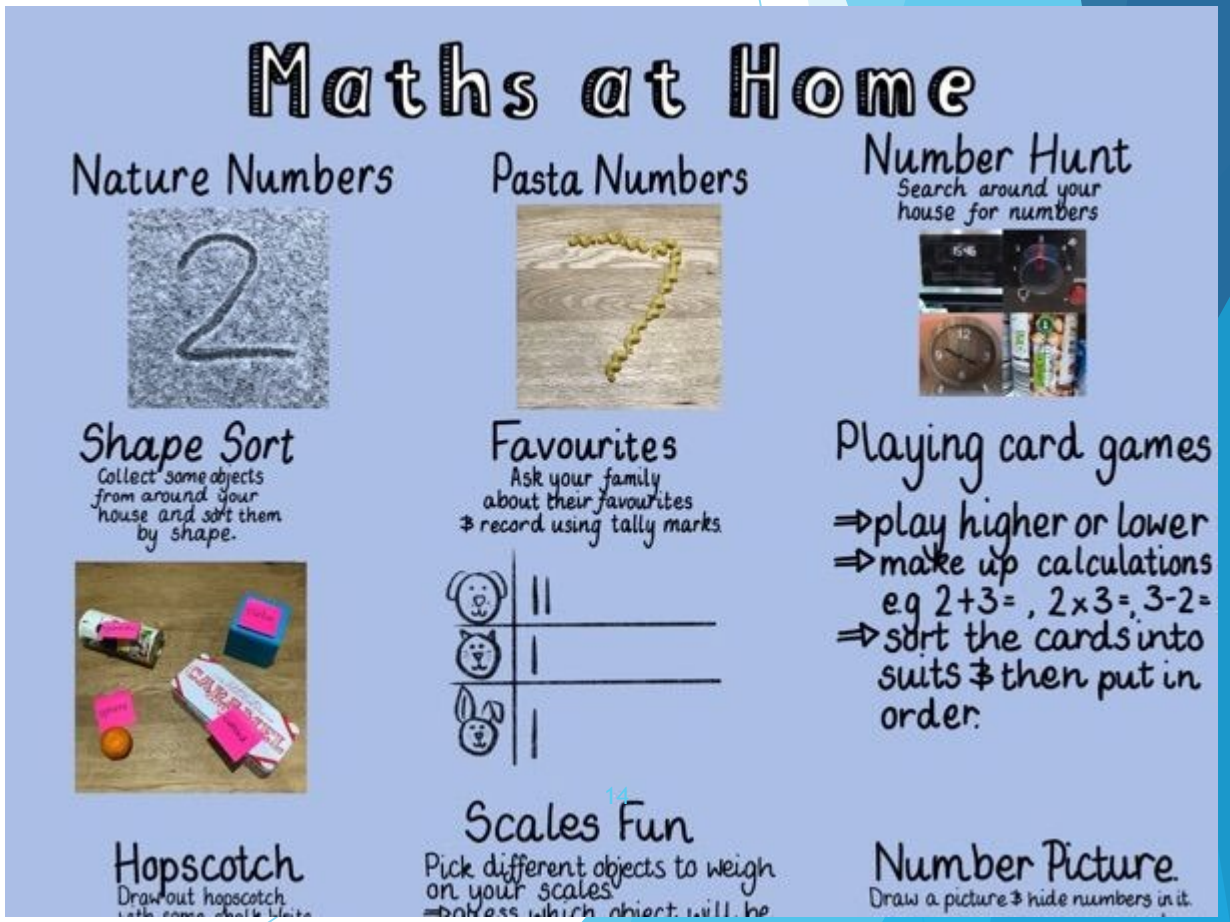


Concrete- The 'doing' stage.

Pupils use concrete objects to solve problems.

It brings concepts life by allowing children to handle physical objects themselves.

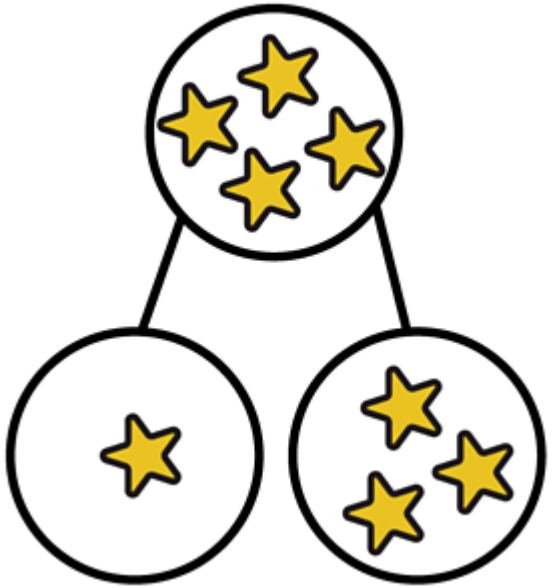
Concrete resource at home.

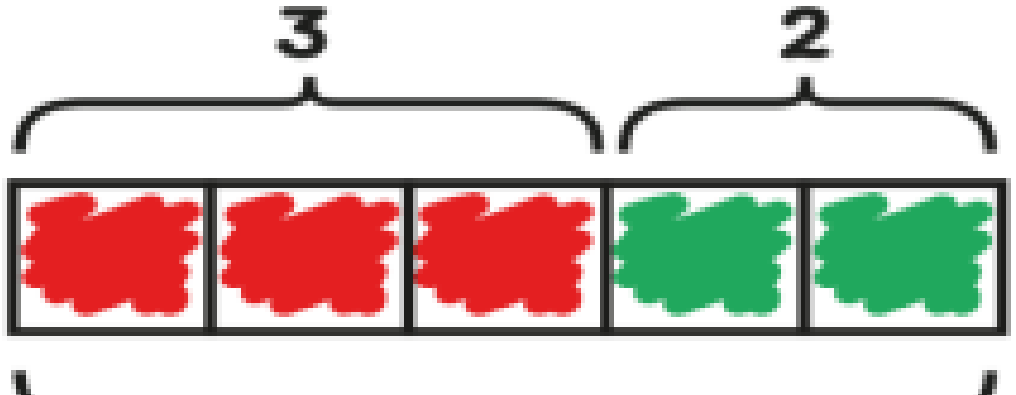


Pictorial- The 'seeing stage.

Pupils use representations of the objects involved in maths problems.

This stage encourages children to make a mental connection between the physical object and abstract levels of understanding, by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem.

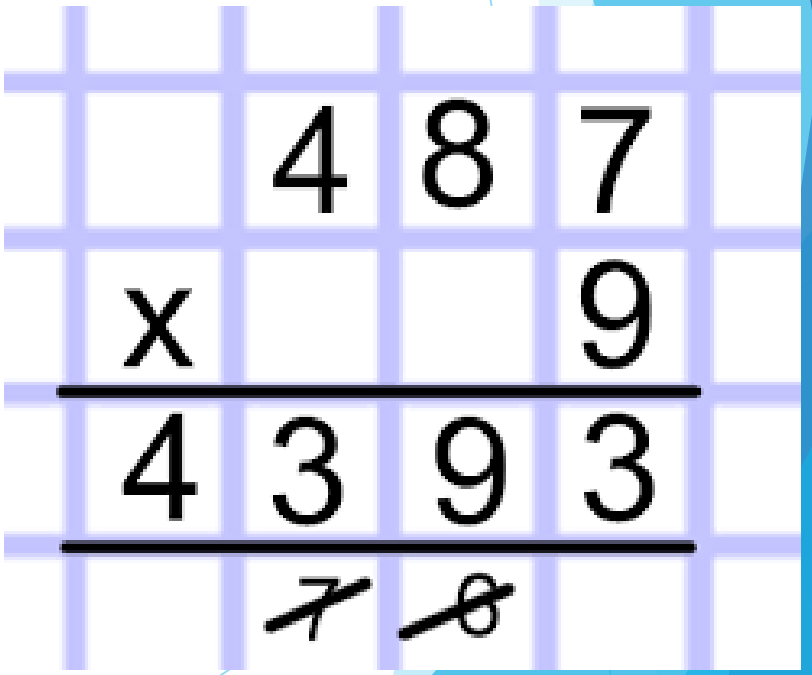




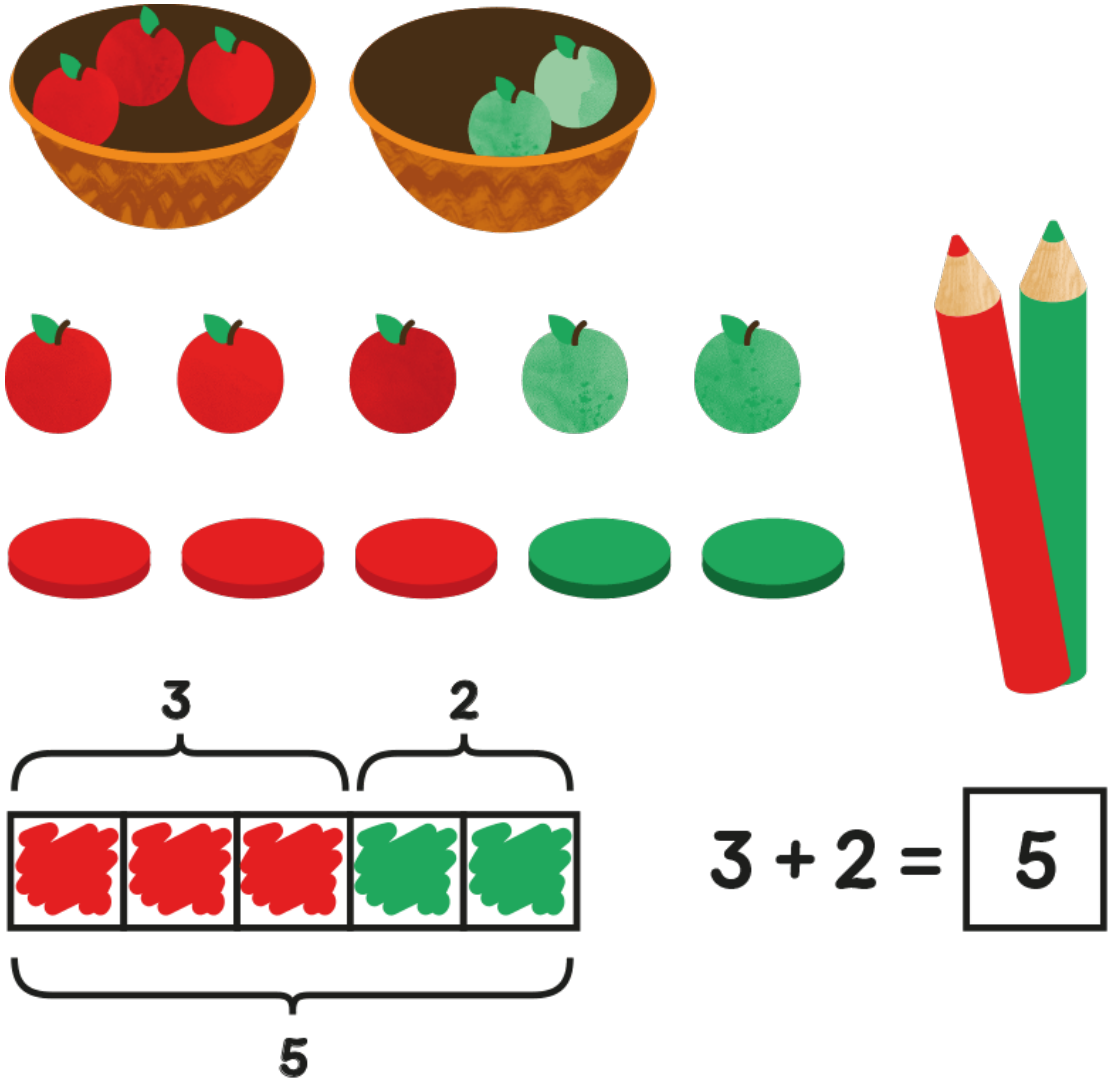
Abstract- The 'symbolic' stage.

This is where children are able to use abstract symbols to model and solve maths problems.

$$3 + 2 = \boxed{5}$$



The CPA Approach



All Saints' Primary School
Mathematics Calculation Policy

Let's take a look

Math Operations	Symbols	Other Words	
Addition	+	**sum** Altogether all in all	together total total number add
Subtraction	−	**minus** greater than more than take away fewer than less than	How many more? How many left? How many less? subtract difference is left
Multiplication	× ●	**product** multiply multiplied by times	
Division	÷ /	**quotient** dividend divide divided by	each per average divide equally
Equal	=	the same equals the same as is equal to equivalent	

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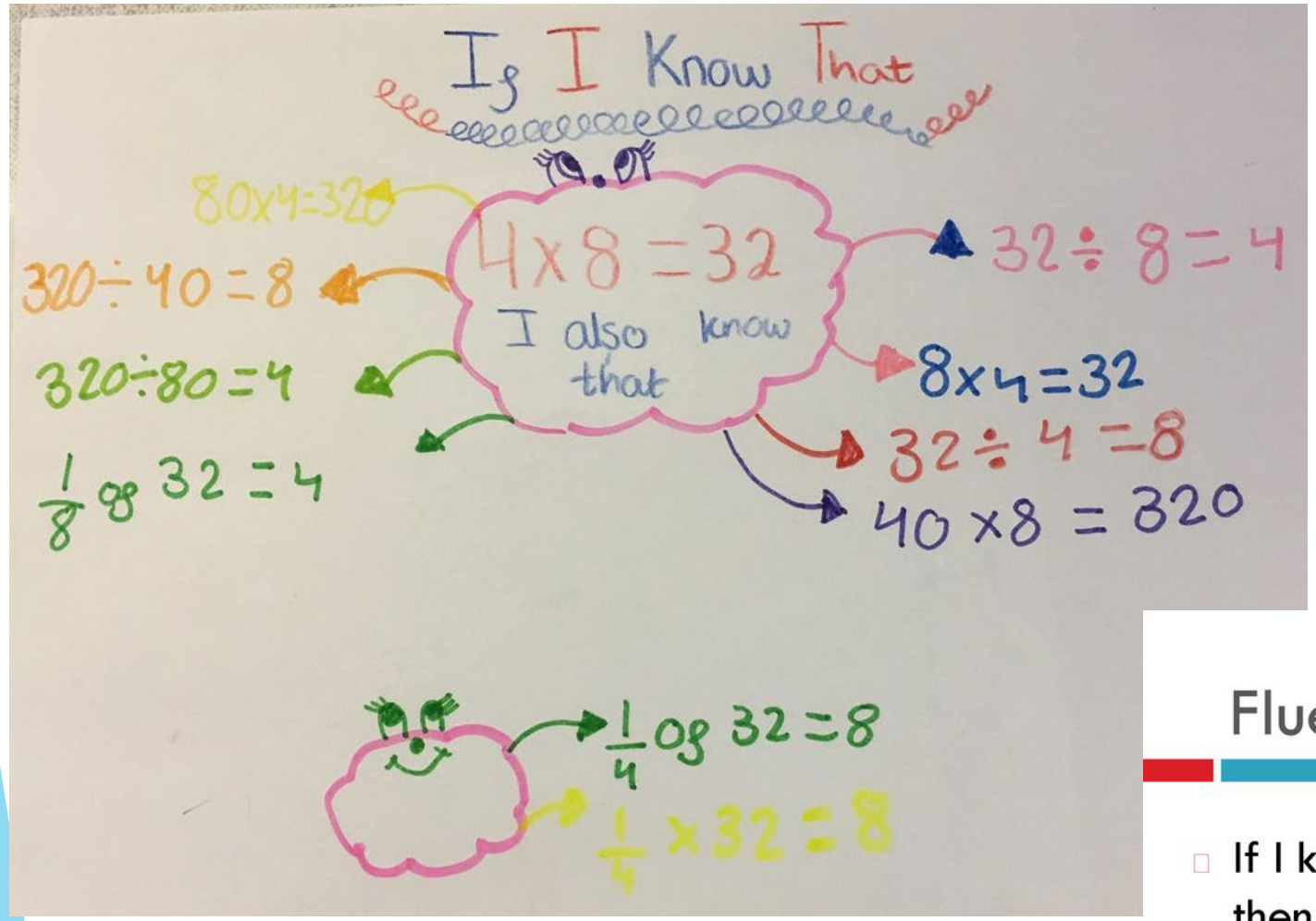

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TOGETHER
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Fluency about facts

- If I know 3 +3 = 6
  then I know……

- 3 + 4 = 7
- 30 + 30 = 60
- 33 + 3 = 36

$$\begin{array}{r} 23 \\ +14 \\ \hline \\ \hline \end{array}$$

Multiplication using arrays in KS1

https://www.youtube.com/watch?v=8ooE6XAelTI

Column addition (with exchanging) | Addition and subtraction | Year 3 Maths

https://www.youtube.com/watch?v=hwxyheQNXBU&list=PLTzvIwmmEL9MehEbBXoCtmPmKUWMpD0yf&index=3&t=125s

Divide a 4-digit number by a 1-digit number- Year 5

https://vimeo.com/771242200

Now it's your turn…

a) 5 + 9 = _____

b) 37 + 9 = _____

c) 63 + 7 = _____

d) 50 – 7 = _____

e) 61 + 29 = _____

f) 26 + 74 = _____

g) 71 – 3 = _____

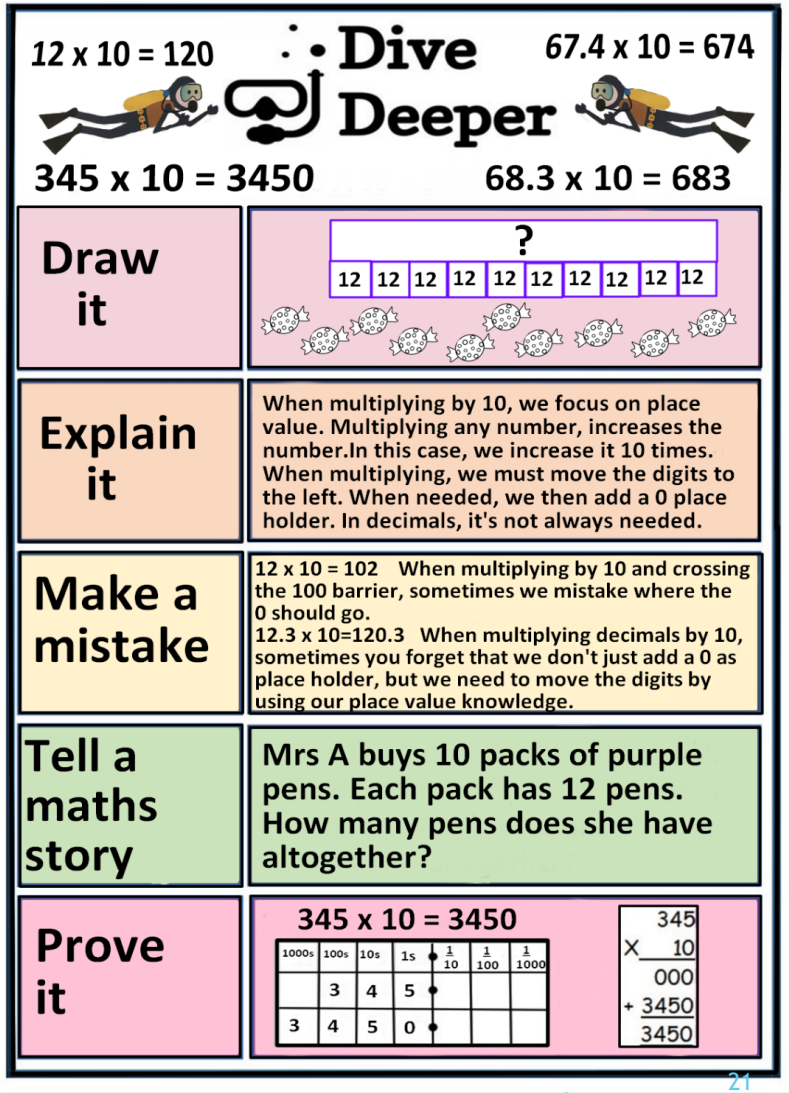
h) 41 – 37 = _____

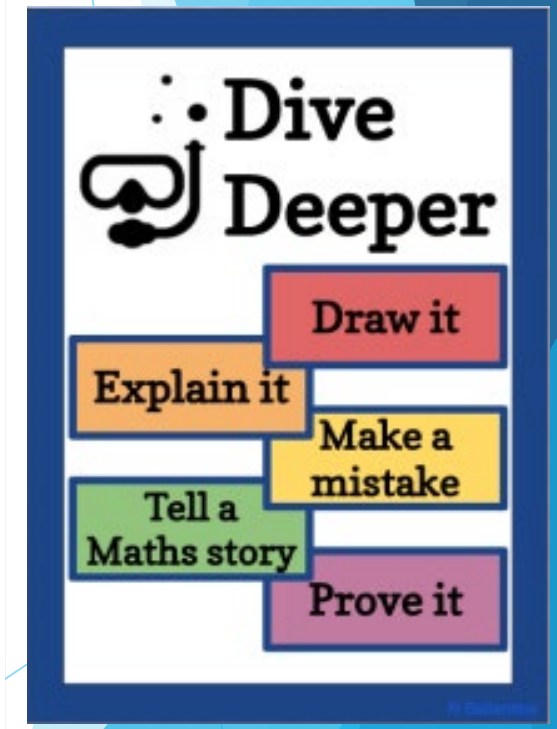
i) 763 + 20 = _____

j) 673 + 300 = _____

k) 93 + 199 = _____

l) 433 - 99 = _____





Now it's your turn…

Multiplication

1) 40 x 2 =
2) 77 x 4 =
3) 38 x 7 =
4) 56 x 5 =
5) 88 x 6 =

Division

1) 80 ÷ 2 =
2) 63 ÷ 3 =
3) 72 ÷ 2 =
4) 52 ÷ 4 =
5) 155 ÷ 5 =

12 x 10 = 120 — Dive Deeper — 67.4 x 10 = 674

345 x 10 = 3450 — 68.3 x 10 = 683

Draw it	? above 12 12 12 12 12 12 12 12 12 12
Explain it	When multiplying by 10, we focus on place value. Multiplying any number, increases the number.In this case, we increase it 10 times. When multiplying, we must move the digits to the left. When needed, we then add a 0 place holder. In decimals, it's not always needed.
Make a mistake	12 x 10 = 102 When multiplying by 10 and crossing the 100 barrier, sometimes we mistake where the 0 should go. 12.3 x 10=120.3 When multiplying decimals by 10, sometimes you forget that we don't just add a 0 as place holder, but we need to move the digits by using our place value knowledge.
Tell a maths story	Mrs A buys 10 packs of purple pens. Each pack has 12 pens. How many pens does she have altogether?
Prove it	345 x 10 = 3450 1000s 100s 10s 1s 1/10 1/100 1/1000 3 4 5 3 4 5 0 345 x 10 = 000 + 3450 = 3450

Dive Deeper

Draw it
Explain it
Make a mistake
Tell a Maths story
Prove it