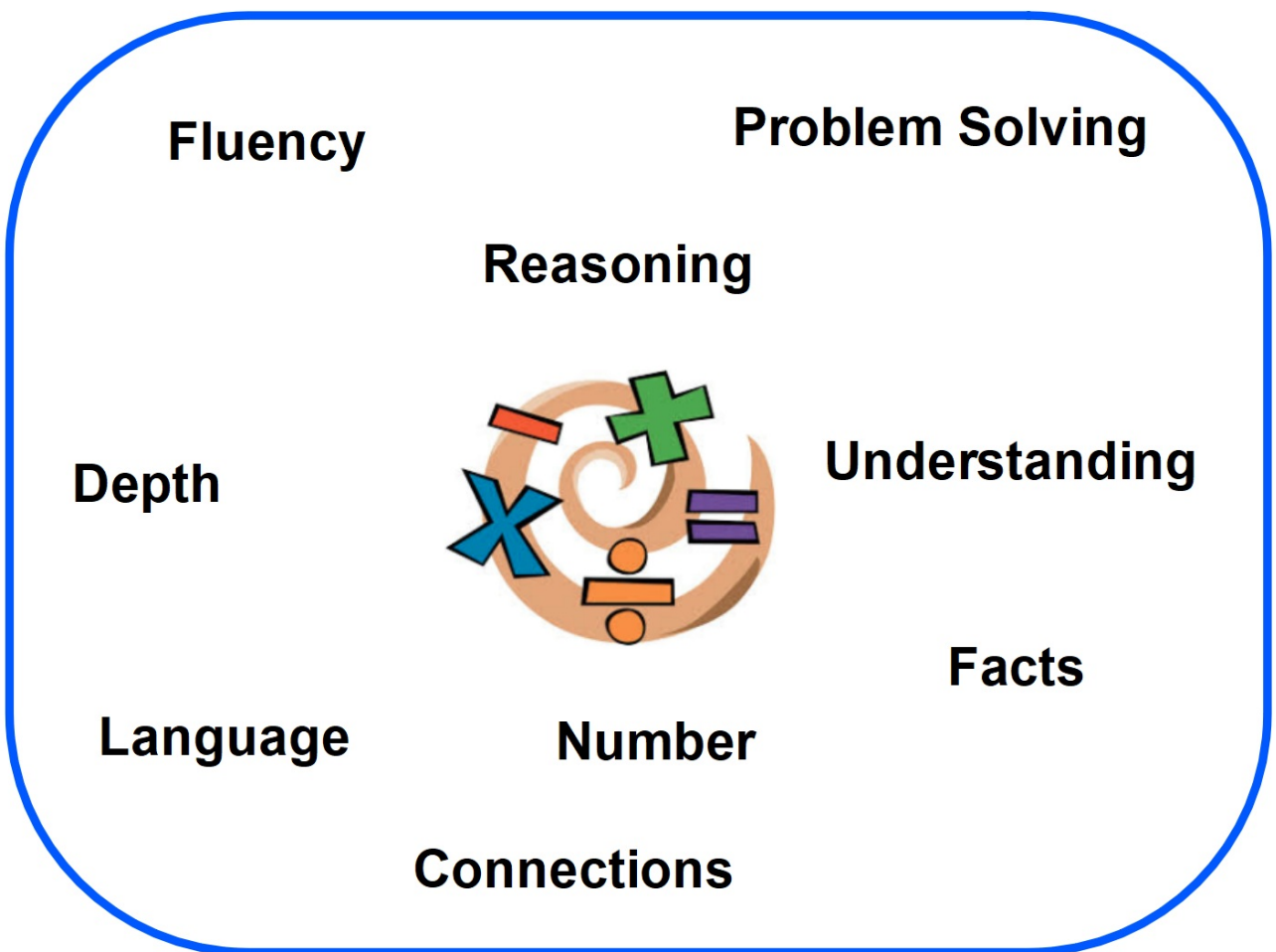
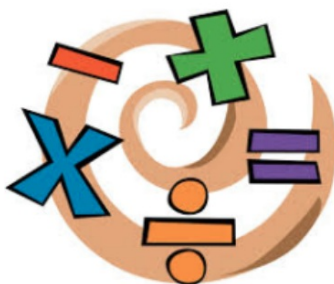


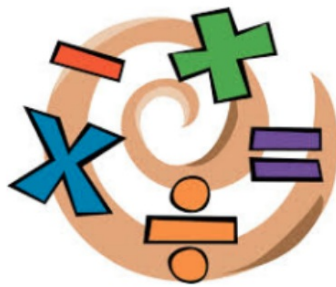


Mathematics in Year 1

Teaching for Mastery



An Introduction to Teaching for Mastery



Everyday Context - What is mastery?

What does it mean to master something?

Why do we teach for mastery?

- Change in the curriculum in 2014.
- The content and principles underpinning the 2014 mathematics curriculum reflect those found in high performing international education systems.
- Big emphasis on **fluency, reasoning and problem solving**.
- **Number** at the heart of everything!

The three aims of the new maths curriculum are:

- **Fluency**
- **Reasoning**
- **Problem solving**



Teaching for Mastery

A closer look!



- Number sense and place value come first
- Opportunities to solve problems!
- Challenge
- Reasoning and making connections
- Knowing... **why** **that** **how**

A year 1 example

number sense

reasoning

problem solving

Mo and Jack are working out $11 + 7$

Mo says,



11, 12, 13, 14, 15, 16, 17

Jack says,



12, 13, 14, 15, 16, 17, 18

Use a number line to show who is correct.



Why don't I include my start number when counting on?

Example of a greater depth place value question for Year 2.

Mastery with Greater Depth

Which number could be the odd one out? Why?

40	71	65
----	----	----

Sam says 40 is the odd one out.
What reasons did she give?

Concrete, Pictorial & Abstract Approach



Resources

We use a CPA approach!

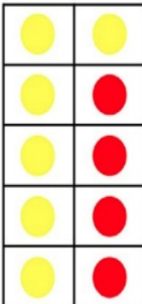
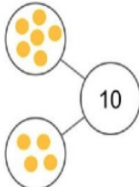
3 phases to allow children to explore and make connections



Example There are 4 people sitting on a wall.
How many ears were there altogether?
Prove your answer!



Examples of the resources we use!

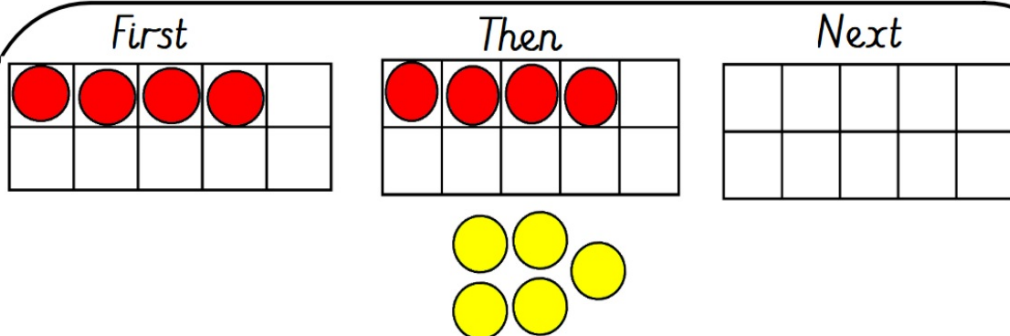
 $6 + 4 = 10$ $4 + 6 = 10$ $10 - 4 = 6$ $10 - 6 = 4$	 $6 + 4 = 10$ $4 + 6 = 10$ $10 - 4 = 6$ $10 - 6 = 4$	<table border="1"><tr><td colspan="2">10</td></tr><tr><td>6</td><td>4</td></tr></table> $6 + 4 = 10$ $4 + 6 = 10$ $10 - 4 = 6$ $10 - 6 = 4$	10		6	4
10						
6	4					
Tens Frame	Part Whole Model	Bar Model				



Examples of the resources we use!

A tens frame in action....

Can you complete the Next ten frame?



Can you say the addition sentences?

Knowledge of Number



Number Facts

Number is at the heart of maths!

It is essential for development.



Recalling facts

Counting

Calculating

To help build number sense and fluency we ...

We use the year 1 and year 2 addition facts. Please see your handout! Strategies are on the back!

Adding 1

Bonds to 10

Adding 10

Bridging/compensating

Adding 2

Adding 0

Doubles

Near doubles

Y1 facts

Y2 facts

+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6	4 + 7	4 + 8	4 + 9	4 + 10
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5	5 + 6	5 + 7	5 + 8	5 + 9	5 + 10
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4	6 + 5	6 + 6	6 + 7	6 + 8	6 + 9	6 + 10
7	7 + 0	7 + 1	7 + 2	7 + 3	7 + 4	7 + 5	7 + 6	7 + 7	7 + 8	7 + 9	7 + 10
8	8 + 0	8 + 1	8 + 2	8 + 3	8 + 4	8 + 5	8 + 6	8 + 7	8 + 8	8 + 9	8 + 10
9	9 + 0	9 + 1	9 + 2	9 + 3	9 + 4	9 + 5	9 + 6	9 + 7	9 + 8	9 + 9	9 + 10
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10



ASHLEY DOWLING

This helps with progression from Year 1 to Year 2!

A suggested progression for teaching addition facts

Group A: Year 1 (Within 10)

1. Adding 1 (e.g. $7 + 1$ and $1 + 7$)
2. Doubles of numbers to 5 (e.g. $4 + 4$)
3. Adding 2 (e.g. $4 + 2$ and $2 + 4$)
4. Number bonds to 10 (e.g. $8 + 2$ and $2 + 8$)
5. Adding 10 to a number (e.g. $5 + 10$ and $10 + 5$)
6. Adding 0 to a number (e.g. $3 + 0$ and $0 + 3$)
7. Near doubles (e.g. $3 + 4$ and $4 + 3$)
8. The ones without a family! $5 + 3$, $3 + 5$, $6 + 3$, $3 + 6$

Group B: Year 2 (Bridging 10)

9. Doubles of numbers to 10 (e.g. $7 + 7$)
10. Near doubles (e.g. $5 + 6$ and $6 + 5$)
11. Bridging (e.g. $8 + 4$ and $4 + 8$)
12. Compensating

Can be used
somewhat
interchangeably

Alongside

Partitioning 2, 3, 4, 5, 6 and 10

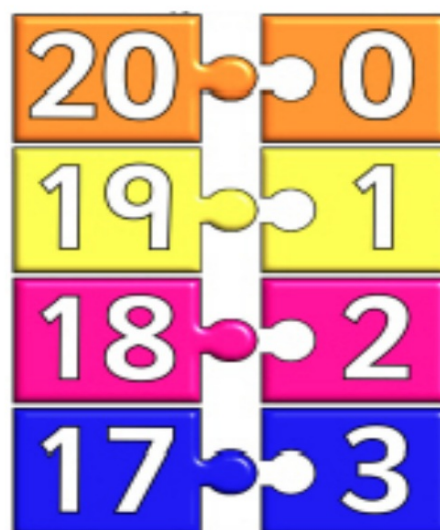
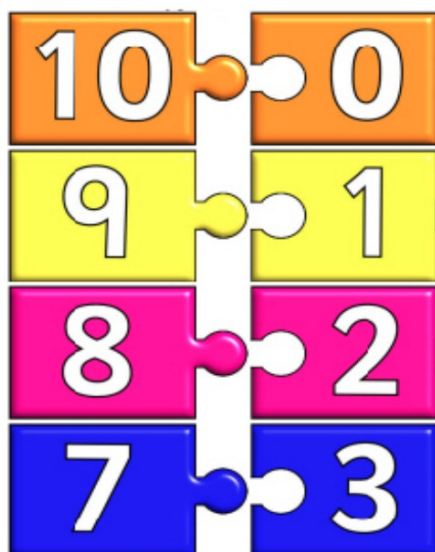
Partitioning 7, 8 and 9

Partitioning 11 – 20 into
single digit addends

In Year 1 we practice our **number bonds**.

They help us to make connections!

If I know $8 + 2 = 10$ then I know... $18 + 2 = 20$!



Different ways to make a number

Using a systematic approach...



$$7+0 = 7$$

$$6+1 = 7$$

$$5+2 = 7$$

$$4+3 = 7$$

$$3+4 = 7$$

$$2+5 = 7$$

$$1+6 = 7$$

$$0+7 = 7$$

Questioning





Questions

In order to **develop** children's understanding and fluency, we ask questions that **encourage and develop mathematical reasoning**.

- Ask a child to explain how they worked out a calculation or solved a problem!

Jack has 6 sunflowers.

Rosie has more than Jack.

Amir has more than Rosie.



Who has the least amount of sunflowers?



Deep Challenge
Explain your answers using...
- I know because...
- This cannot be right because...
- I know that...





- If I am counting up in the 2x table I will eventually say the number 7.

- The number 10 is in the 2, 5 and 10x table because it ends in a 0.

Maths at our school

Maths is taught in 2 ways.

- 1) We have our whole class 50-60 minute maths lessons once a day.
- 2) We also have a separate fluency block lesson. These are 10-15 minutes.

Let's take a look...

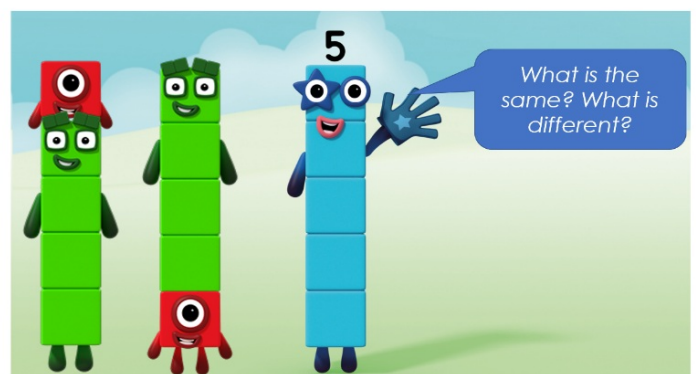
Fluency Block lessons

Fluency Block sessions are fun and interactive.

The lessons build on each other and the project runs from Reception to the end of Year 2.

The aim is to develop a good number sense for all children.

The goal that all children leave KS1 with fluency in calculation and a confidence and flexibility with number.



Take a look at a PP.

Fluency Block lessons

Lessons often include videos from NumberBlocks.

<https://www.youtube.com/watch?v=OBsW0vQvjcw&t=13s>

The children love these videos, you can watch them at home and we highly recommend them.

You can watch them on youtube or the BBC.

For our whole class lessons, we create our own flips to meet the needs of all our children.

A quick look at one of the flips that we use to teach your children!



Keep your eyes peeled for:

- fluency (knowledge of numbers)
- opportunities to explain your answers
- Concrete - Pictorial - Abstract

Year 1 maths overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	-Place Value within 10 -Addition & Subtraction within 10	-Addition & Subtraction within 10 cont. -Geometry: Shape -Consolidation	-Place Value within 20 -Addition & Subtraction within 20	-Place value within 50 -Length & Height -Mass & Volume	-Multiplication & Division -Fractions -Geometry: Position & Division	-Place Value within 100 -Measurement: Money -Measurement: Time -Consolidation

This overview is on the handout.

We will provide more information on the units we are teaching at parents evening

Helping at home!



How you can support at home

- Watch Numberblocks
- Counting & calculating
- Looking at numbers around the house!
- Times table facts
- Telling the time
- Days, months of the year
- Measuring and weighing
- Comparing heights and length
- Paying at the shop and working out the change
- 2D and 3D Shapes
- Playing games (snakes and ladders, dominoes, darts! etc)
- Homework

Extra Information

- Please keep your eyes peeled for any extra info on the school website.

Any questions?

