English and Maths at St John's

Read Write Inc.

Power of Reading
A CLPE RESOURCE

White Rose Maths

Power Maths

Phonics

Read Write Inc.

Complex Speed Sounds

Consonant sounds

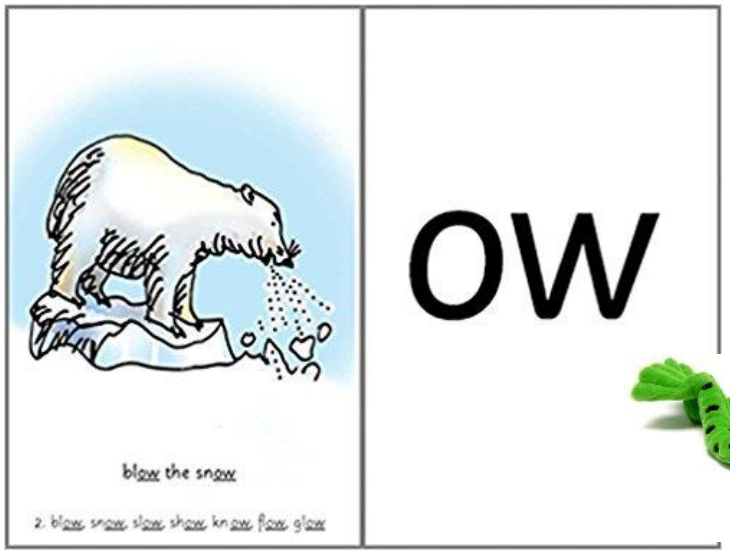
f ff ph	l ll le	m mm mb	n nn kn	r rr wr	s ss se c ce	v ve	z zz s se	sh ti ci	th	ng nk

b bb	c k ck ch	d dd	g gg	h	j g ge dge	p pp	qu	t tt	w wh	x	y	ch tch

Vowel sounds

a	e ea	i	o	u	ay a-e ai	ee y ea e	igh i-e ie i y	ow o-e oa o

oo u-e ue ew	oo	ar	or oor ore aw au	air are	ir ur er	ou ow	oy oi



at	mad
sad	dad
sat	mat

I	the
you	your
said	was

Spelling

Spelling Phases

1.Explore & Investigate

2. Explore, Investigate & define

3. Teach, Model & Use

4. Practise

5. Reflect

6. Revisit & Practice

7. Revisit & Explore

8. Use, Apply & Assess

KS1 - Carousel Guided Reading

	Yellow	Green	Blue	Purple	Red
Monday	Read with teacher	Skills	Comprehension task	Quiet reading	SPaG
Tuesday	SPaG	Read with teacher	Skills	Comprehension task	Quiet reading
Wednesday	Quiet reading	SPaG	Read with teacher	Skills	Comprehension task
Thursday	Comprehension task	Quiet reading	SPaG	Read with teacher	Skills
Friday	Skills	Comprehension task	Quiet reading	SPaG	Read with teacher

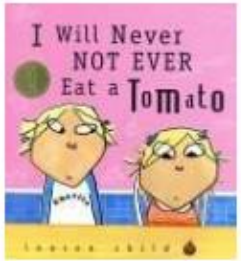
KS2 – Whole Class Reading

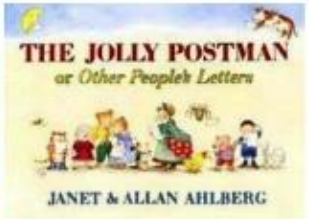
Word Experts	Information Retrievers	Justifying with Evidence	Digging for Deeper Meaning	Life Long Readers
2a- give/explain the meaning of words in context	2b- retrieve and record information	2d- make inferences from the text/explain and justify inferences with evidence from the text	2f- identify/explain how information/narrative content is related and contributes to meaning as a whole	Develop a love for reading!
	2c- summarise main ideas from more than one paragraph		2g- identify/explain how meaning is enhanced through choice of words and phrases	
	2e- predict what might happen from details stated and implied		2h- make comparisons within the text	

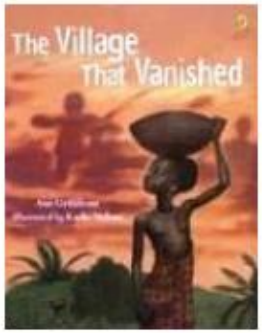
Writing

CLPE
CENTRE FOR LITERACY IN PRIMARY EDUCATION

Quality children's literature at the heart of all learning







The Power of Reading High Quality Texts

What is the Power of Reading?

- The Power of Reading is about teaching Literacy through using high quality books and creative teaching approaches (such as art and drama).
- This approach aims to engage and motivate children in their literacy learning.
- It also enables children to deepen their understanding of texts and provides a meaningful context for writing.

How are the texts used?

- A quality text will be used as the basis for learning over several weeks.
- Children will explore and discuss the text through creative activities.
- They will also write in a range of genres as part of the unit. For example they might write a letter in role as a character or write a newspaper recount about the events in the text.

Cross-curricular literacy

- Engages and motivates
- Supports and challenges all children through a range of experiences that create a broad and rich basis for writing.

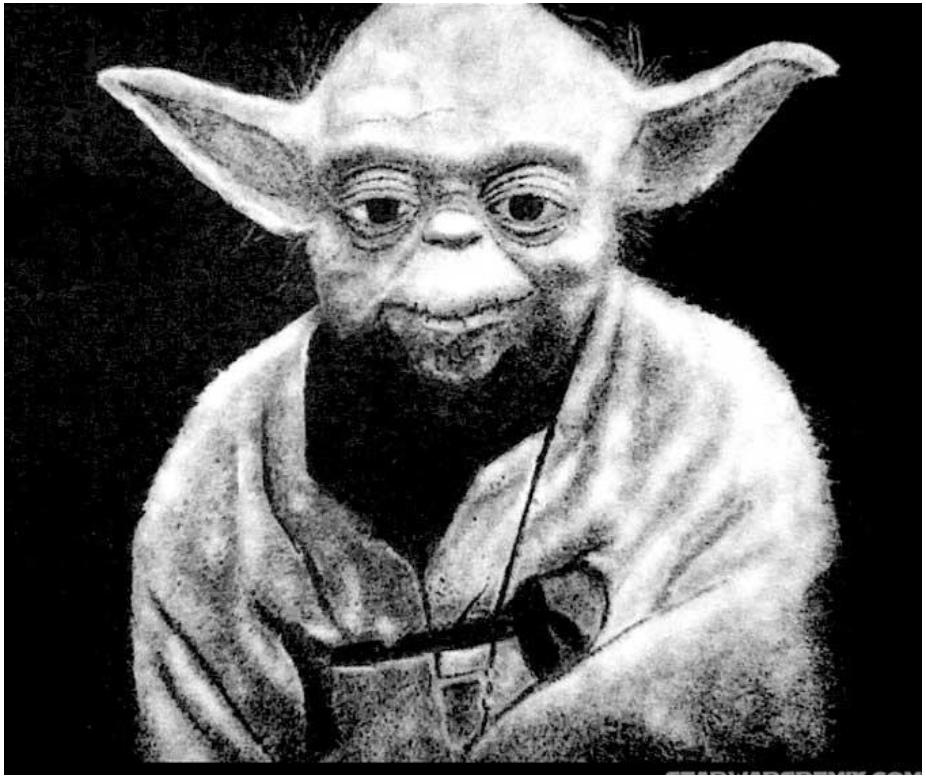
Our national curriculum

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace.

Pupils who grasp concepts rapidly should be challenged through rich and sophisticated problems.

- become **fluent** in the fundamentals of maths, including through **varied** and **frequent** practice, so that pupils develop conceptual understanding and **recall and apply** knowledge
- **reason** mathematically by following a line of enquiry, **conjecturing relationships** and **generalisations**, and using **mathematical language**
- can solve problems by **applying** their mathematics to a variety of **routine and non-routine problems**.

What does it mean to master something?



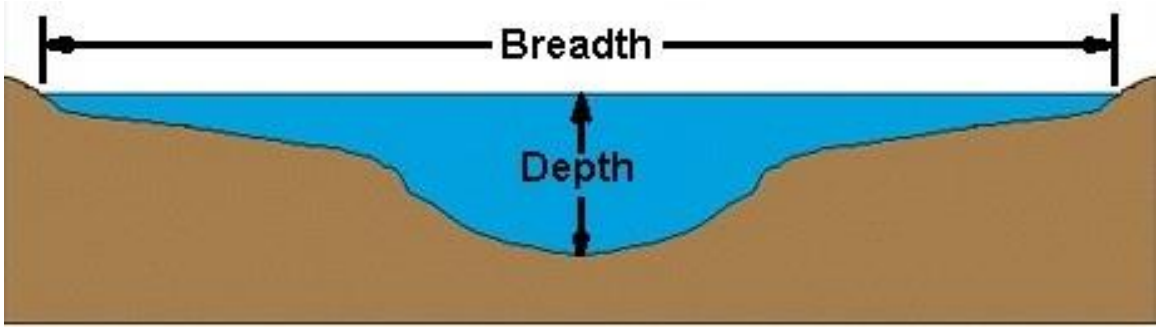
Mastery of Maths is more...

- Achievable for all
- **Deep** and sustainable learning
- The ability to build on something that has already been sufficiently mastered
- The ability to reason about a concept and make connections
- Conceptual and procedural fluency

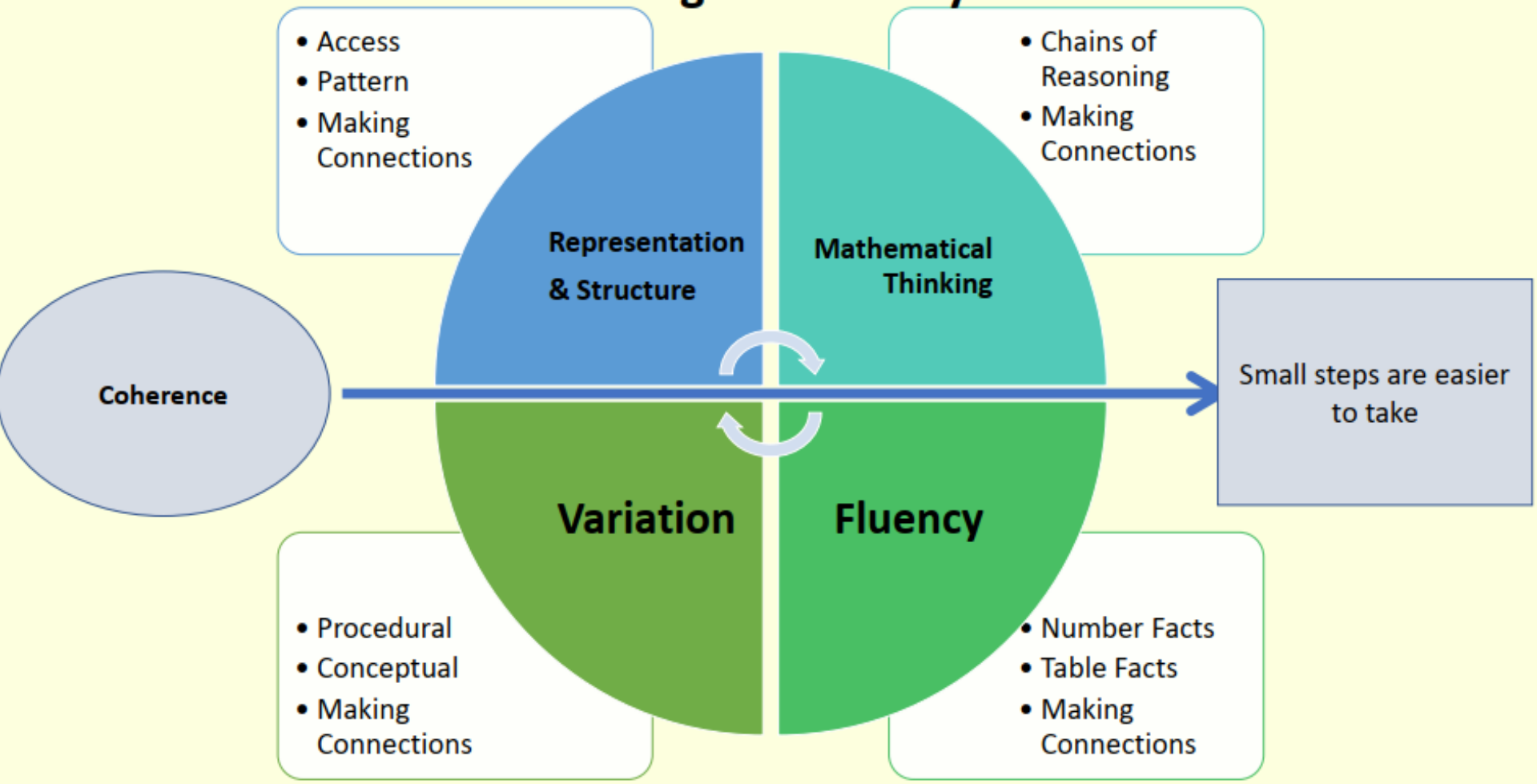
Teaching for Mastery

- The belief that all pupils can achieve
- Keeping the class working together conceptually so that all can access and master mathematics
- Development **of deep** mathematical understanding
- Development of both factual/procedural and conceptual fluency
- Longer time on key topics, providing time to go deeper and embed learning

What is depth?



Teaching for Mastery



Concrete, Pictorial

Representation and structure

"Meaning does not reside in tools; it is constructed by students as they use tools"

(Hiebert 1997 p 10) Cited in Russell (May, 2000). *Developing Computational Fluency with Whole Numbers in the Elementary Grades*

So, the more that we use different representations and structures to vary the presentation of concepts when teaching, the more children will be able to approach problem solving from different angles.

CONCRETE

Children might begin by handling real objects...

...then using physical representations of them.

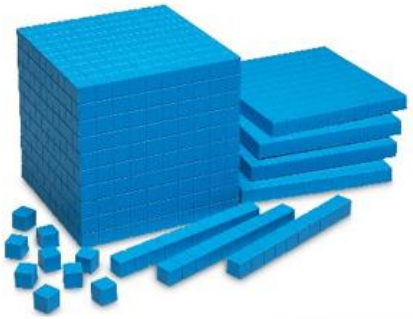
PICTORIAL

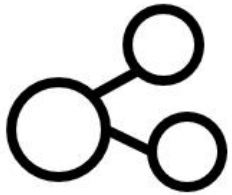
Drawings act as a bridge between the concrete objects children have been using and the abstract symbols they must learn to use.

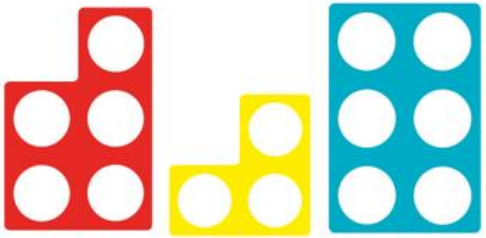
Finally, children learn to use abstract symbols to solve problems.

$$10 + 7 = 17$$

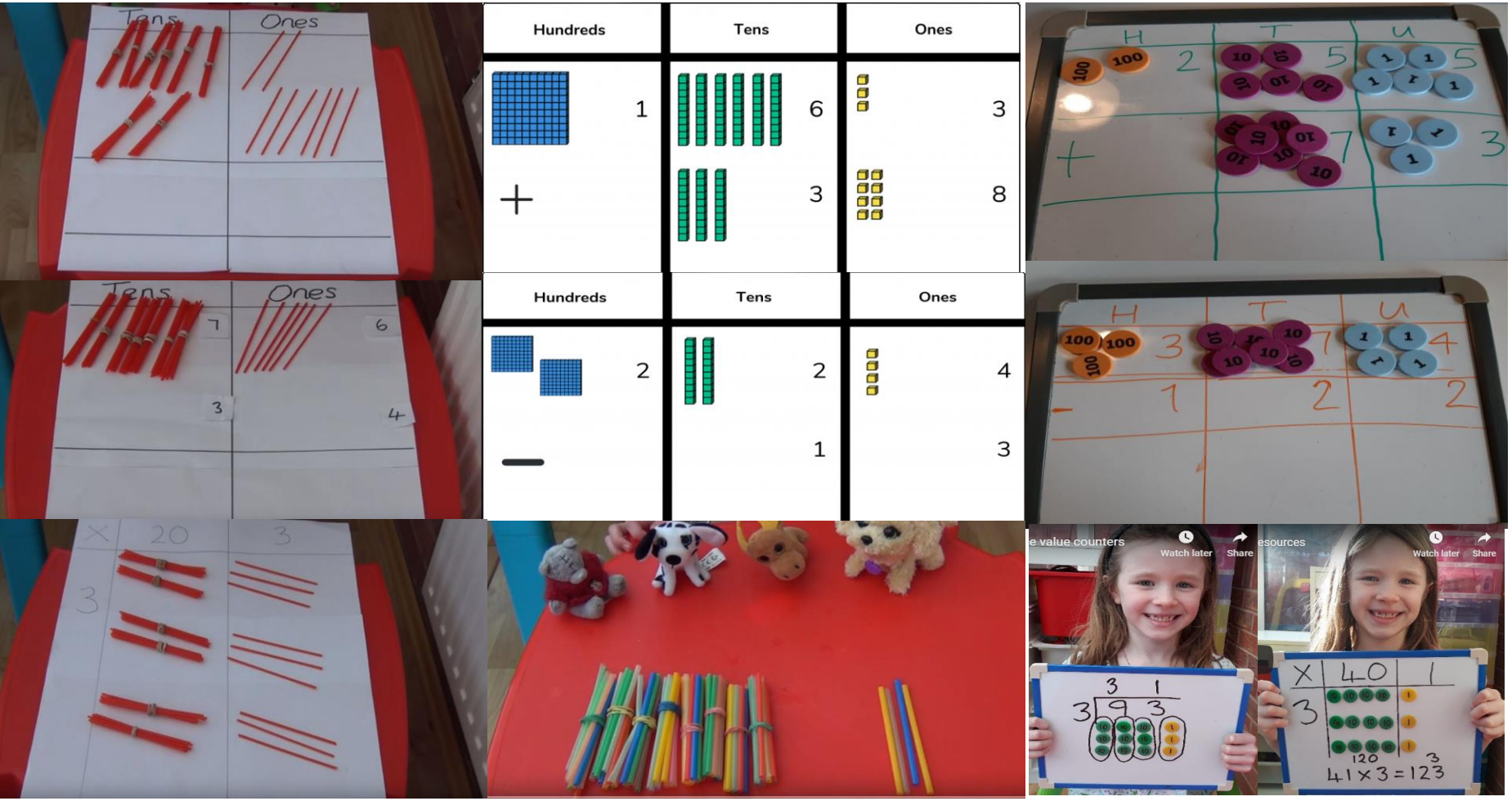
We use a range of resources to develop mathematical thinking





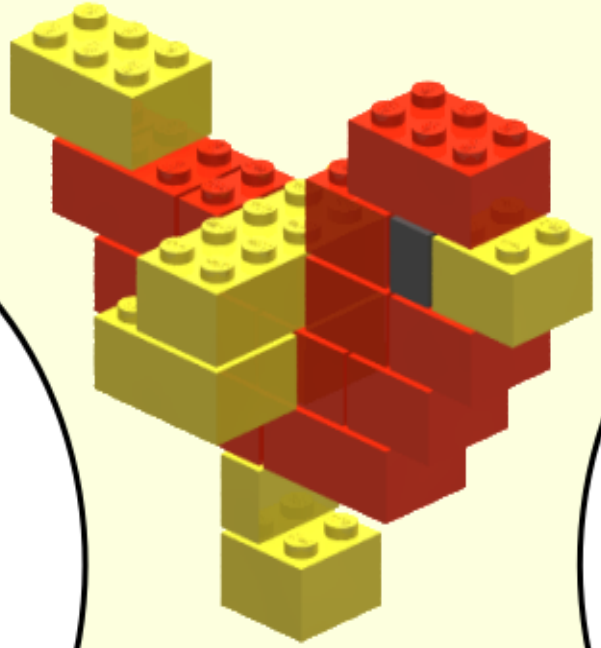


1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009



Once children are confident using the concrete resources they can then record them pictorially, again recording the digits alongside to ensure links are constantly being made between the concrete, pictorial and abstract stages.

Divergent Thinking in Mathematics



What have I built?

Year 1

- Dinosaur
- Chicken
- Puppy
- One-legged hen
- Bird
- House
- Aeroplane
- Cockerel
- Magpie
- Toucan
- Robin
- Bunny

Year 6

- Bird
- Chicken
- Rooster
- Duck
- Lego

What is the same and what is different about the play we might see with these objects?

In order to understand a mathematical concept, children need to be able to see **what it is** and **what it is not**. In order to do this, they need to be able to be divergent thinkers.

Very young children naturally see multiple possibilities in the world around them.

Play-based learning in the EYFS encourages divergent thinking; children create and explore multiple possibilities through meaningful structured and spontaneous experiences where high-quality talk is promoted.

Why do we give children varied experiences?

We want children to be able to generalise about mathematical concepts.

This is when children, through the carefully varied experiences they have had, develop understanding of the maths concept and are able to apply this to varied contexts.

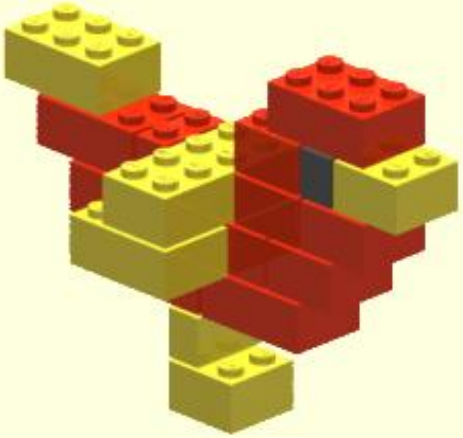
One of the most aspects important pre-number learning is **attribute discrimination**. This is being able to see what something is based on its attributes and is linked to sorting, matching, comparing and naming.

Children have to be able to do this in order to be able see something as a **set** as opposed to **all**.

Through our maths teaching...

How can we develop children's divergent thinking through?

How can we develop their attribute discrimination capabilities?



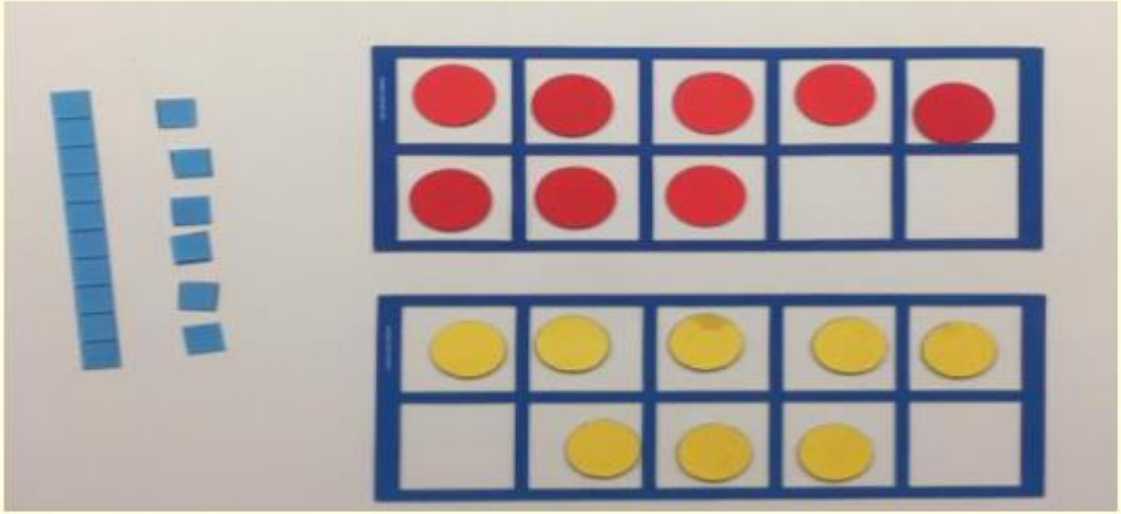
VARIATION

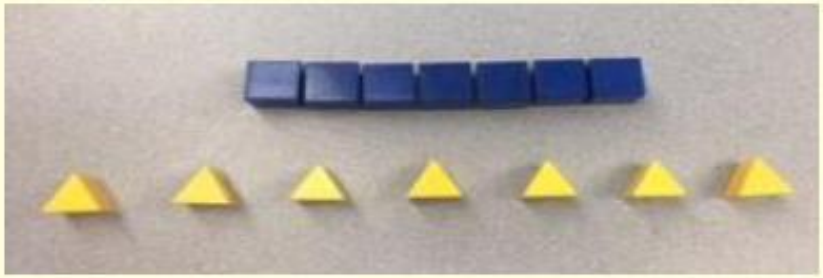
Varying the way a concept is presented, giving examples that **reveal what it *is***, and examples of **what it *isn't***.

Also, **carefully varying practice questions** so that mechanical repetition is avoided, and **thinking** is encouraged.

It is generally perceived as one of the most valuable experiences within Chinese mathematics education community (Sun, 2011).

Conceptual Variation
What's the same? What's different?





Conceptual and Procedural Variation

Conceptual Variation
What is? What isn't?
Same? Different?

Procedural Variation
What's changed? What's stayed the same between each step?

```
 26
x33
 78
780
858
```

x	20	+ 6
30	600	180
+ 3	60	18

5 × 3 =	7 × 5 =	5 × 7 =	3 × 5 =
5 × 30 =	7 × 50 =	5 × 70 =	3 × 50 =
5 × 300=	7 × 500=	5 × 700=	3 × 500=

2 用自己喜欢的方法计算，谁快？

5 × 400=	5 × 900=	4 × 900=	7 × 800=
8 × 300=	4 × 800=	4 × 800=	6 × 800=
10 × 700=	9 × 700=	4 × 700=	5 × 800=

180 ÷ 2 =	160 ÷ 4 =	480 ÷ 6 =	500 ÷ 5 =
180 ÷ 20 =	160 ÷ 40 =	480 ÷ 60 =	500 ÷ 50 =
270 ÷ 30 =	270 ÷ 3 =	540 ÷ 90 =	400 ÷ 80 =
270 ÷ 90 =	270 ÷ 9 =	540 ÷ 9 =	400 ÷ 8 =

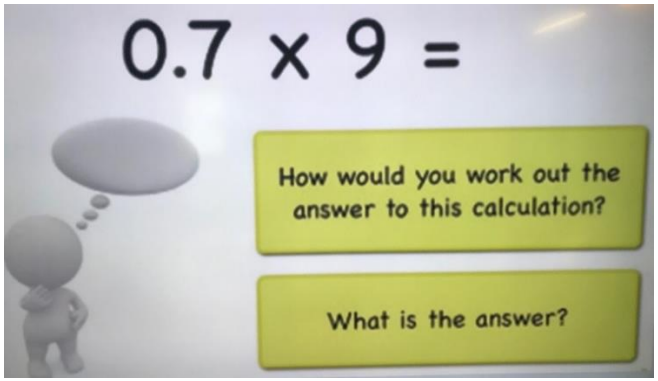
addition calculation as an example: 289 + 653

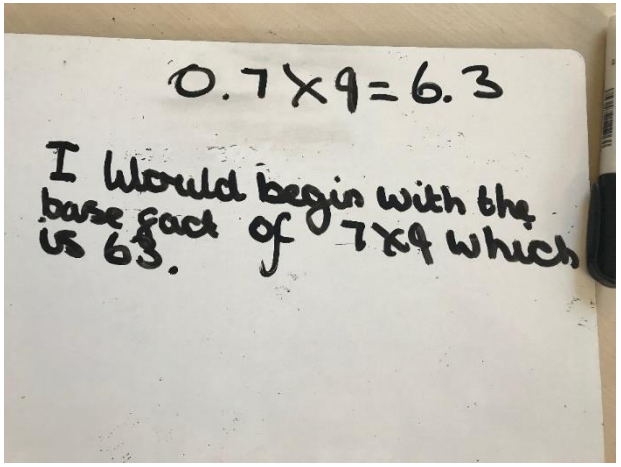
$$\begin{array}{r} 289 \\ +\ 653 \\ \hline =\ 942 \end{array}$$

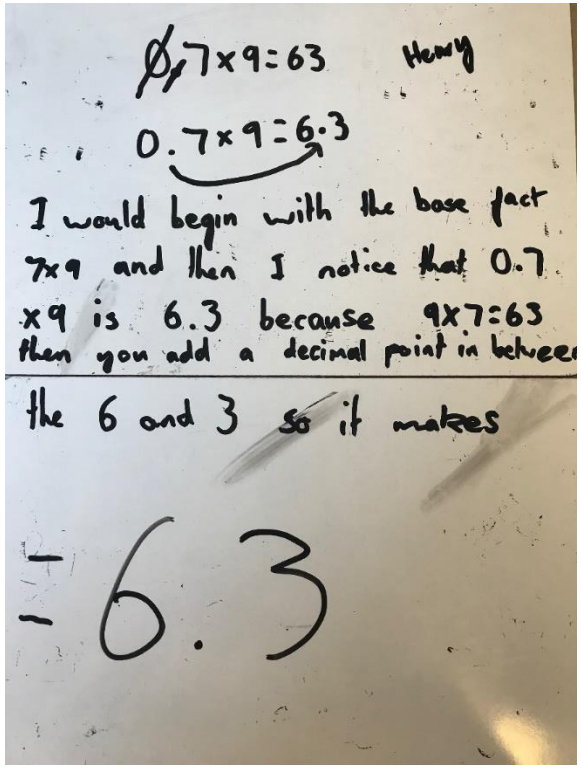
How You Can Dive Into This Seemingly Simple Question In More Detail

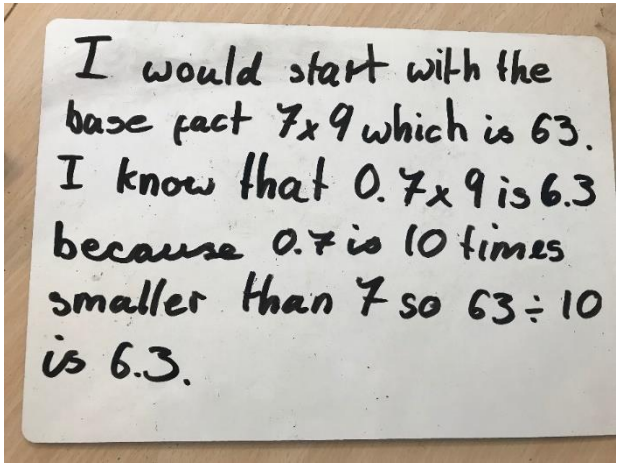
- If all children can ‘do’ the addition, have they mastered it?
- On the surface, it would appear so, but it tells you absolutely nothing about their knowledge and understanding of the numbers involved.
- Greater depth in maths in this instance means interacting with the numbers and getting to know them. You could ask a whole range of questions:
- *How many prime numbers can you see?*
- How many square numbers are there?
- Does the ‘ones’ column contain any cube numbers?
- Does the ‘hundreds’ column contain any perfect numbers?
- Can you find the digital root of the first row of numbers (2 + 8 + 9 = 19, 1 + 9 = 10, 1 + 0 = 1)
- Is the digital root of the second row greater than or less than the digital root of the answer?
- If you add up all the digits does this make a triangular number? (e.g. 2 + 8 + 9 + 6 + 5 + 3 + 9 + 4 + 2 = 48….no, the nearest triangular number is 45).
- How is the answer to the addition written in Roman numerals? (CMXLII)

Progression in reasoning skills

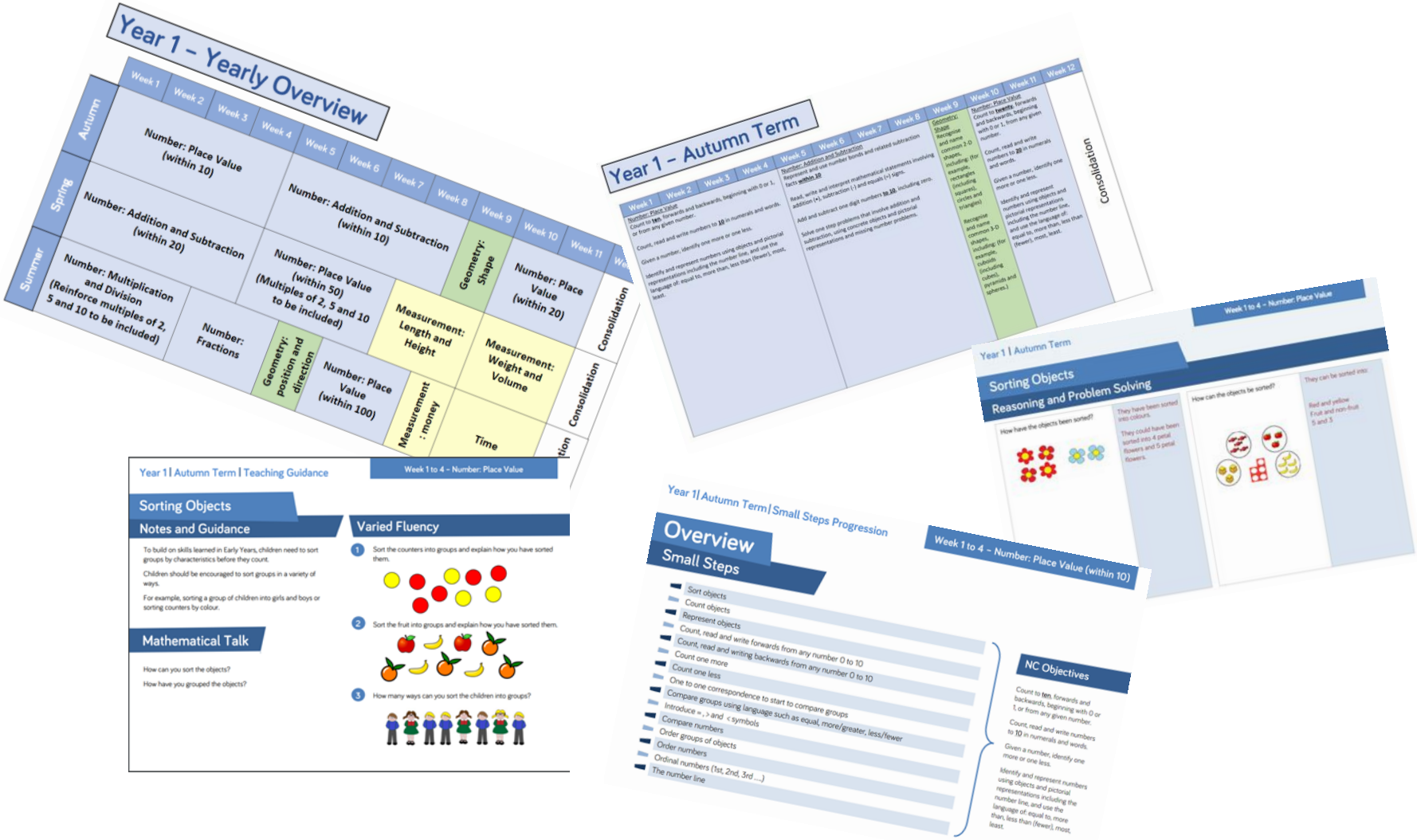








White Rose Maths resources



NCTEM resources

Working Walls


That's
A
Wrap!