Maths information evening

Number Sense: Developing Mental Fluency

Mental Fluency in Mathematics- Herts for Learning video

https://www.hertsforlearning.co.uk/news/mental-fluency-mathematics

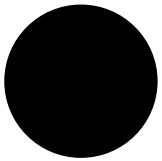
Why focus on number skills?

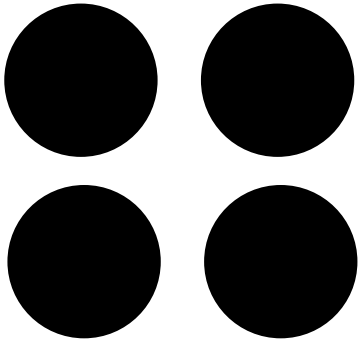
- When assessing we consider the following: understanding the number system, calculating, measurement, geometry and statistics.
- However, Herts for Learning place a strong emphasis on number skills suggesting that children should achieve 25-60% of certain number skills to achieve different phases.

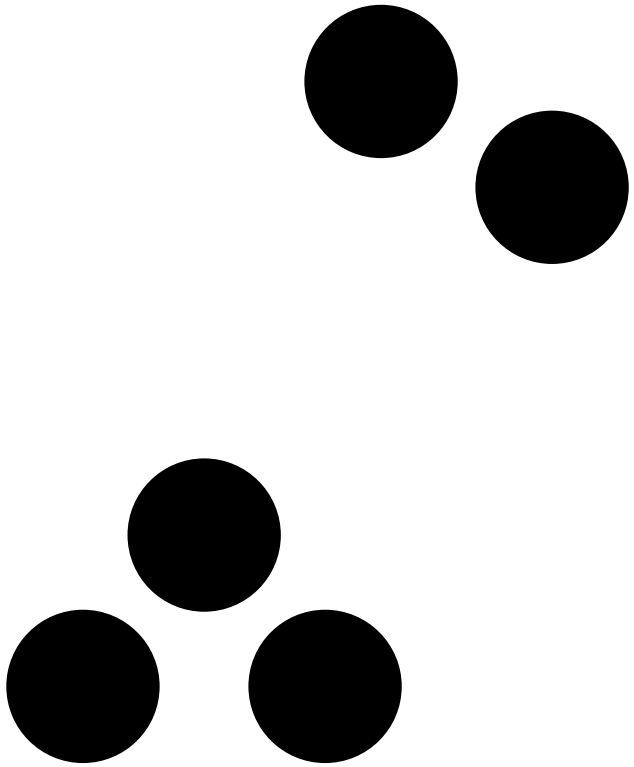
Our focus tonight

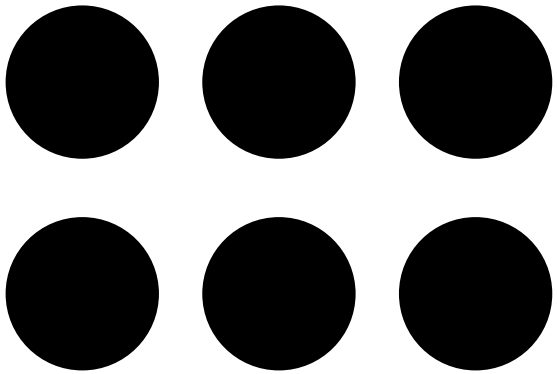
- Subitizing
- Number magnitude
- Mathematical strategies

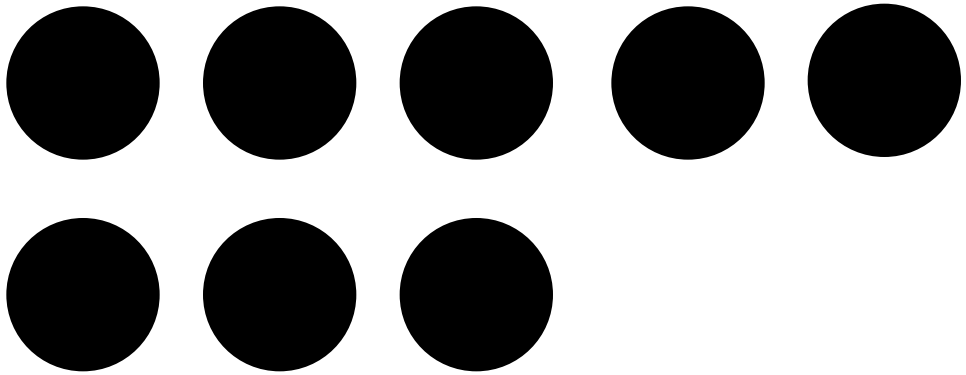
Say What You See!

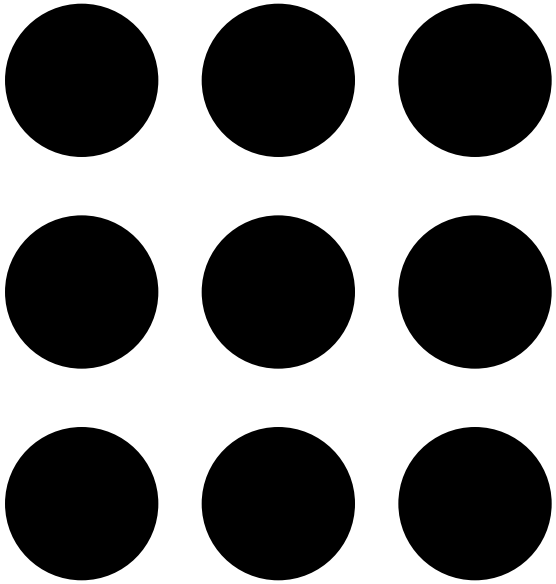


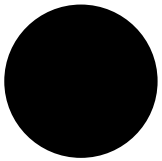


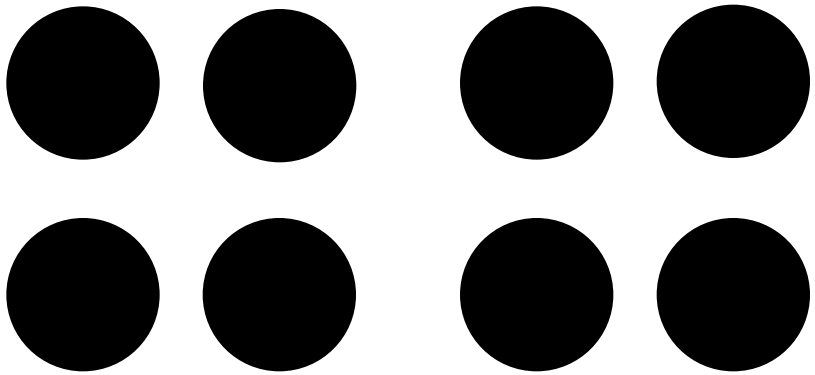


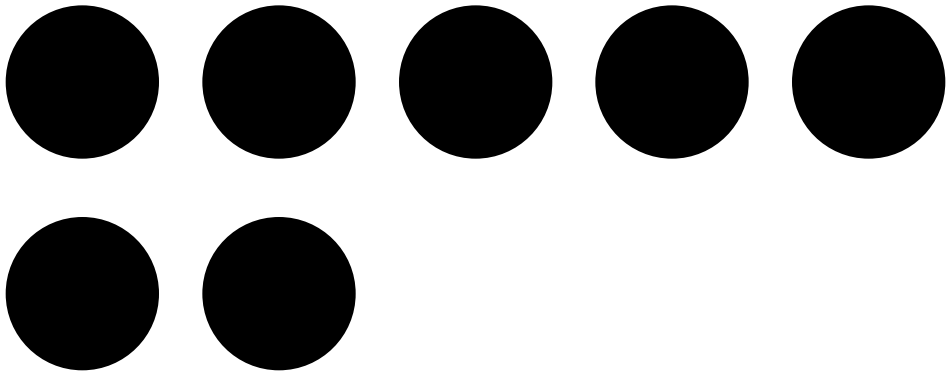


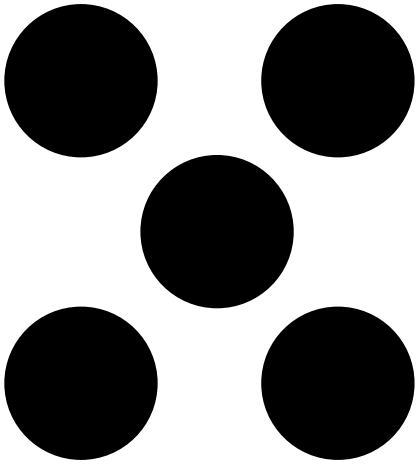


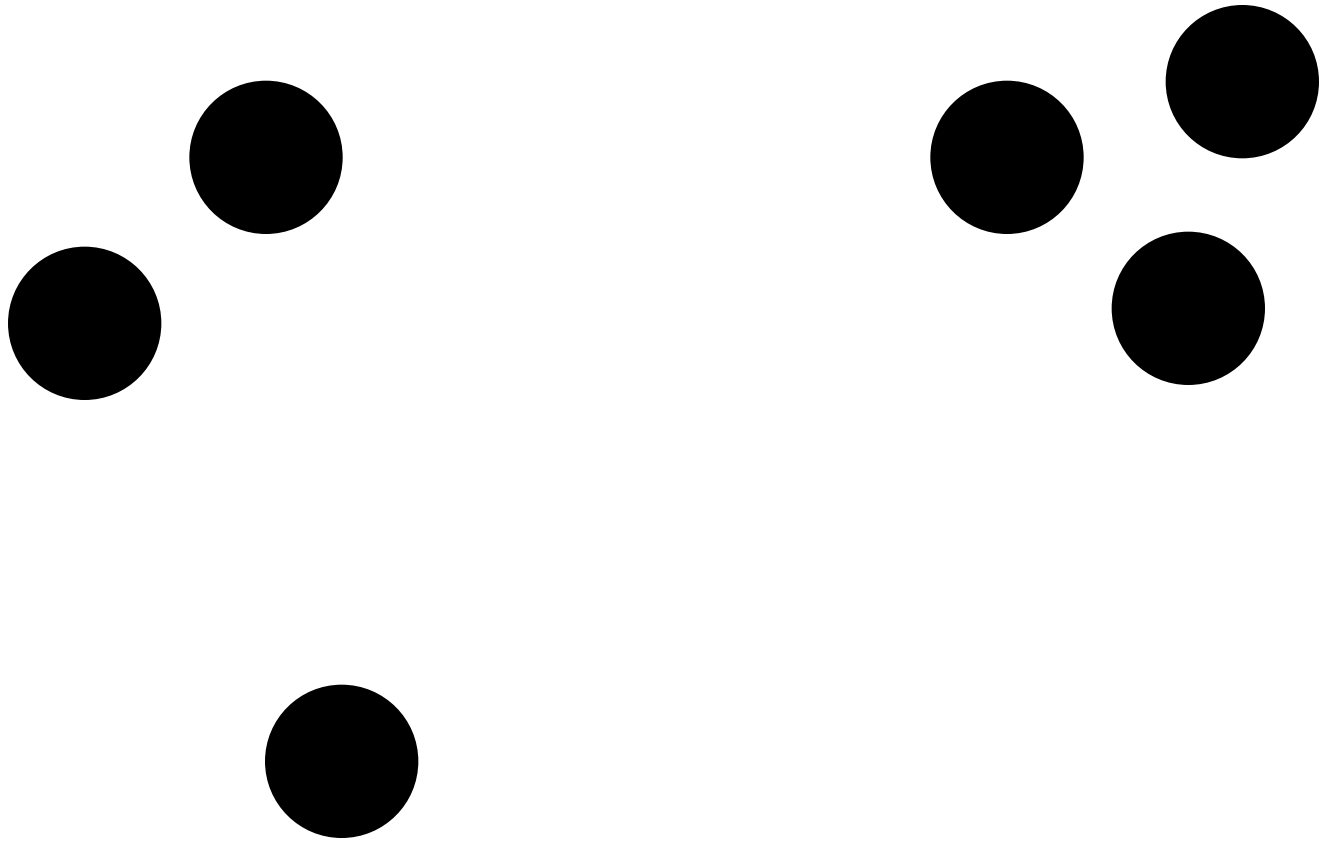


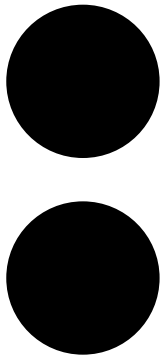


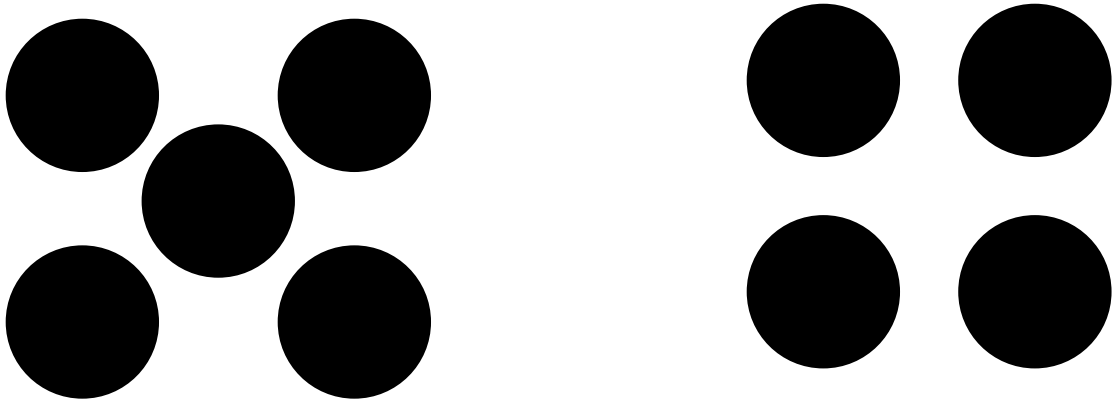


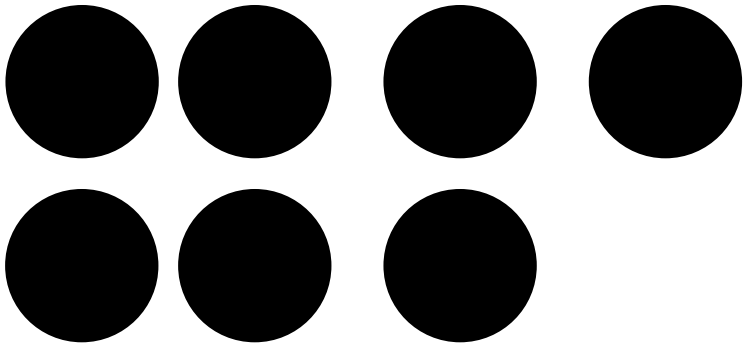


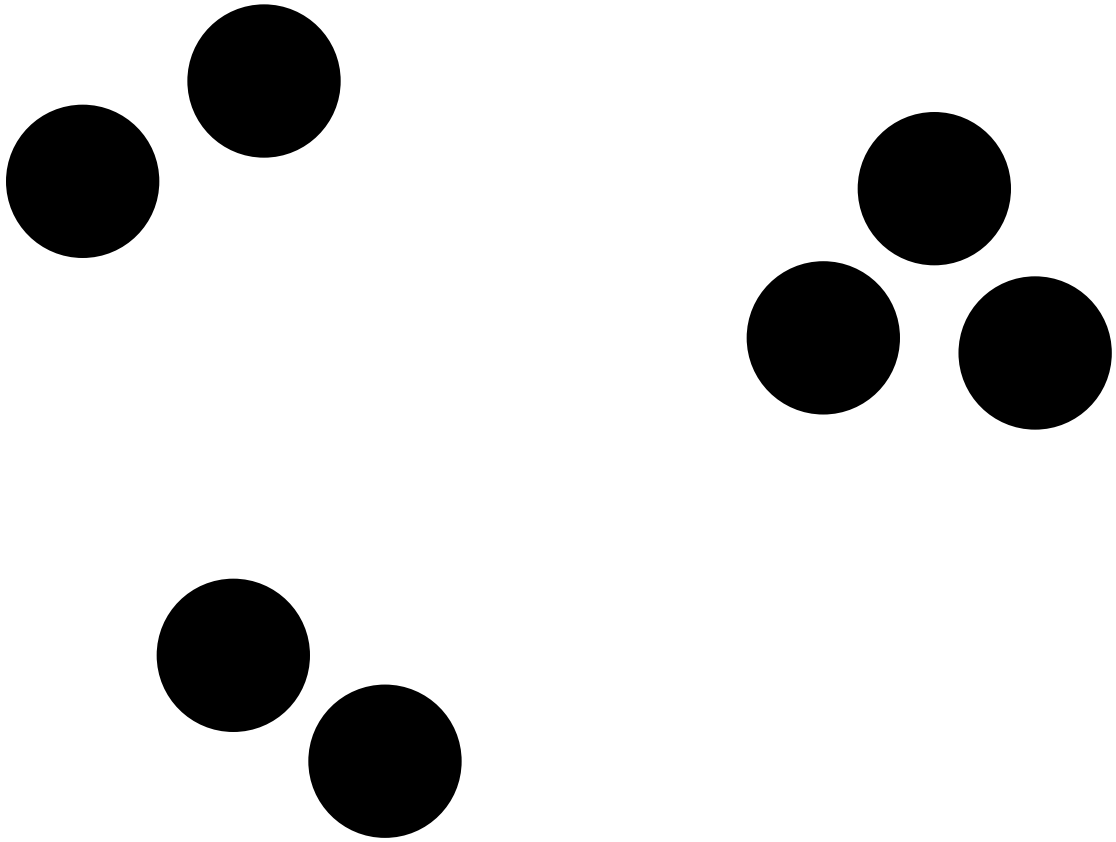


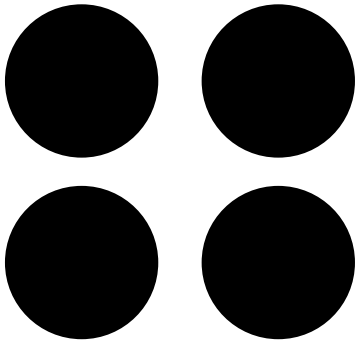


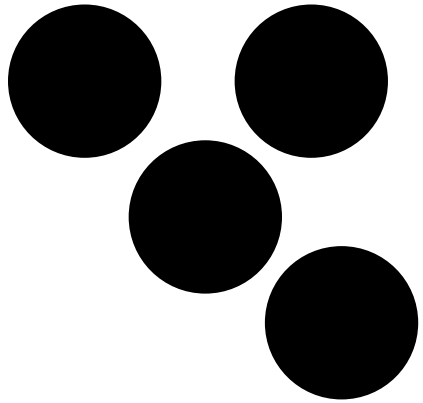


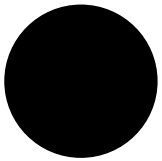


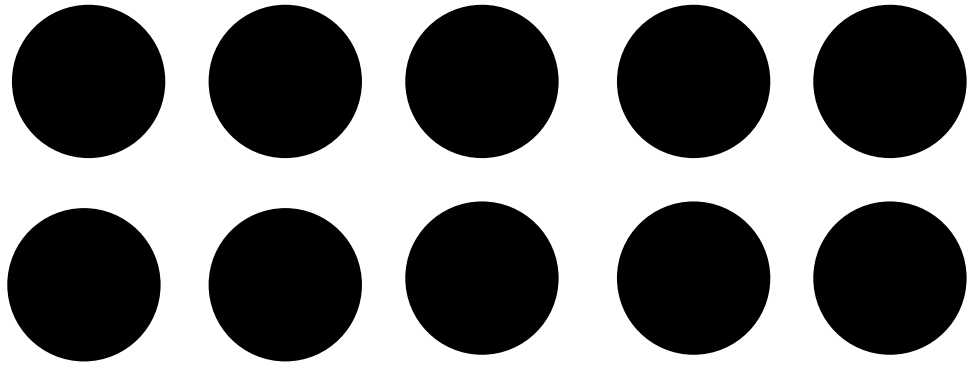


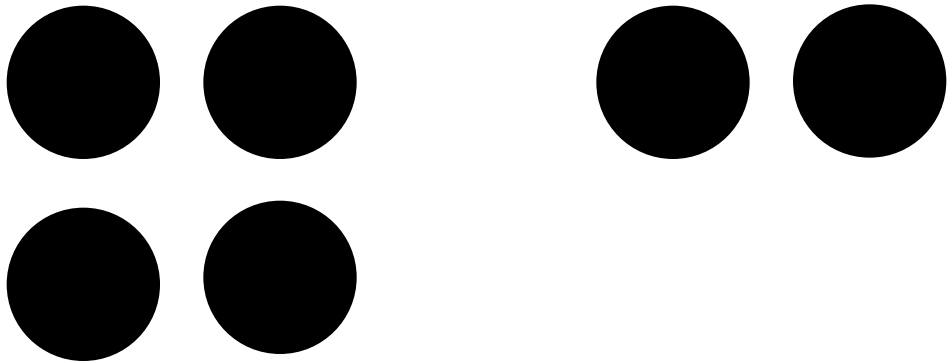


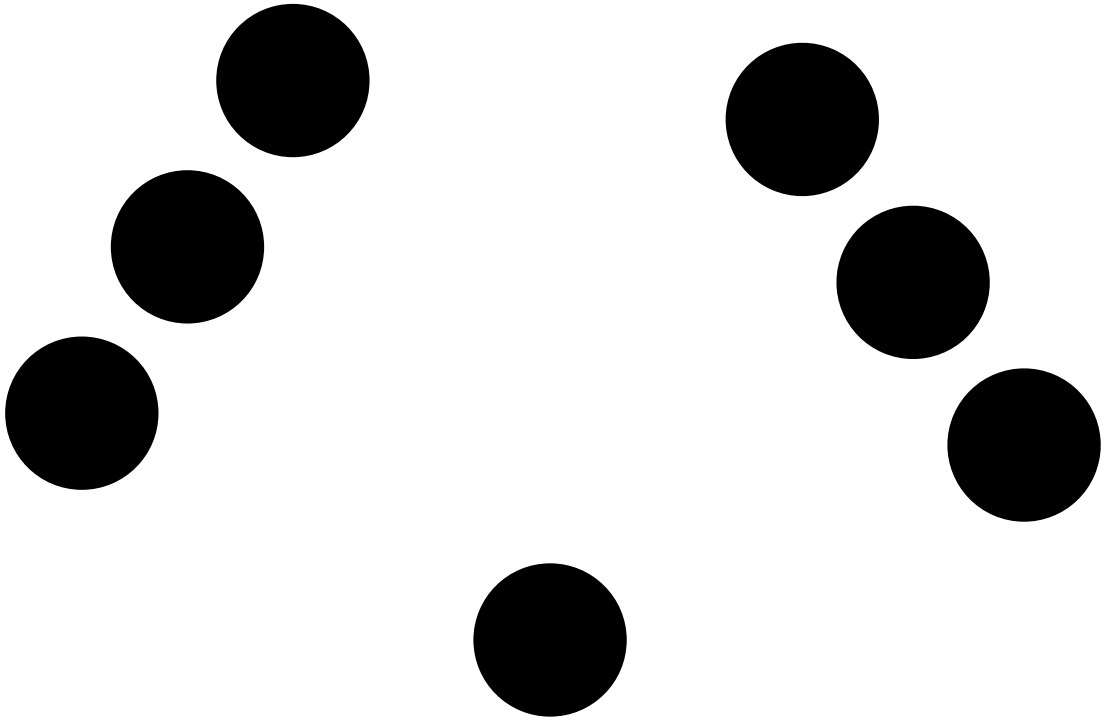












Subitizing

The power of the dot pattern!

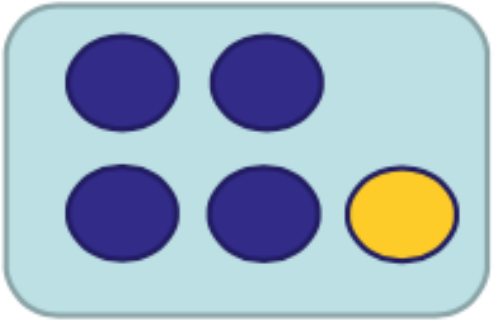
Subitizing

Concrete-Pictorial-Abstract

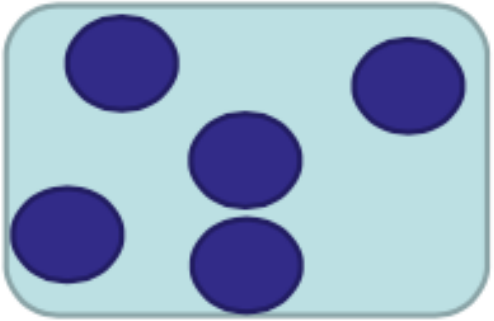
- Concrete – internalised action
- Pictorial – iconic with sensory imagery
- Abstract – symbolic with symbols e.g. numerals, which bear only an arbitrary relation to what they stand for.

Developing early number sense

Familiar and structured dot patterns



structured dot patterns

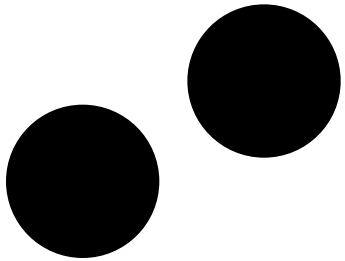


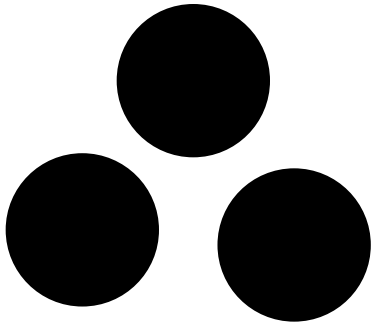
unstructured dot patterns

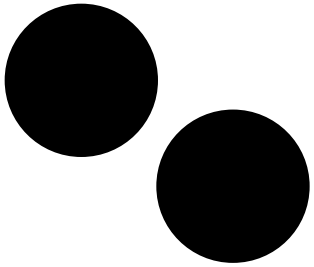
Herts for Learning

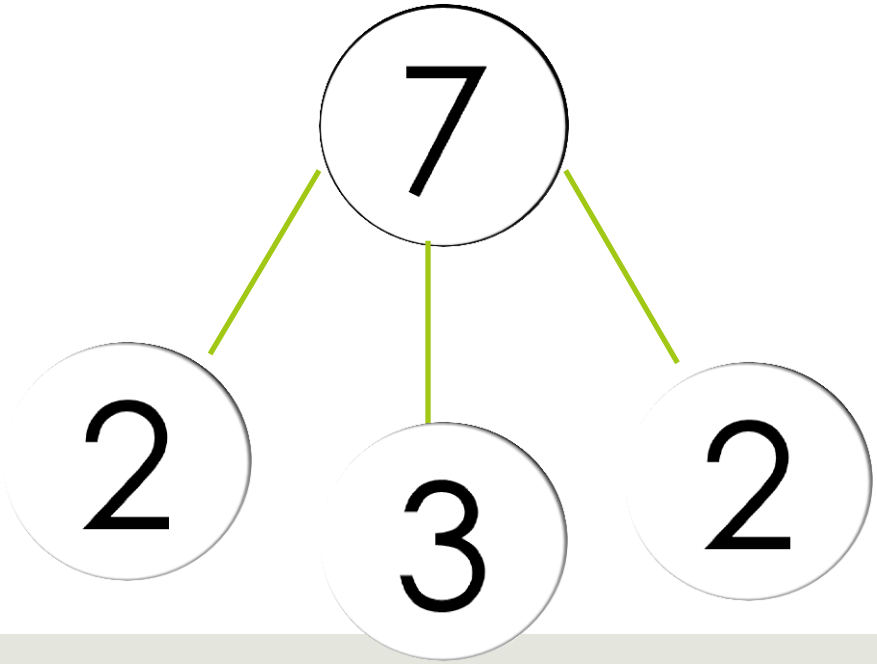
Educational excellence together

What do you see?



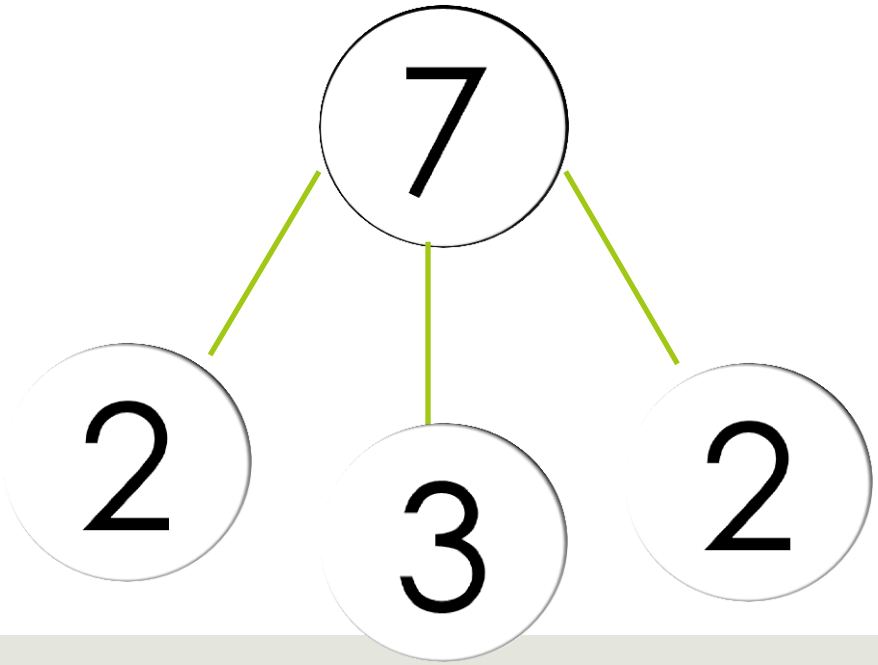




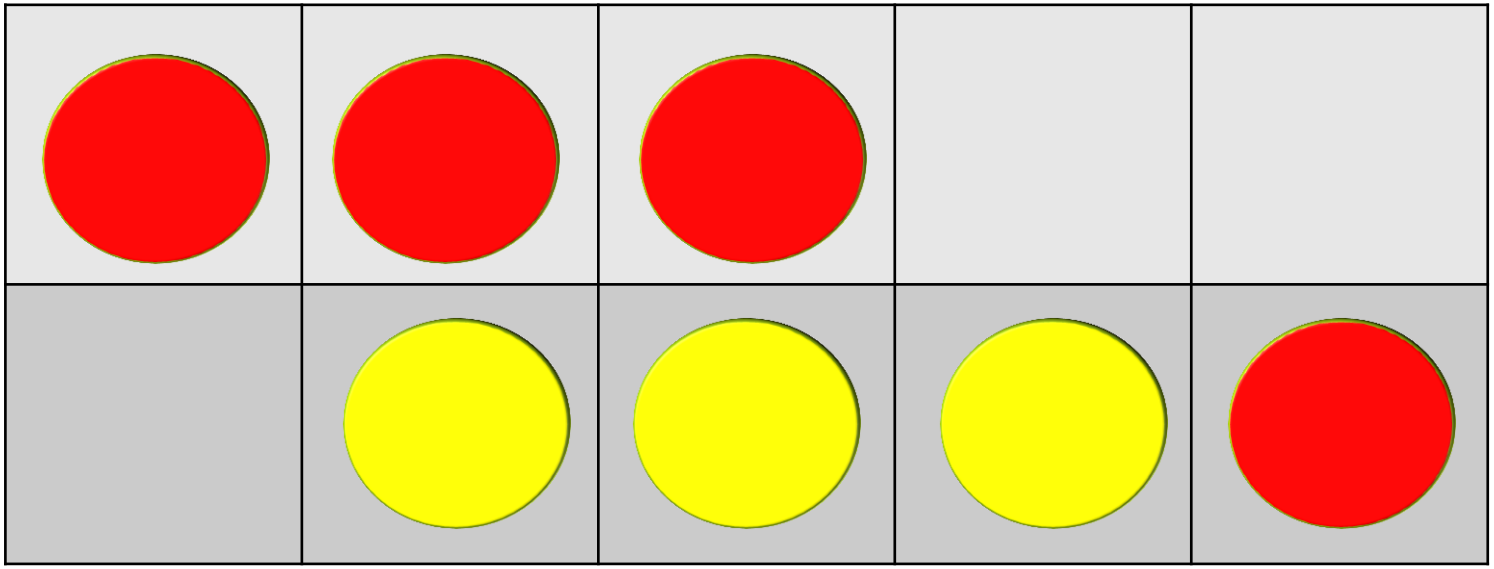


$$2 + 3 + 2 = 7$$

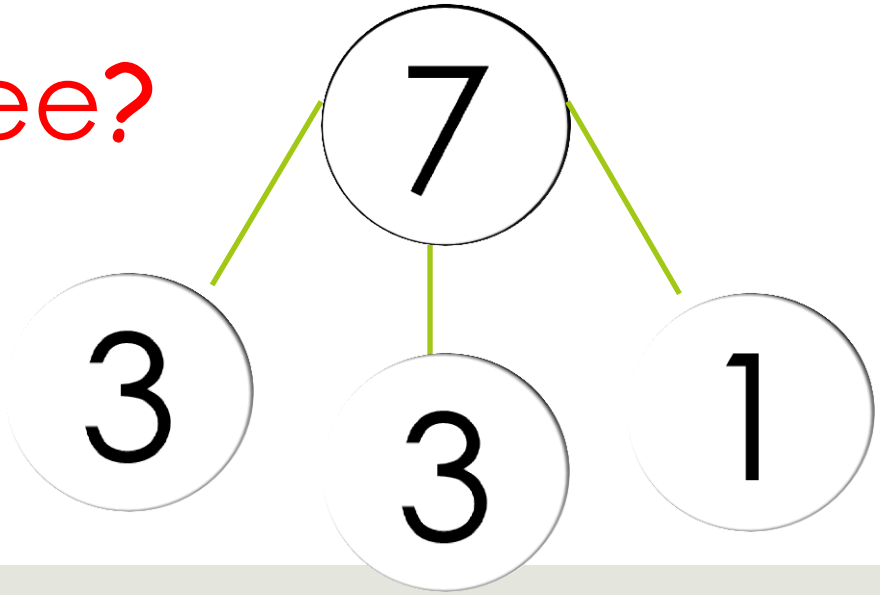
$$7 - 2 - 3 = 2$$



10s Frames

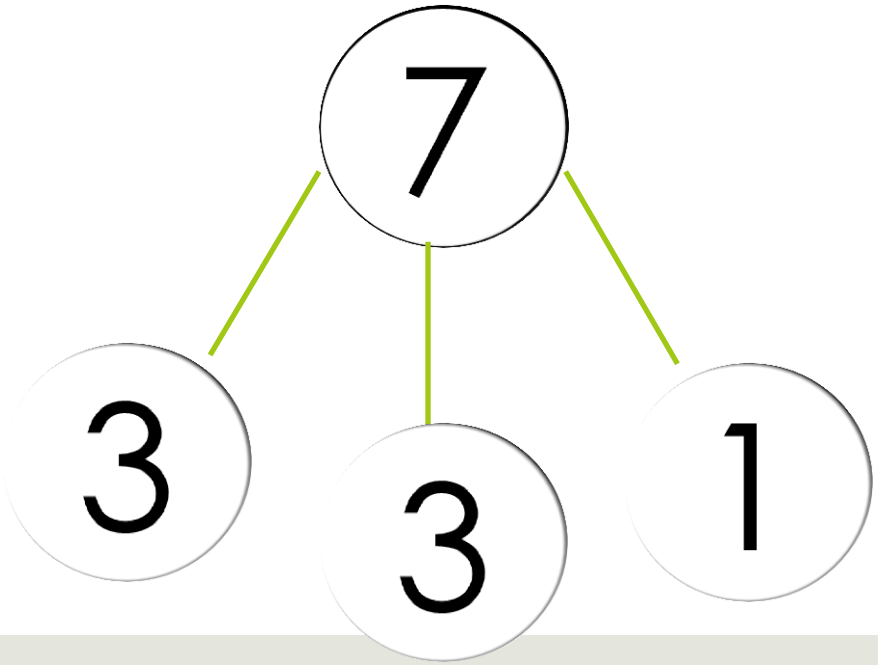


What do you see?



$$7 = 3 + 3 + 1$$

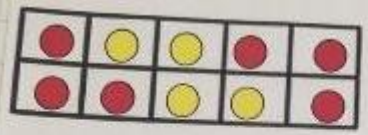
$$7 - 3 - 3 = 1$$



Examples of using 10s frame

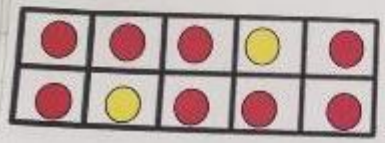
LO- To record number sentences from the part-part-whole method.

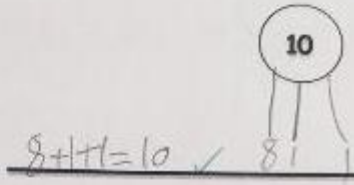
26/1/2016



3+4+3=10 ✓

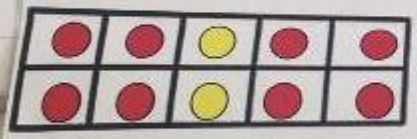
10-4-3=3 ✓

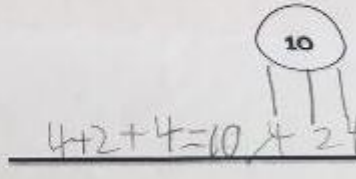




8+1+1=10 ✓

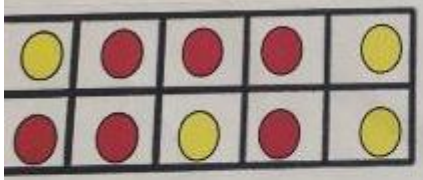
10-1-1=8 ✓

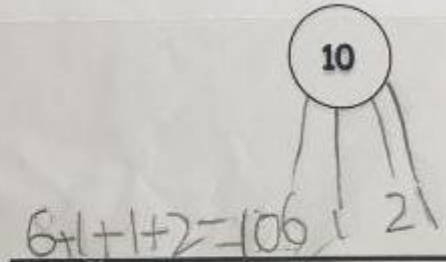




4+2+4=10 ✓

10-4-2=4 ✓



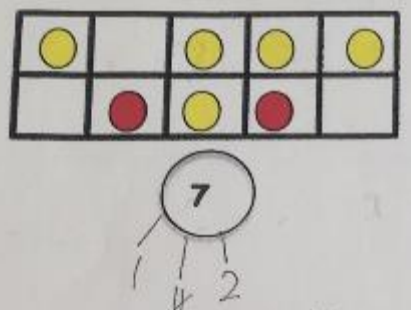


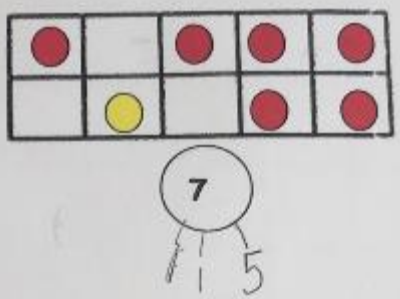
6+1+1+2=10 ✓

10-1-6-2=1 ✓

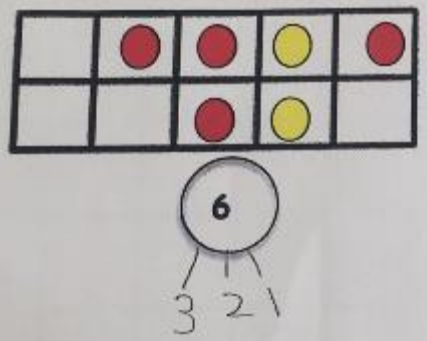
1/3/2016

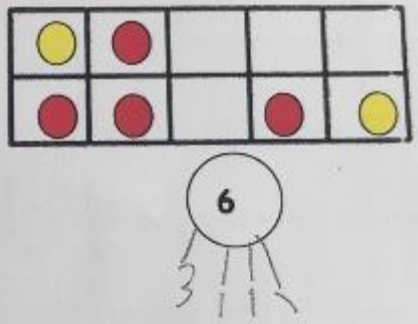
LO- To balance equations.



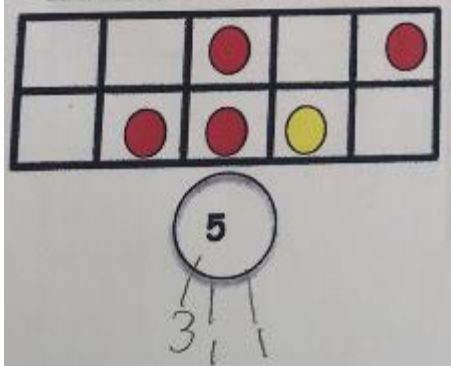


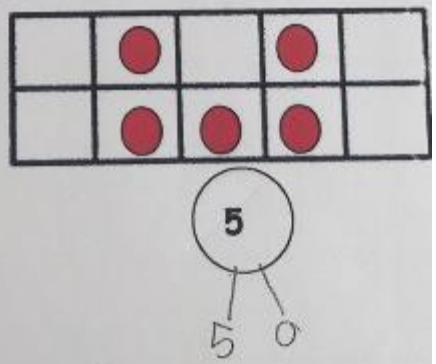
1+4+2 = 1+1+5 ✓





3+1+2 = 3+1+1+1 ✓





3+1+1 = 5+0 ✓

Dotzi!

Maths games!

- All maths games that involve dot patterns help with this.

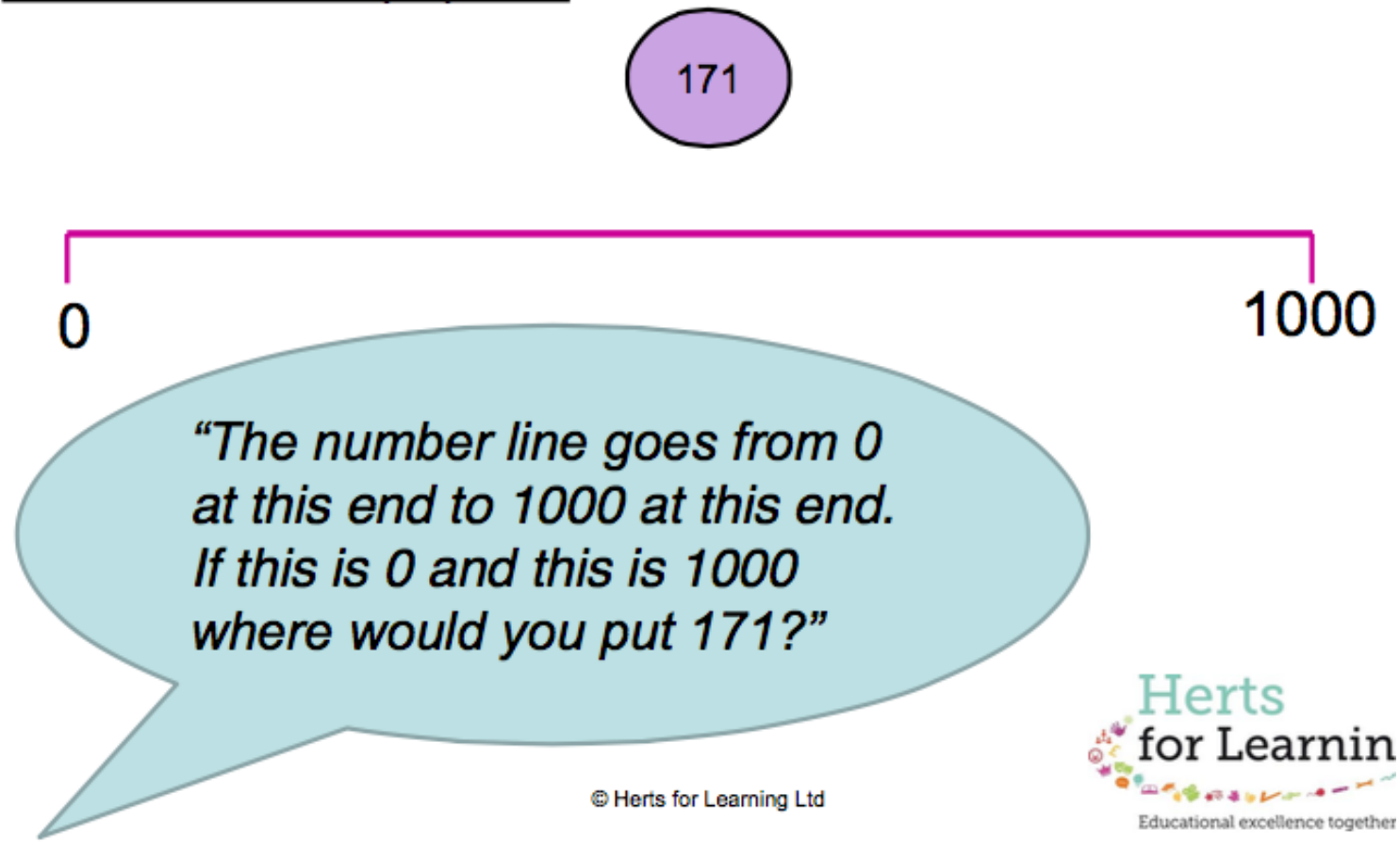
Dominoes,

Snakes and Ladders,

Dice games etc.

Number Magnitude

Number to Position (NP) Task:



Herts for Learnin
Educational excellence together

Number Magnitude

'Immature number line representation is linked to both lower mathematical performance but also with hindering learning of new mathematics'

(Booth & Siegler, 2008)

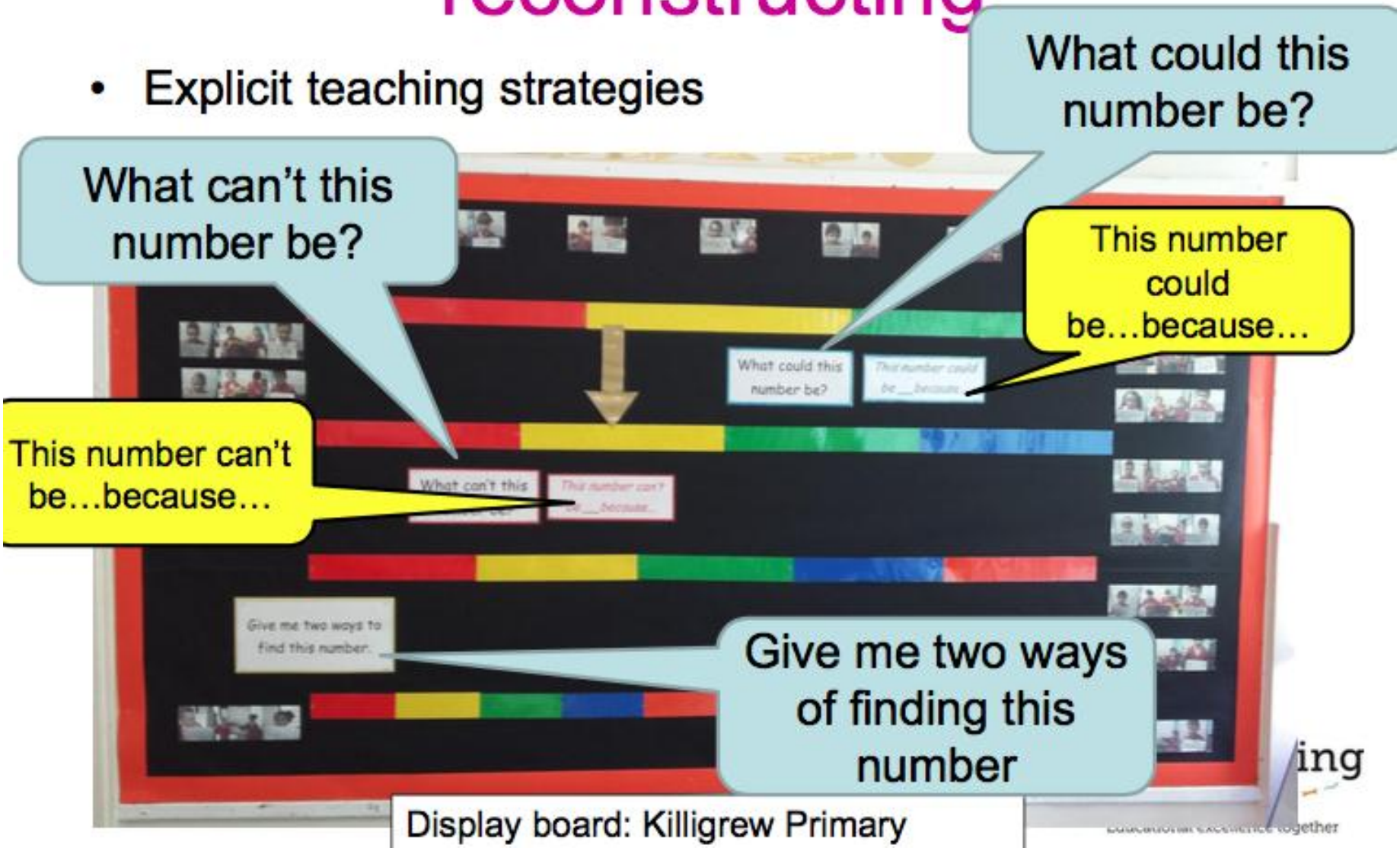
Number Magnitude in the curriculum

- Year 1- Up to 100
- Year 2- 3 digit numbers

Estimation Zones

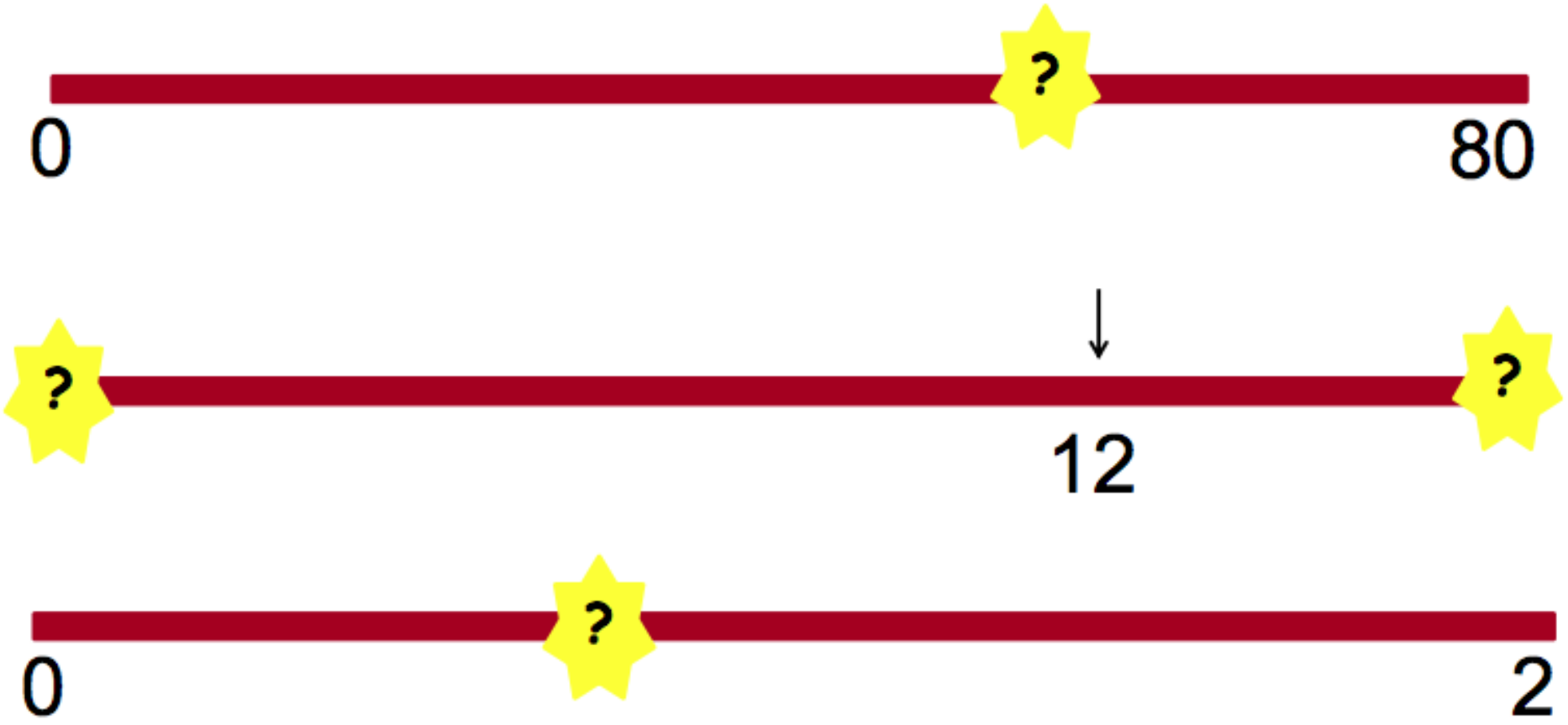
Deconstructing and reconstructing

- Explicit teaching strategies



Display board: Killigrew Primary

Number Magnitude



Mathematical strategies in the curriculum

- Y2 end 2016

Recall and use addition and subtraction facts to 20 fluently and derive and use related facts to 100

Fact Mastery

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

Fact mastery

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

Represent and use number bonds
Add and subtract one digit and two digit numbers to 20, including zero.

- duplicates if children understand the commutative law
- closely related to the counting sequence
- doubles
- near doubles (+ / - 1 or 2)
- number bonds to 10
- pairs that are near to 10 or easy to count on or back to 10

Maths strategies

1/6

- Count all

e.g 5 + 2

Child would count 5 then count 2 then count the numbers all together.

Maths strategies

2/6

- Count on/ back

e.g 4 + 3

Child conserve 4 and would count on 3 more to find answer.

Maths strategies

3/6

- Make 10

e.g 8 + 5

Using prior knowledge, the child partitions 5 into 2 and 3.

e.g 8 + 2 + 3 = 13

Maths strategies

4/6

- Doubles

e.g 3 + 3

Maths strategies

5/6

- Near Doubles

e.g 3 + 4

Maths strategies

6/6

- Commutativity

e.g 1 + 10

Reordering numbers to make the calculation easier (10 + 1).

Plenary

- Have a quick look through fluency feeders and discuss!