Sue Evans
NCETM Accredited PD lead

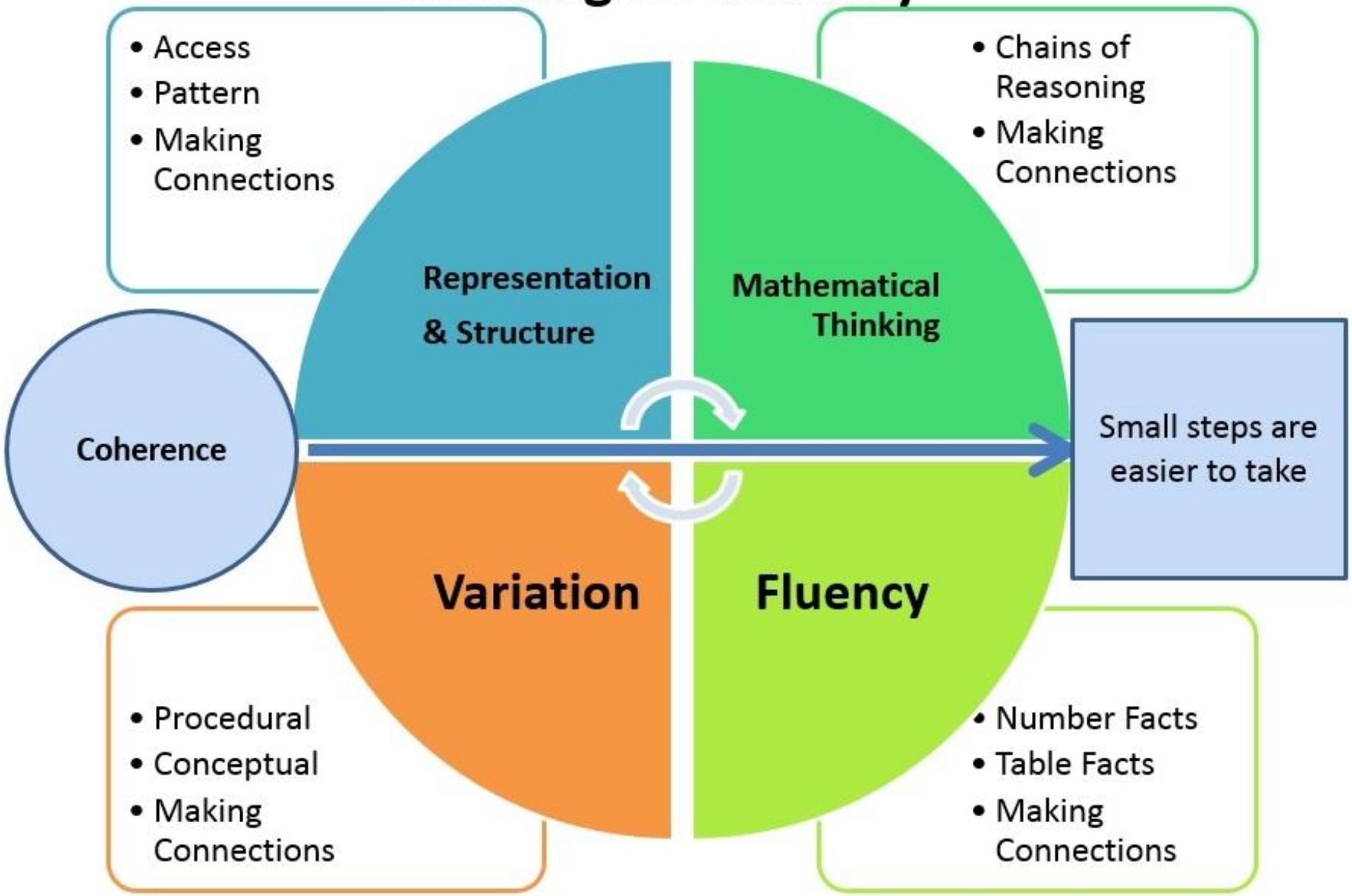
Year 1 - Mastery of Number

MathsHUBS
SHaW

Aims of session

- Identify some of challenges specific to Year 1
- Consider the progression from **counting** and **composition** strands in Early Years - how do we build on good foundations?
- Share NCETM materials and consider how to use them most effectively

Teaching for Mastery



What are the challenges specific to Year 1?

- Moving from a play based curriculum into - potentially - more ‘formal’ learning
- Substantial content in the National Curriculum
- The hardest numbers for the youngest children! ‘teen’ / ‘ty’
- Developing working memory can make reasoning more difficult?

How can we support transition from the main areas of learning in YR?

- **Cardinality and counting**

Subitising: recognising small quantities without needing to count them all

Conservation: knowing that the number does not change if things are rearranged (so long as none have been added or taken away)

- **Composition**

Part–whole relationships: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total)

The place of counting in Year 1

- Consolidating counting skills - *how many objects?*
- Revealing **patterns** in the number system
- Revealing the **structure** of the number system (place value)
- Unitising

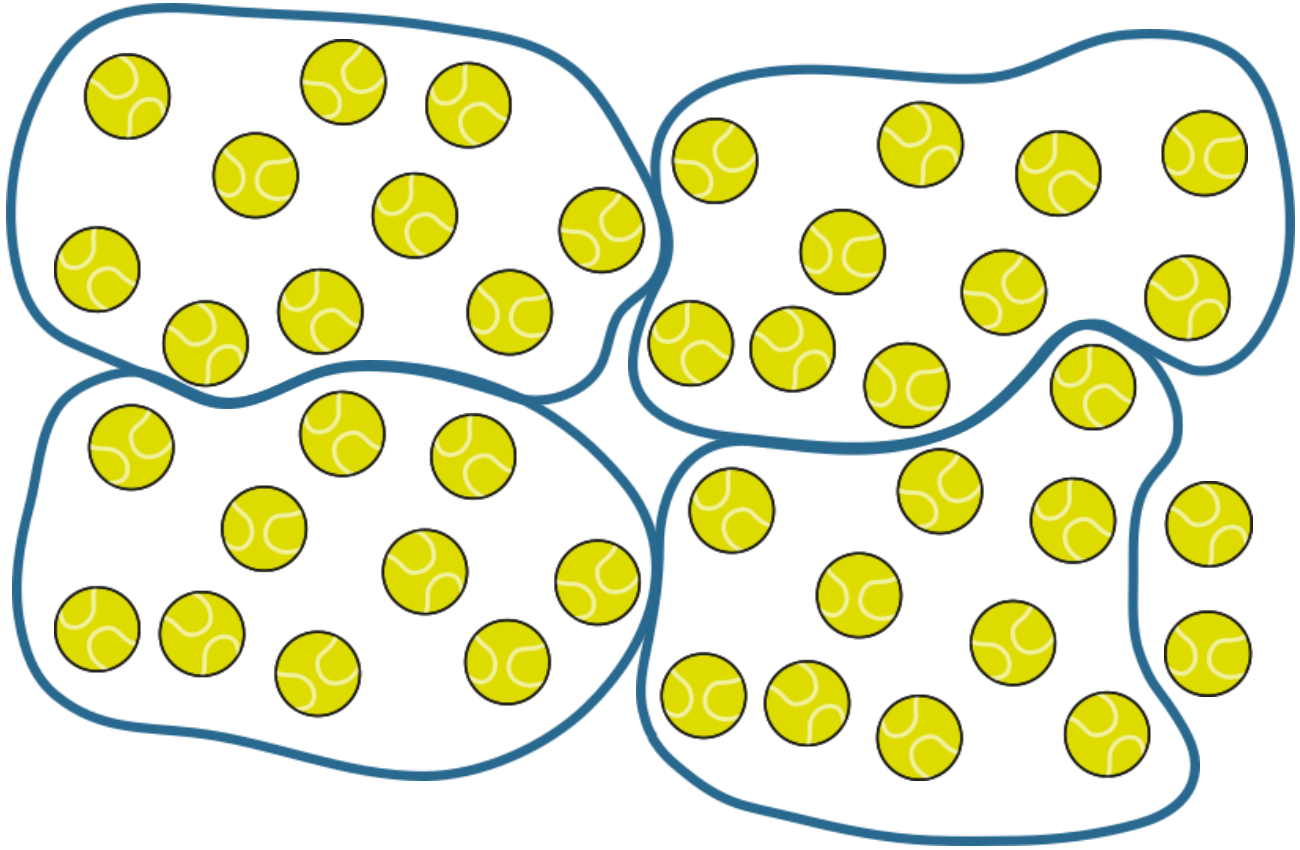
1.9 Composition: 20–100 – step 1:1

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

© Crown Copyright 2018

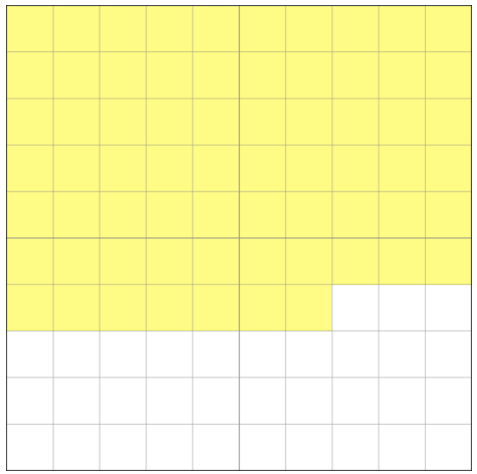
1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

© Crown Copyright 2018



© Crown Copyright 2018

67



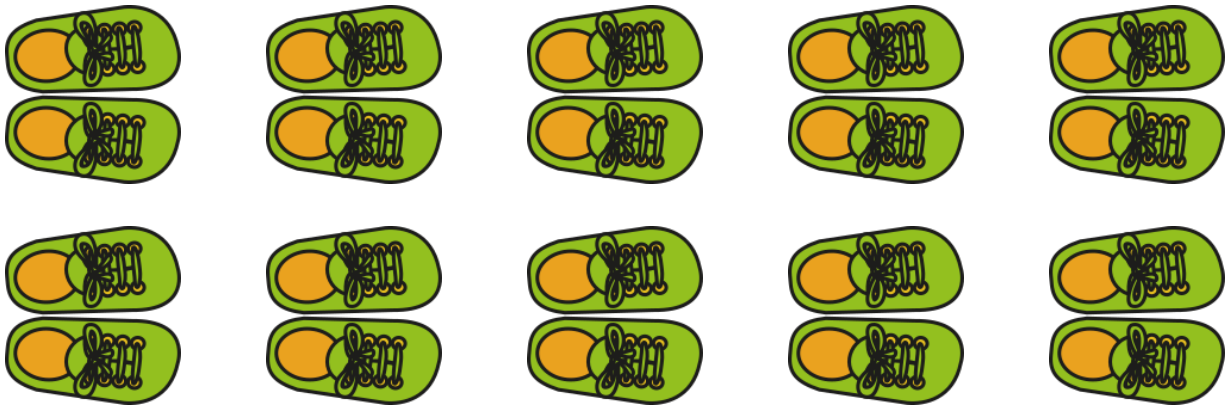
sixty-seven

__tens and__ones

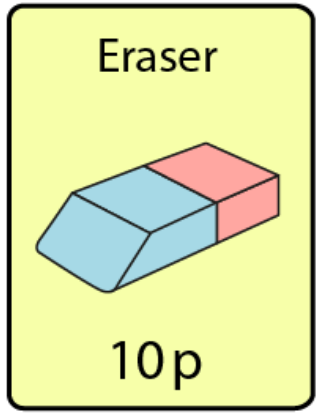
© Crown Copyright 2018

How many shoes are there?

Count in groups of two.



© Crown Copyright 2019



How many two-pence coins would you need to buy this eraser?

© Crown Copyright 2019

How would *you* want children to find the totals?
How might *your children* want to find the totals?

$5 + 3$

$8 + 5$

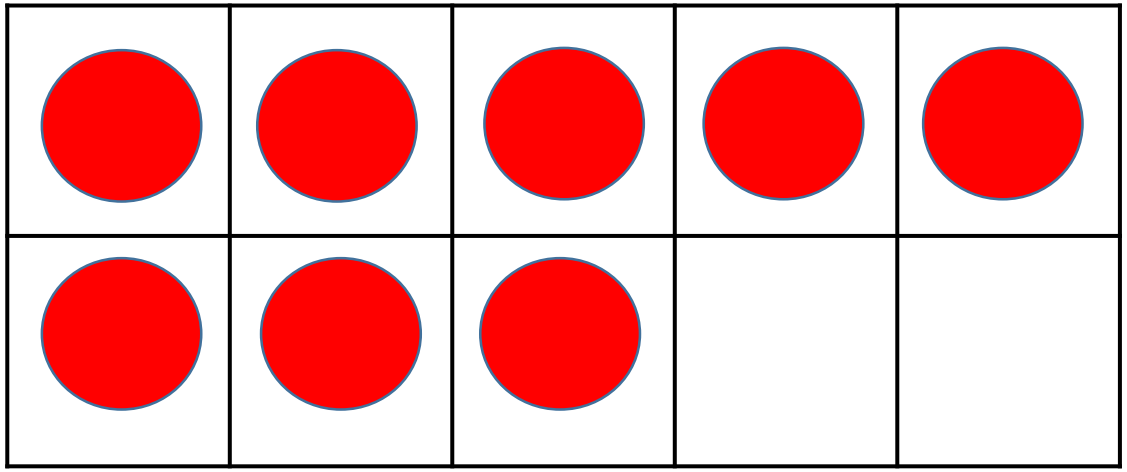
Moving from counting to calculating

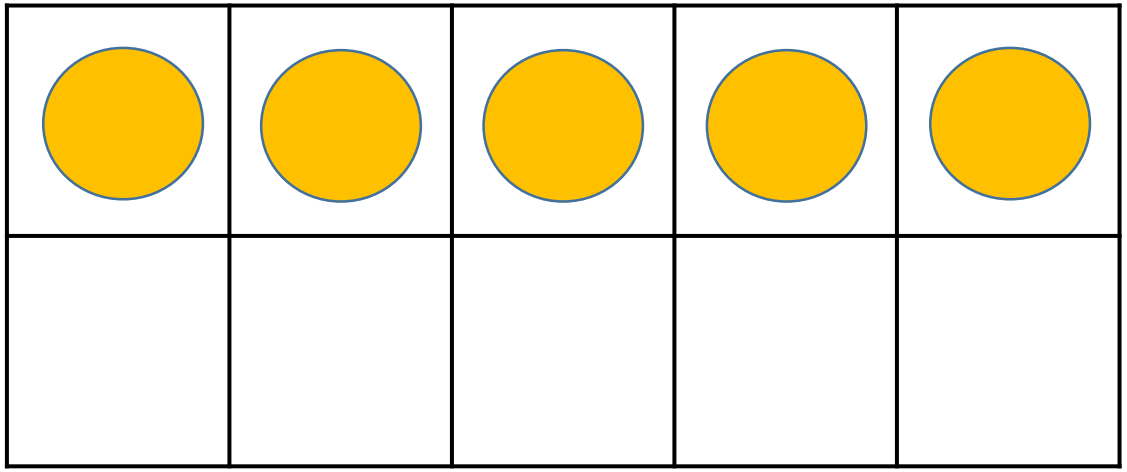
‘It is clear that there are many children who, even by the end of primary school, **rely more on procedures such as counting** to find the answer to calculations and **do not make as much progress.’**

Askew (1997)

Gray and Tall (1994) argue that higher attaining children **use number facts flexibly** to calculate.

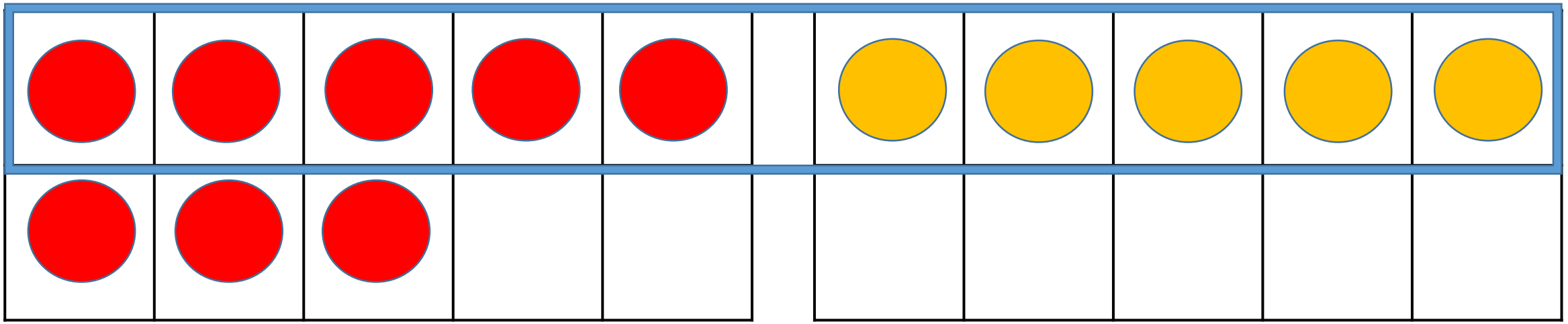
What can calculating *without* counting look like?





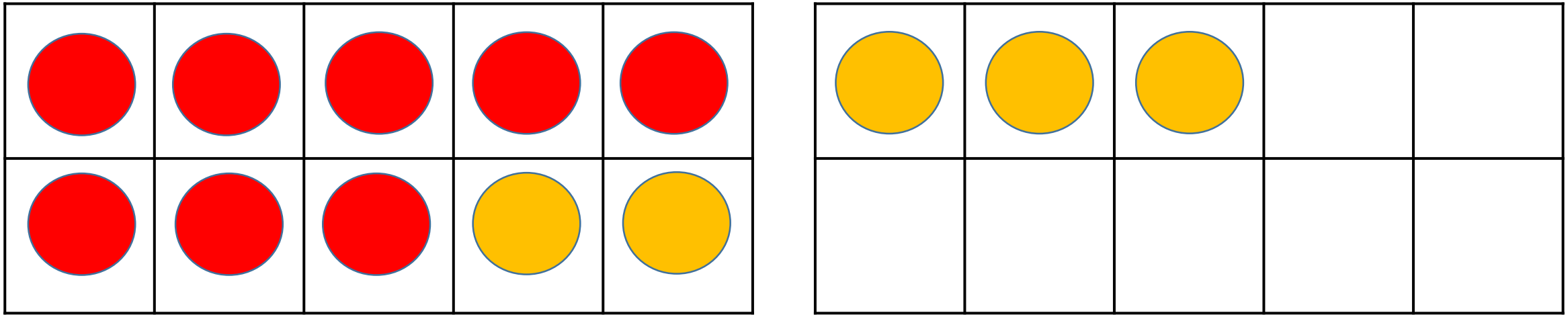
8 + 5 =

10 + 3 =



$10 + 3 =$

What knowledge and skills are needed to be able to calculate using transformations?



- Subitising small numbers of counters
- Knowing partitions for one digit numbers
- Understanding that partitioning leaves the total unchanged (conservation)
- Recognising the ‘ten and a bit’ in teen numbers (quantity place value)

Part-whole relationships throughout the curriculum

- Underpins concepts involved in additive and multiplicative relationships
- Underpins later fraction work
- Supports children in development understanding (and recall) of number facts
- Supports calculating without counting

1.2 Introducing 'whole' and 'parts': part–part–whole

Representations | Year 1

Mastery Professional Development

Number, Addition and Subtraction

https://www.ncetm.org.uk/resources/50719

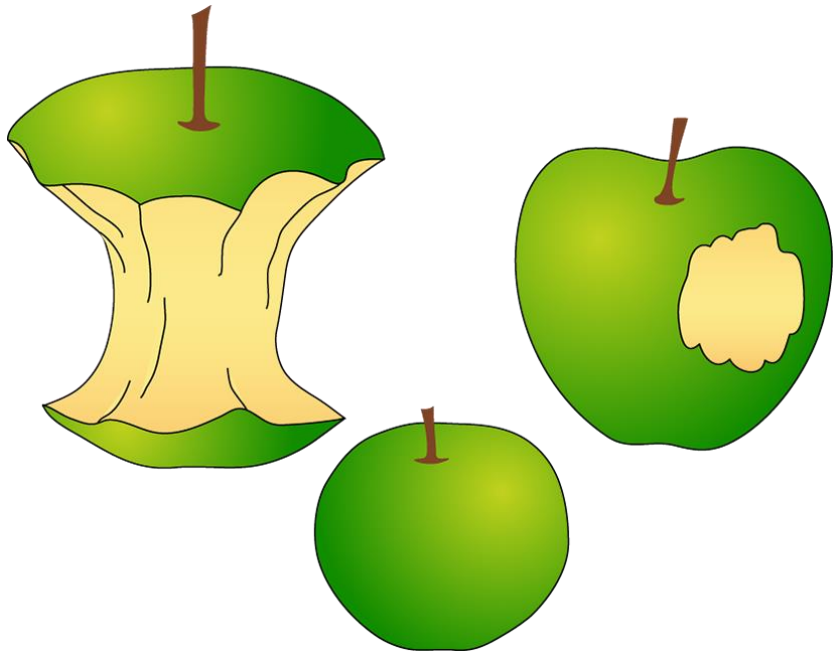
www.ncetm.org.uk/masterypd

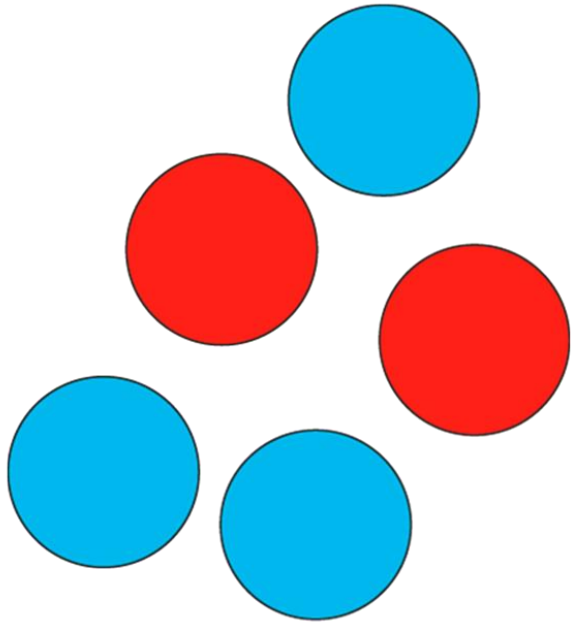
© Crown Copyright 2017

Autumn 2017 pilot

Thinking about language…whole or hole?

Potential misconceptions about parts and wholes



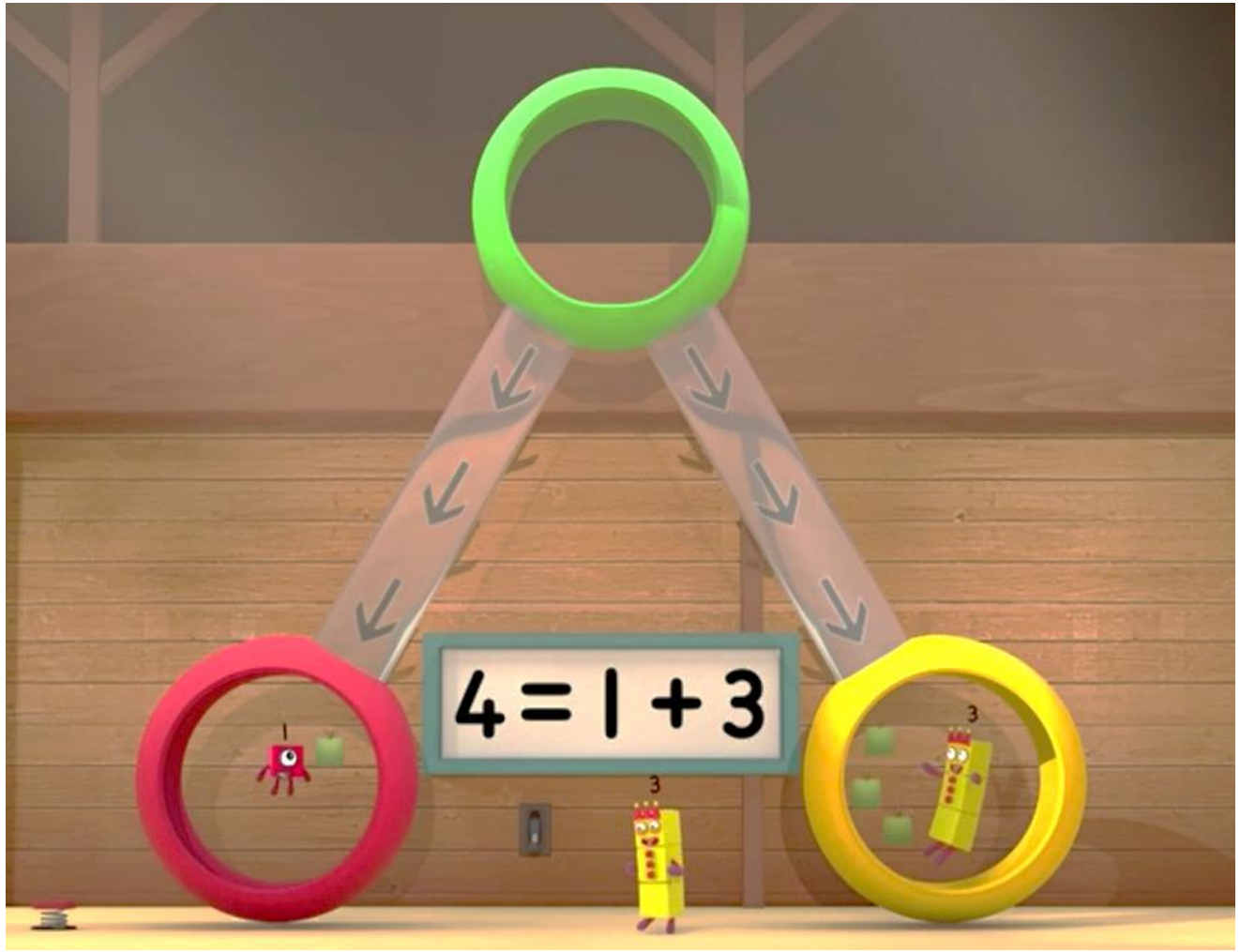


Which Numberblock made these shapes?

How do you know?

Is there another shape he can make?

Numberblocks - Fruit Salad!



Double sided resources

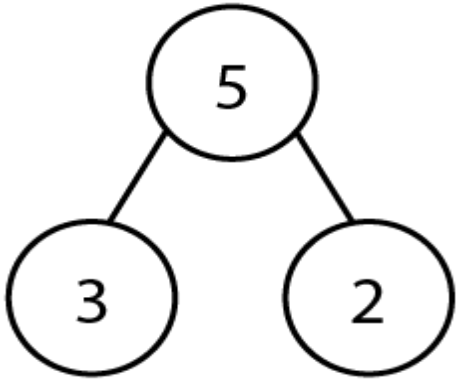
Eight ducks

Griffiths, Back & Gifford (2016*) Making numbers*

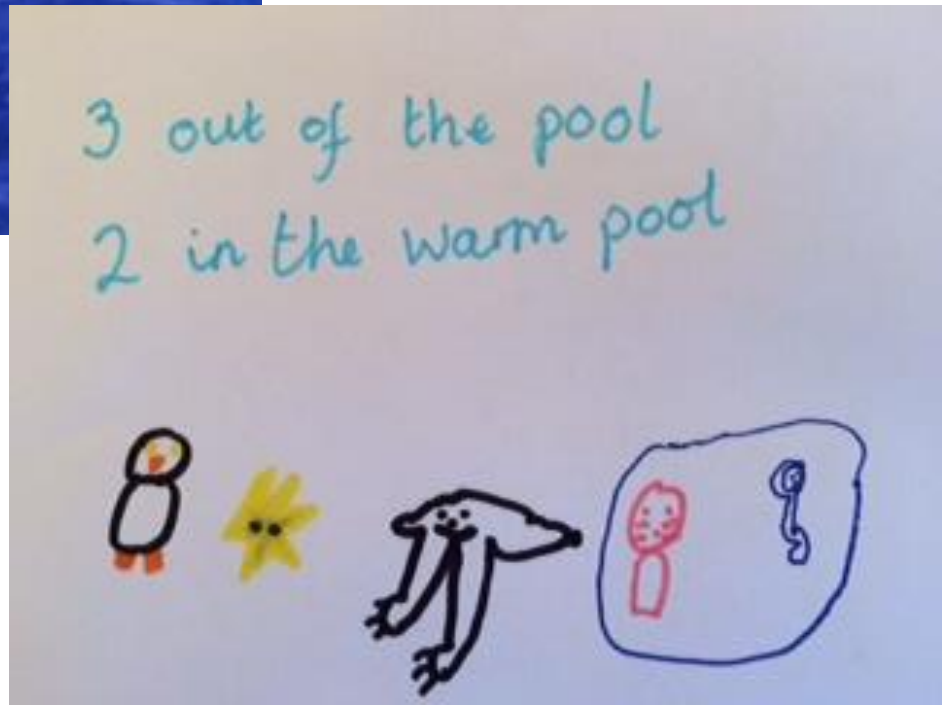
Oxford Owl - Five Friends Counting

Oxford Owl; PD books; Making Numbers
https://www.oxfordowl.co.uk/welcome-back/for-school-back/default/series-landing-pages/pd-books/making-numbers

Five (class animal) friends

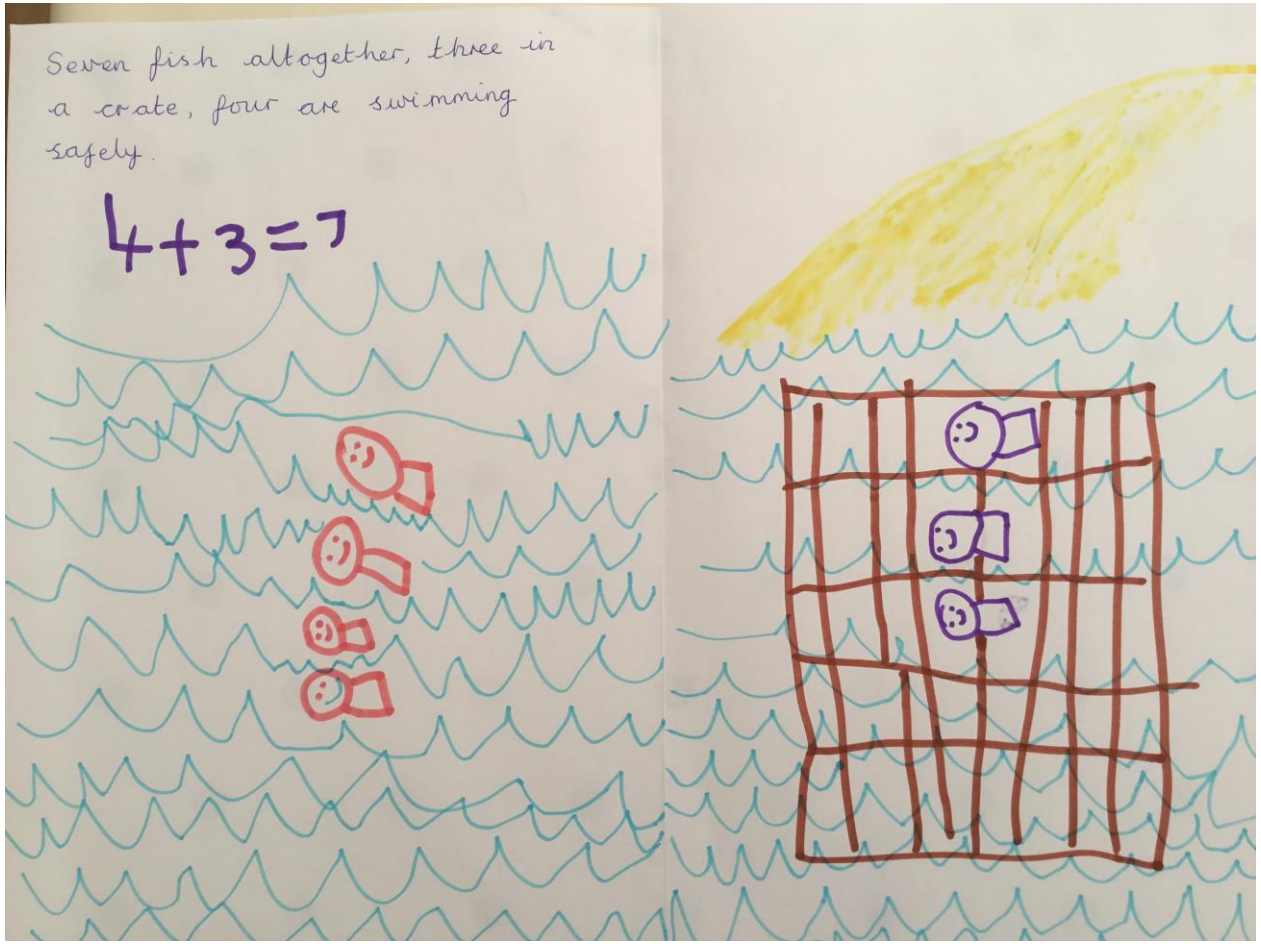


Are/ are NOT



A number can be partitioned into different pairs

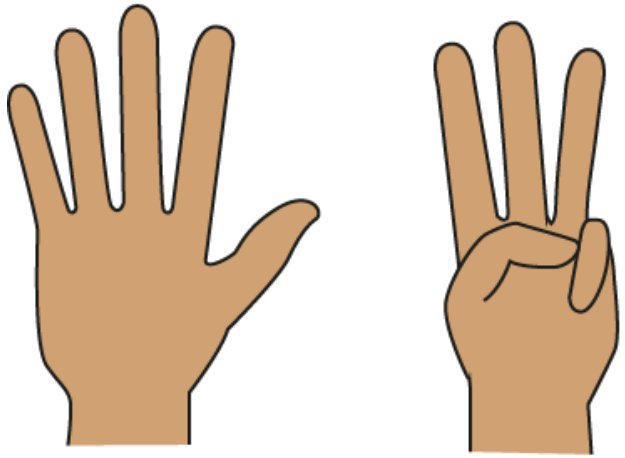
‘I’m going to put half of the 7 fish in the crate…..’

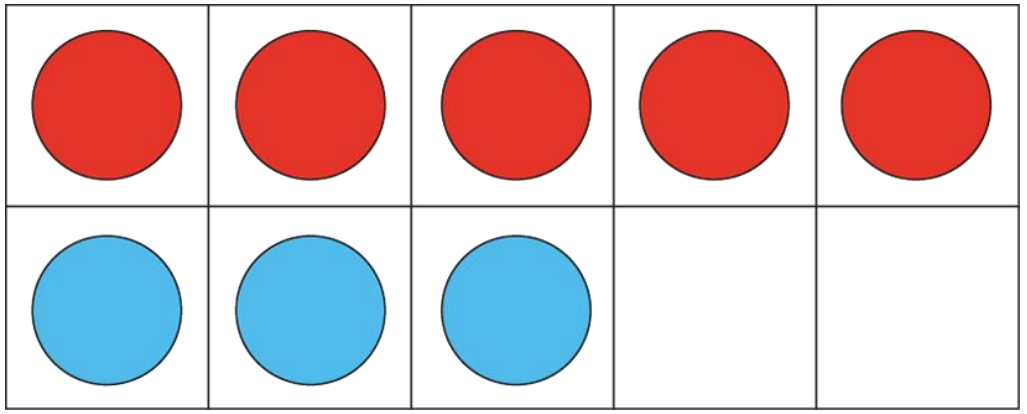


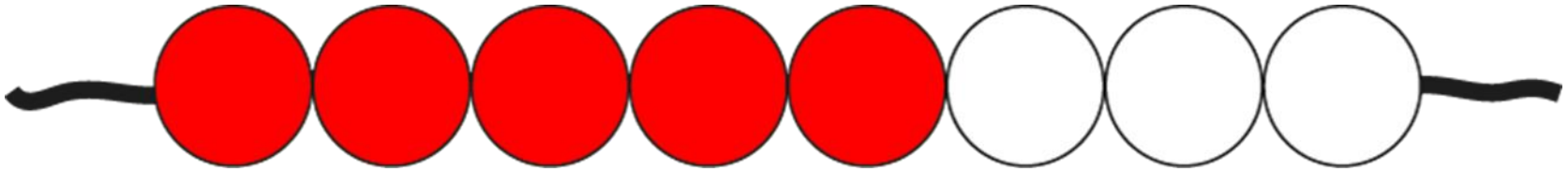
Being systematic

	Blue	Red
	0	5
	1	4
	2	3
	3	2
	4	1

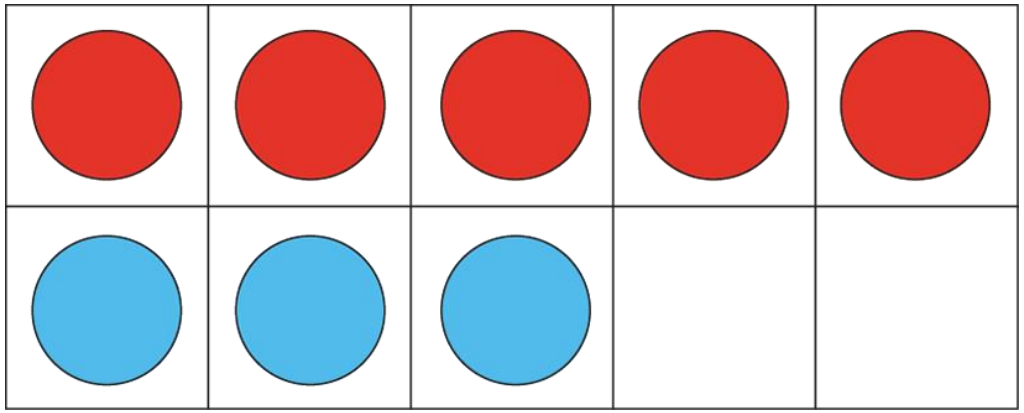
‘Five and a bit’







Relating knowledge to ‘number facts’



$$5 + 3 = 8$$

Using variation - Five or *not* five?

0 + 5	2 + 3	5 + 1
3 + 1	4 + 1	2 + 2

Mindful practice - which number statements have the same sum?

0 + 4	2 + 3	5 + 1
3 + 3	3 + 1	3 + 2

True or false? How do you know?

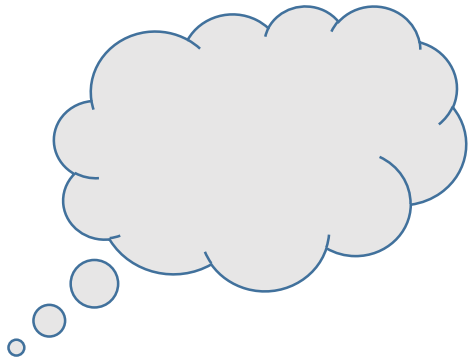
$4 + 1 = 3$

$7 = 2 + 5$

$3 + 4 = 7$

$4 = 0 + 5$

‘Takeaway’…



- Is there anything you can use with your children straightaway?
- What discussions will you have with your fellow practitioners?
- When can you plan some time for your own PD? What can you do?
- Will you need a discussion with your SLT?