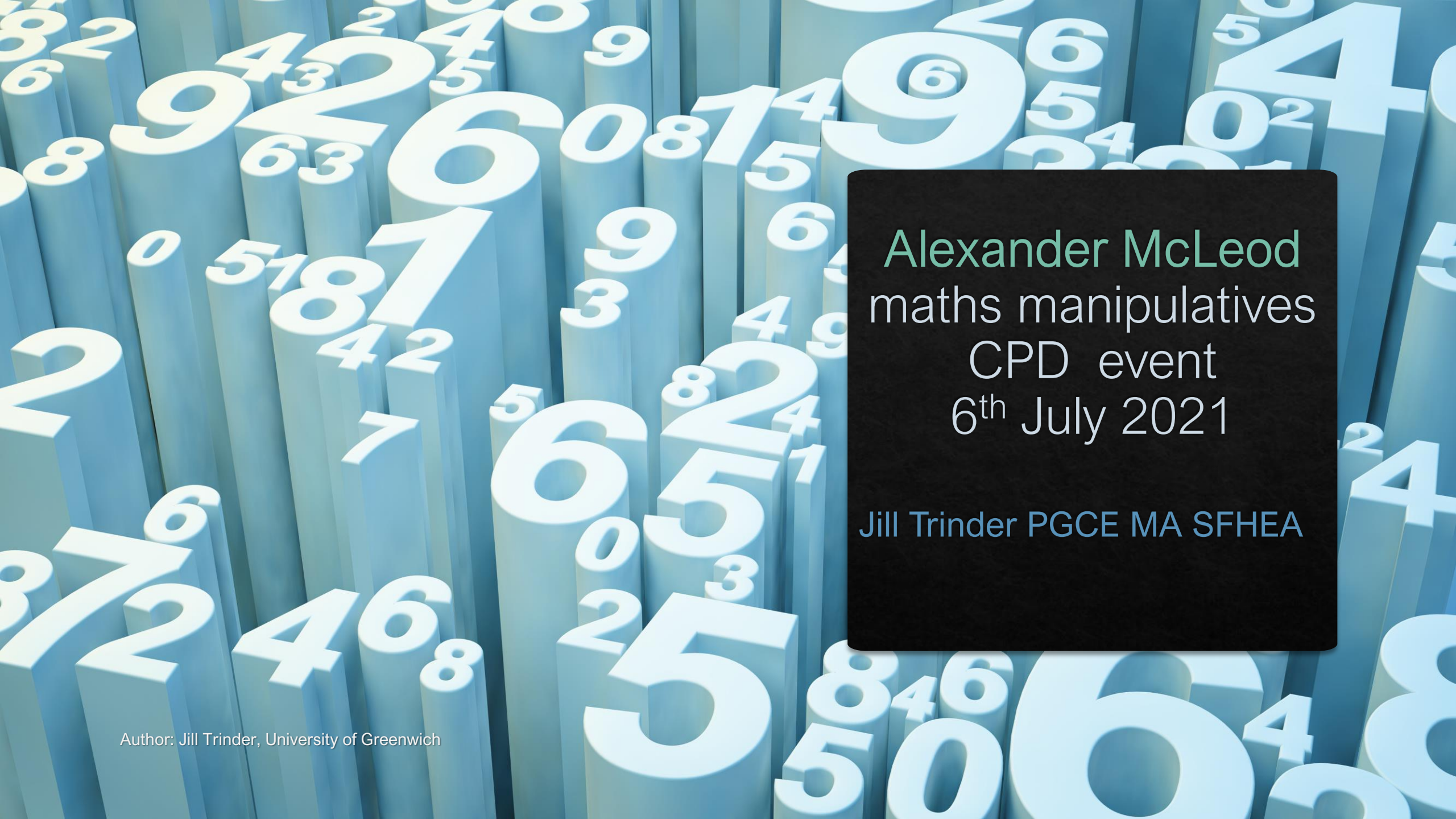
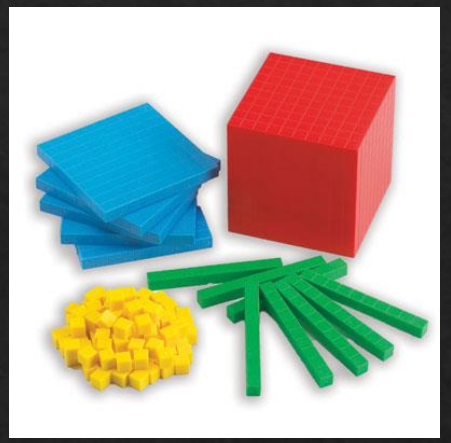
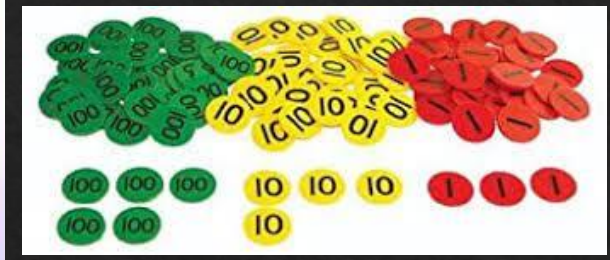


Alexander McLeod maths manipulatives CPD event 6th July 2021

Jill Trinder PGCE MA SFHEA

Author: Jill Trinder, University of Greenwich

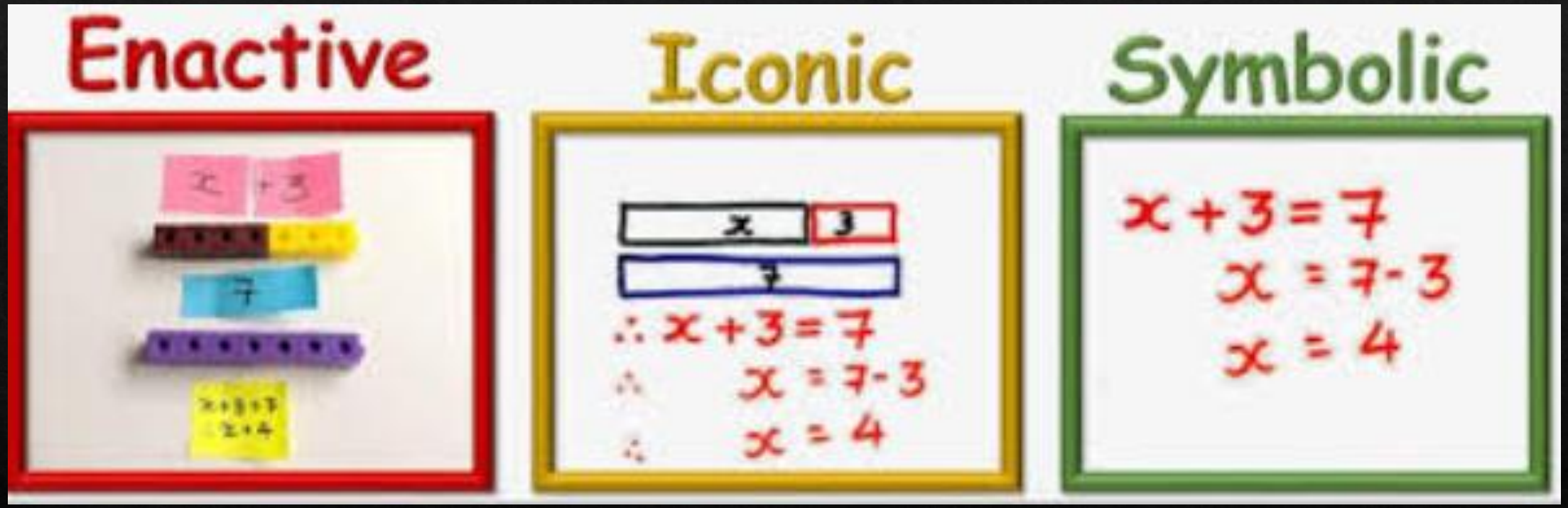
Why use manipulatives/representations?

Who should have access to them?

How long should we use them for?

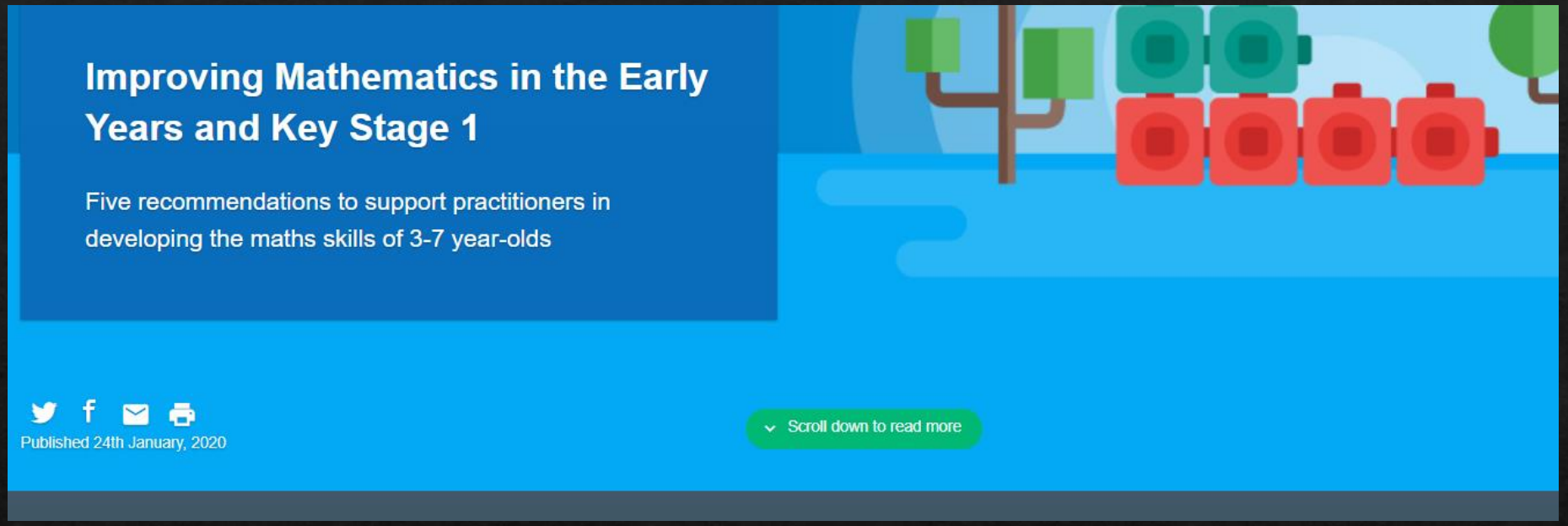
Author: Jill Trinder, University of Greenwich

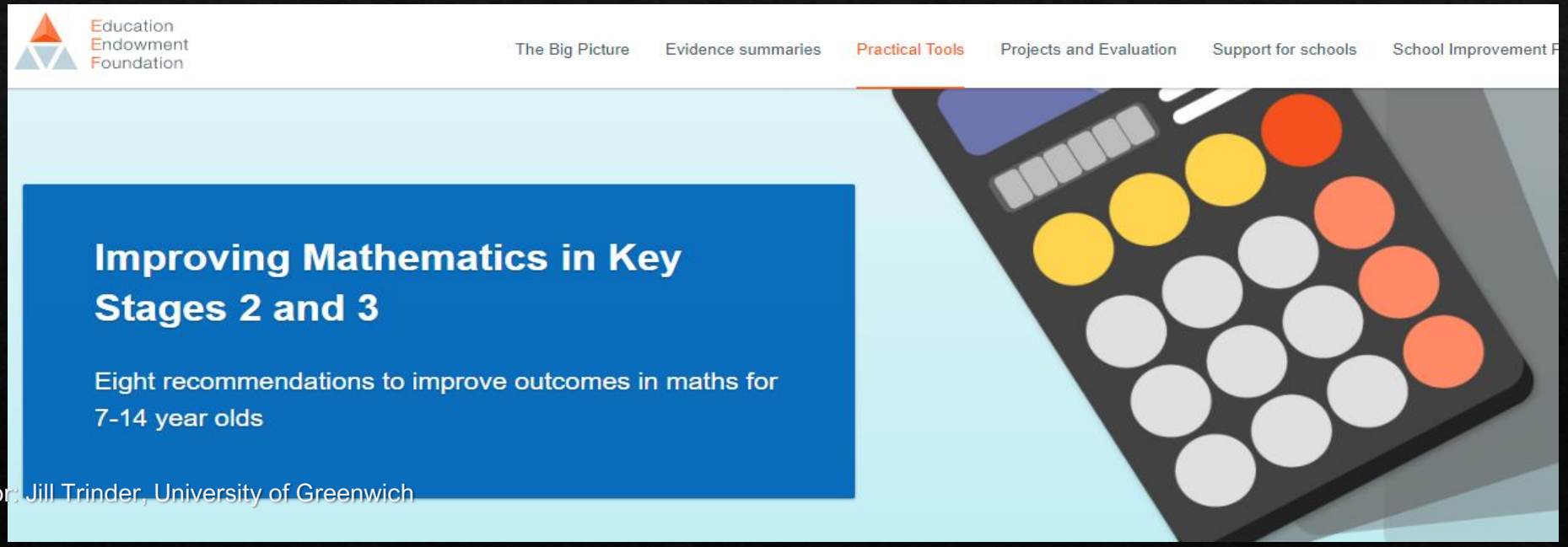
Progression in Approaches



Concrete Pictorial Abstract

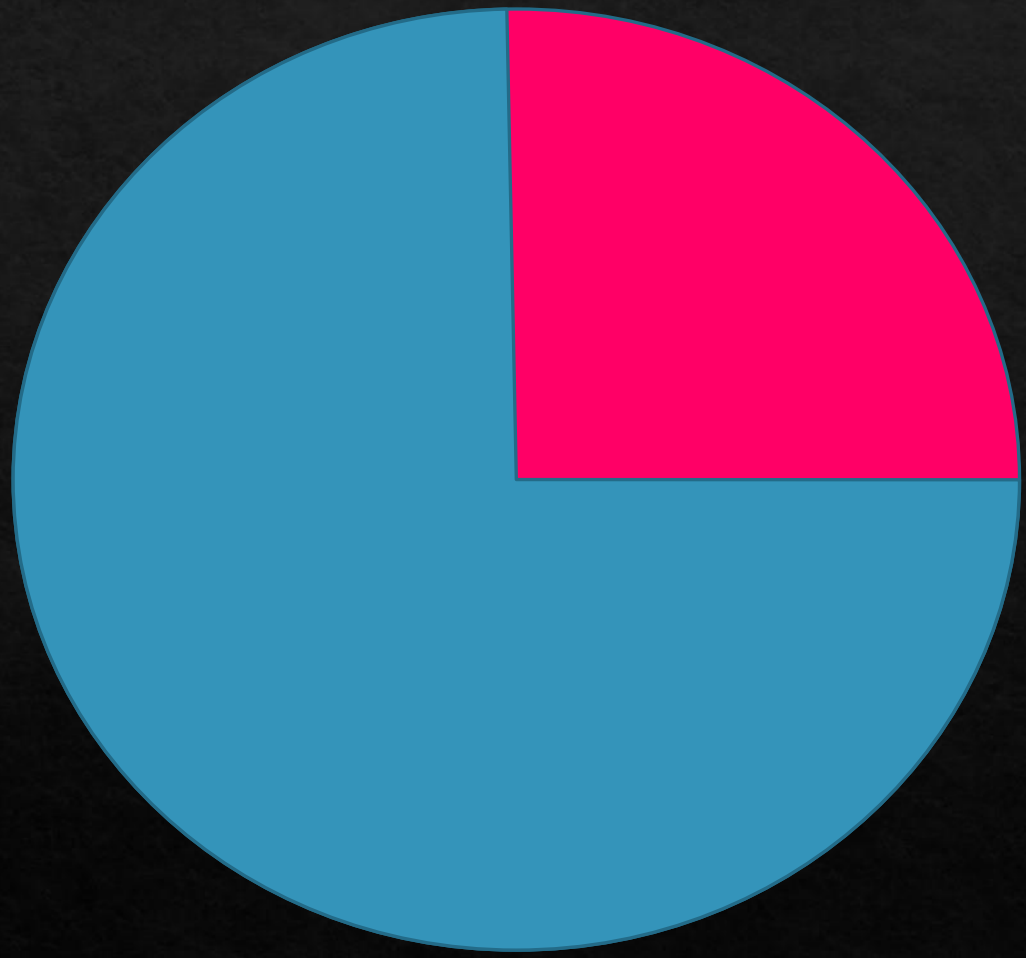
Author: Jill Trinder, University of Greenwich





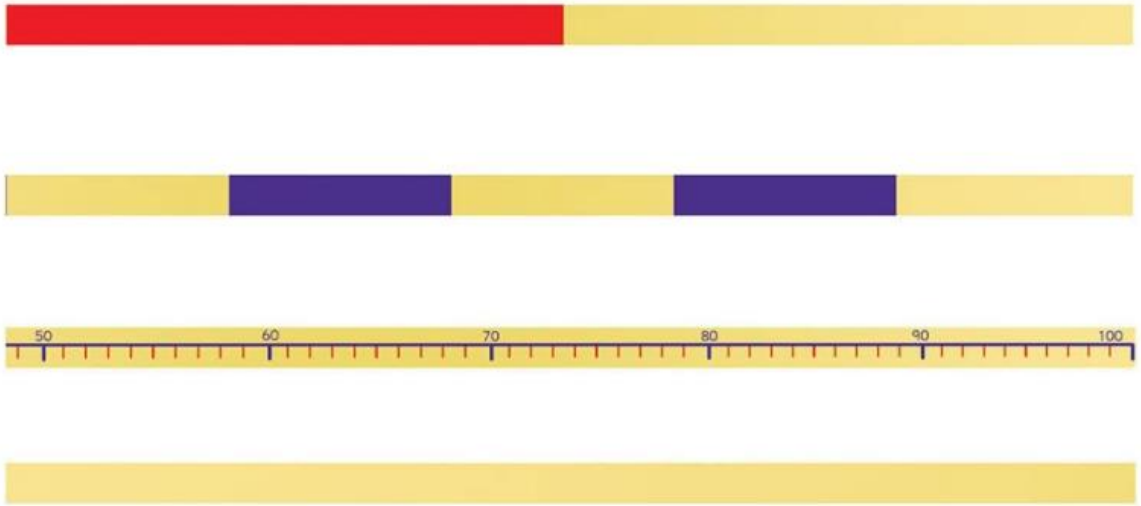
Author: Jill Trinder, University of Greenwich

The ‘Pacman’

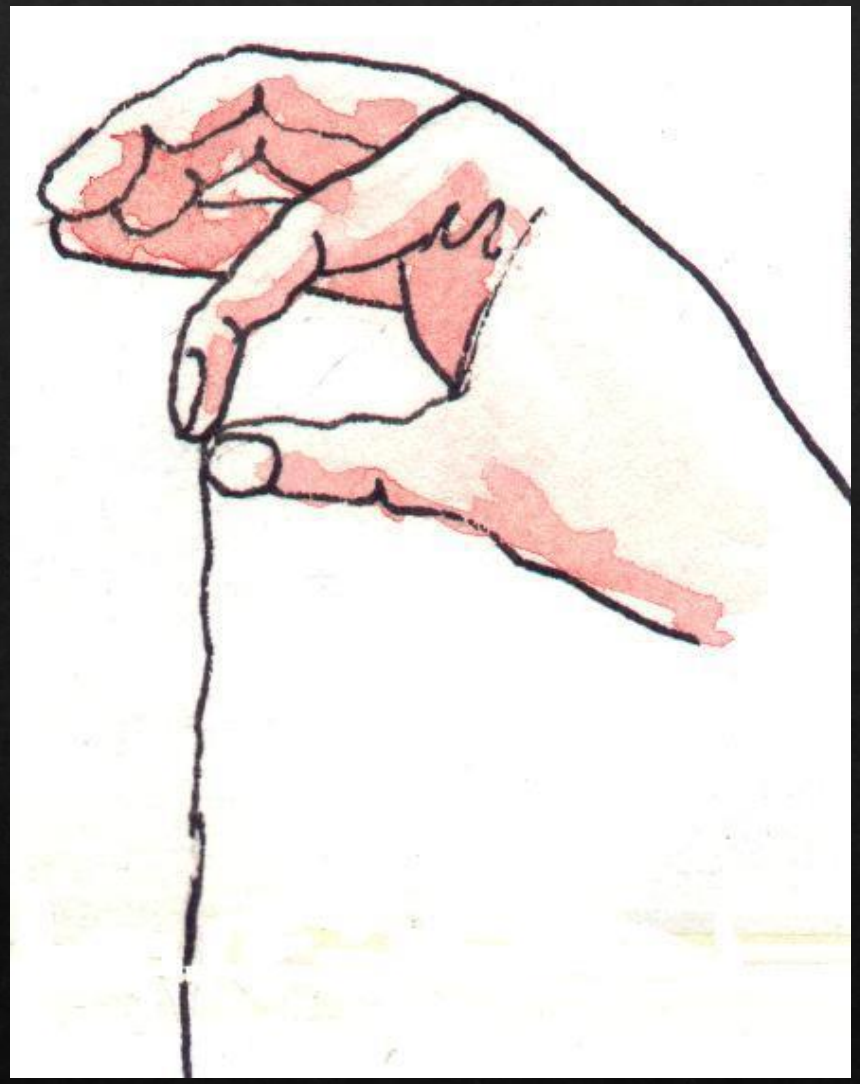


Author: Jill Trinder, University of Greenwich

Counting Sticks



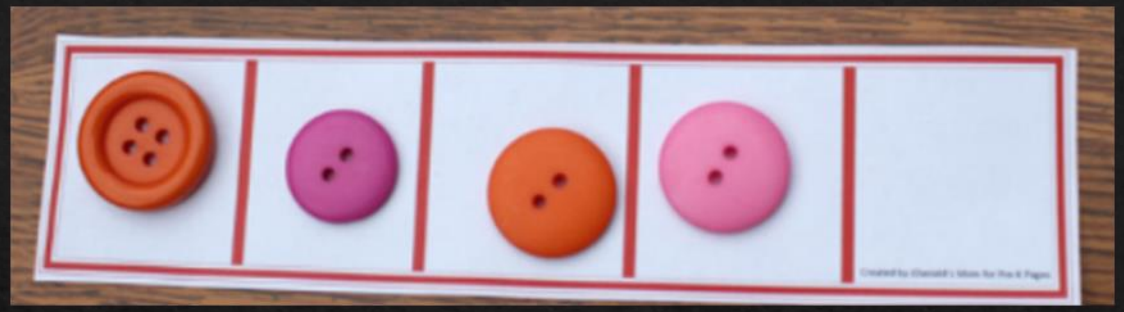
Author: Jill Trinder, University of Greenwich



The Pendulum

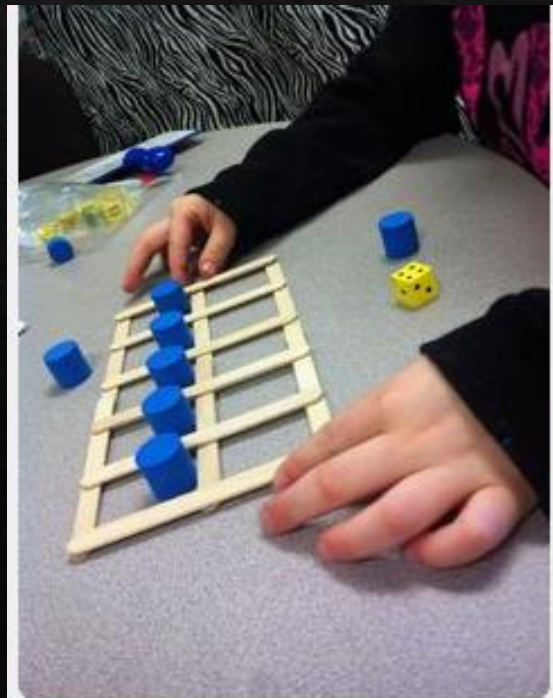
You definitely won’t be ‘feeling sleepy’!

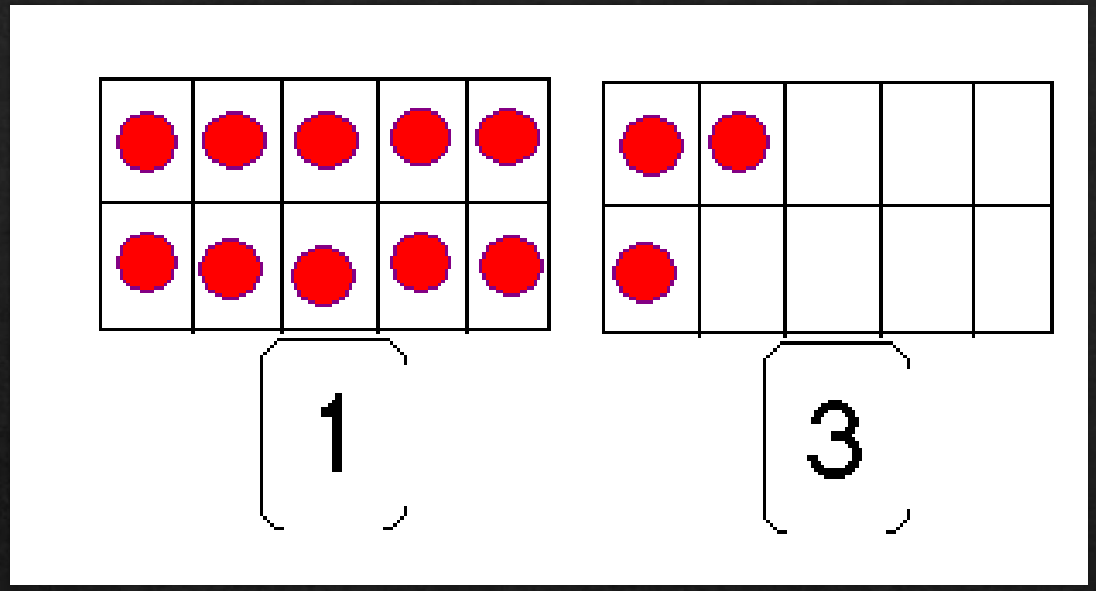
Author: Jill Trinder, University of Greenwich

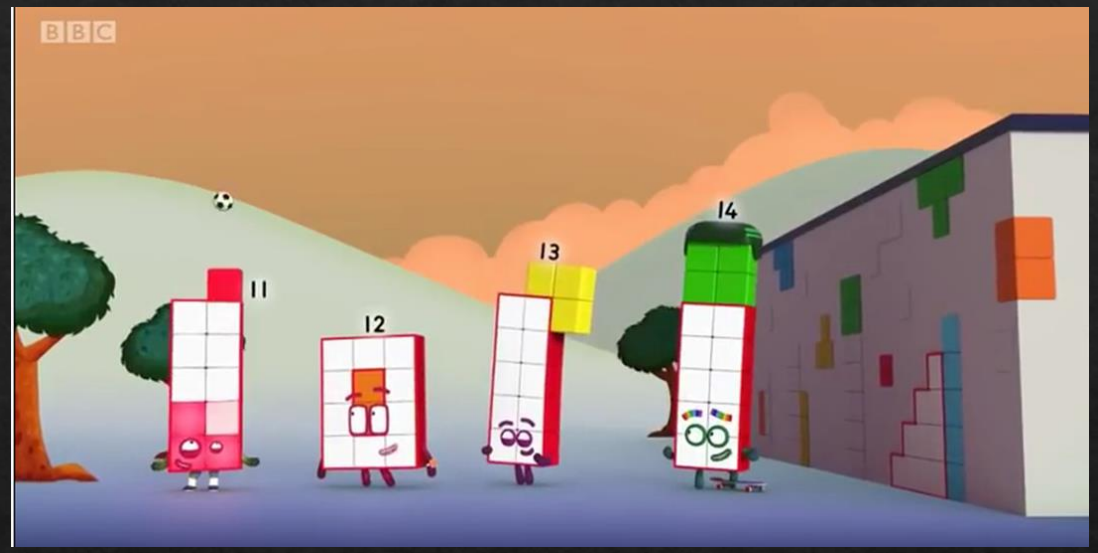


Fives & Tens Frames in the Early Years

Author: Jill Trinder, University of Greenwich



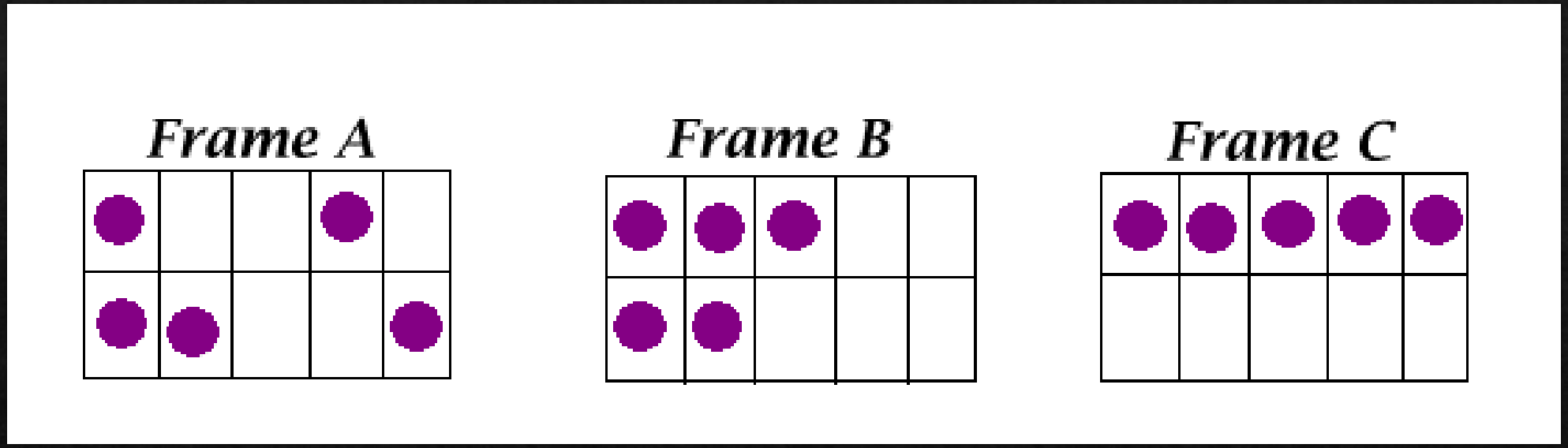




Tens Frames for Place Value

Author: Jill Trinder, University of Greenwich

Tens Frames



Way, J. (2011) ‘Number Sense Series: A Sense of ‘ten’ and Place Value’ available at: https://nrich.maths.org/2479

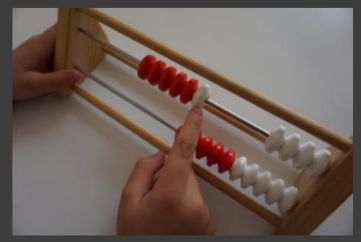
Author: Jill Trinder, University of Greenwich

Rekenreks

NEWS

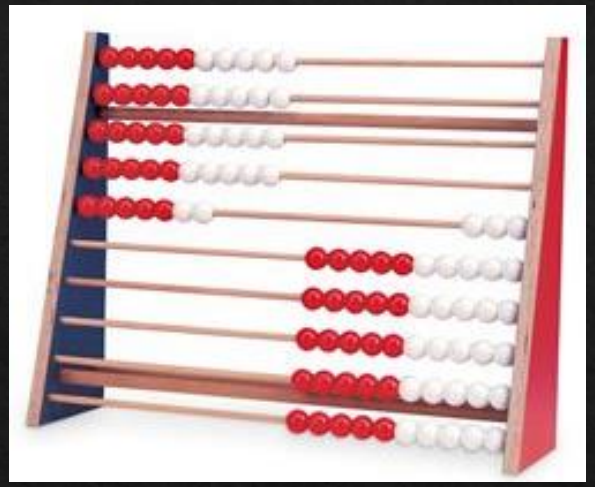
MASTERING NUMBER: A NEW PROGRAMME FOR EARLY PRIMARY PUPILS

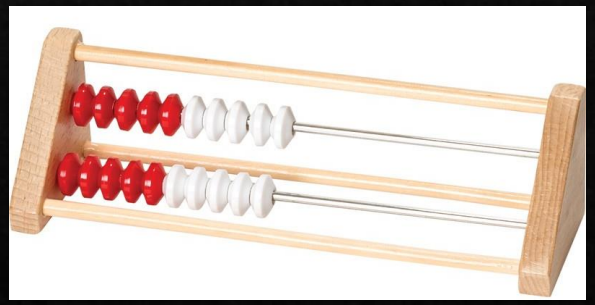
A nationwide project for 2021/22 aimed at teachers and pupils in Reception, Year 1 and Year 2



MathsBot.com

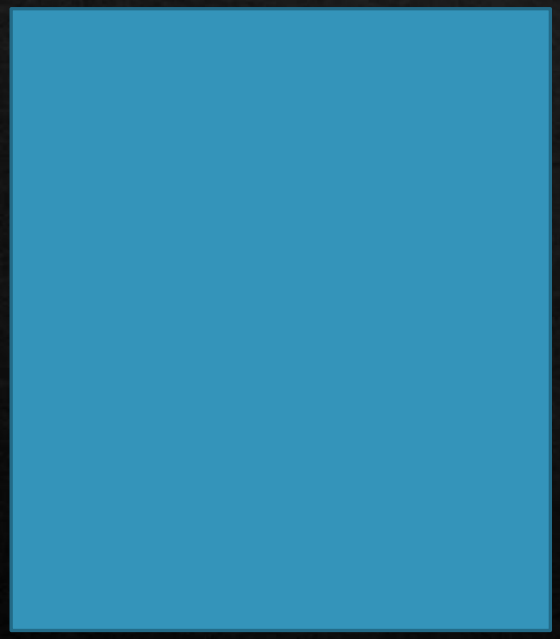
Tools for Maths Teachers

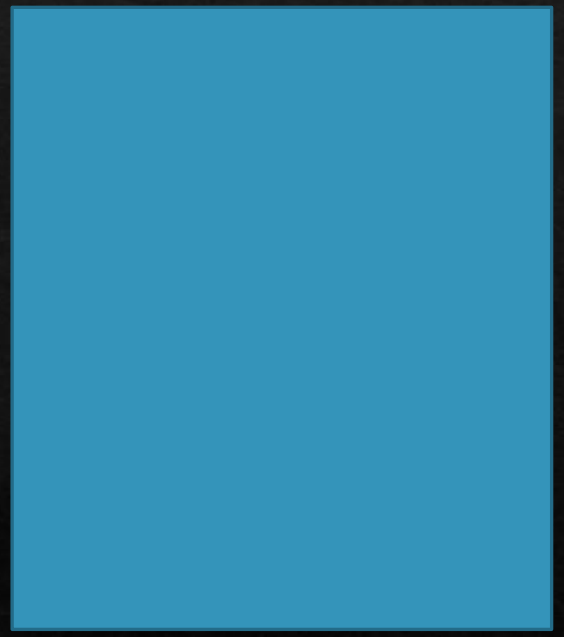


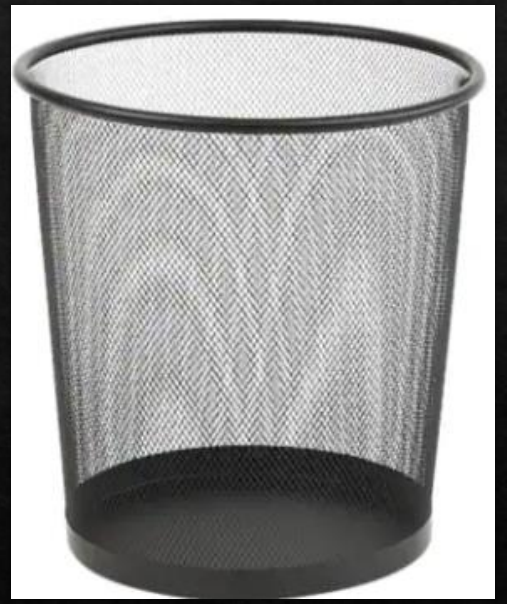


Author: Jill Trinder, University of Greenwich

PV Game



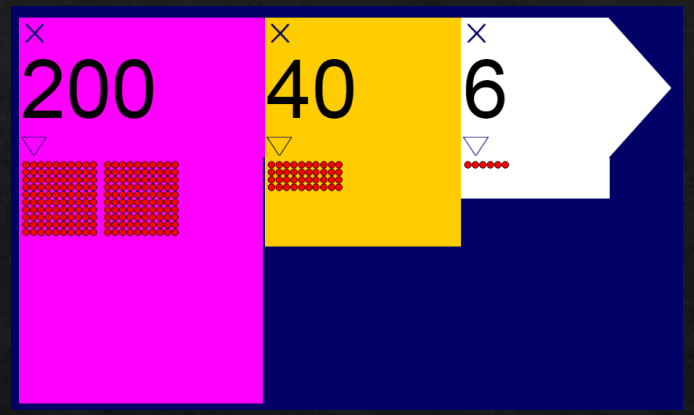


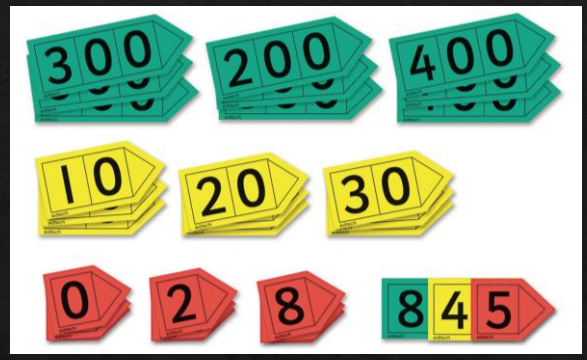


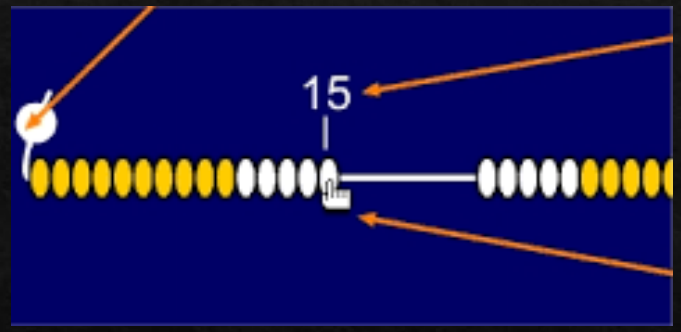
Author: Jill Trinder, University of Greenwich

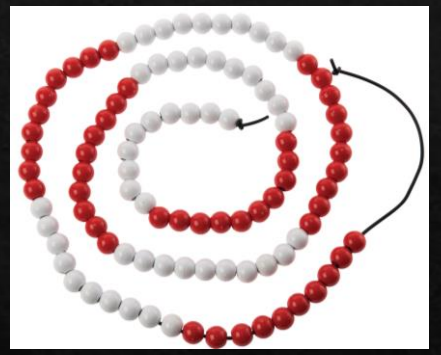
Concrete and Pictorial Power

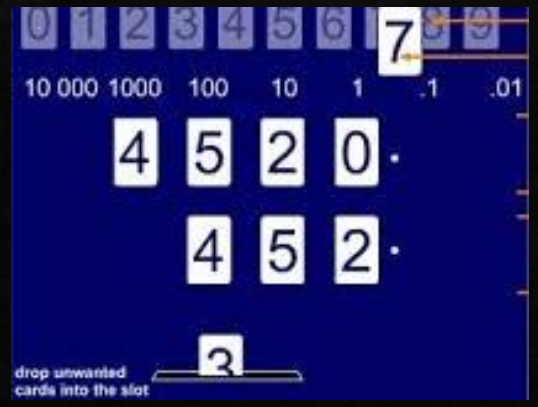
- Place value
- Beads
- Moving Digits

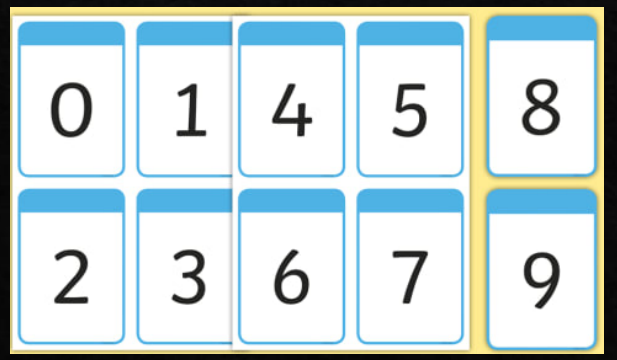




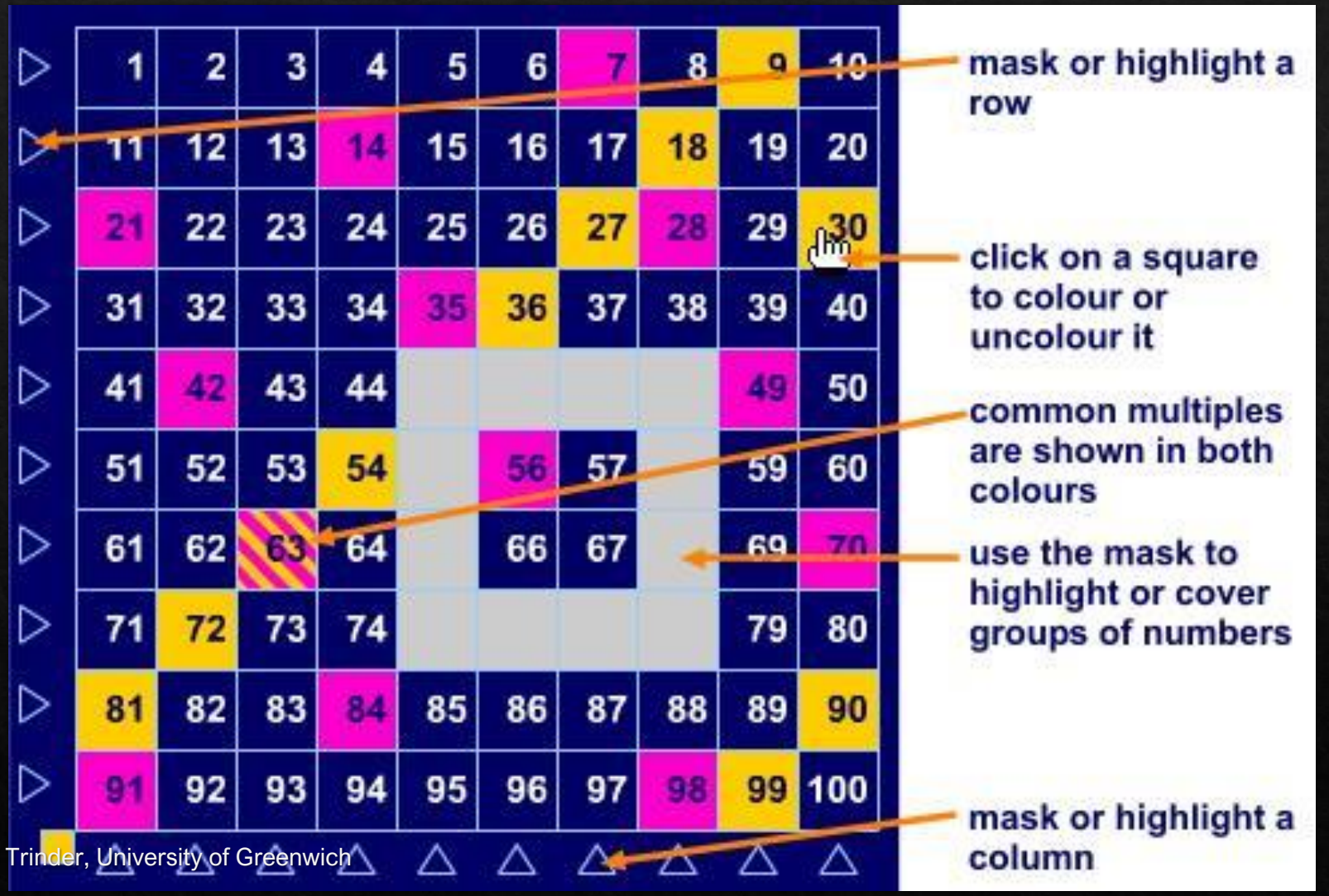








Number Squares



Author: Jill Trinder, University of Greenwich

Counting in 2s

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

Author: Jill Trinder, University of Greenwich

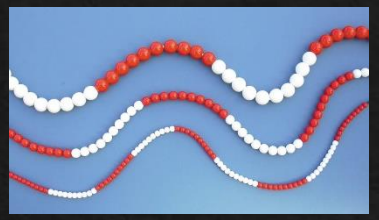
Counting in 4s

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

Author: Jill Trinder, University of Greenwich

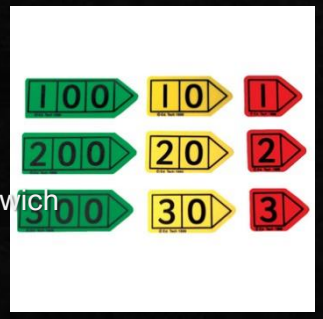
Some common resources which support the understanding of place value

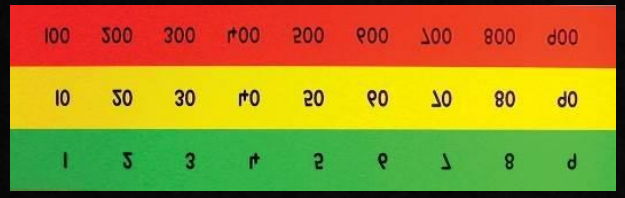
- Numicom
- Arrow Cards
- Money
- Straws
- Unifix / multilink



- 100 beads
- PV hats
- 100 grid
- Dienes
- Gattegno chart

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





Author: Jill Trinder, University of Greenwich

Sometimes, Always, Never true...

Is it **always, sometimes or never** true that if you add three numbers less than 10 the answer will be an odd number?

Is it **always, sometimes or never** true that when you multiply a whole number by 9, the sum of its digits is also a multiple of 9?

Lots more of these on the NCETM website under their 'Reasoning Skills' microsite

Author: Jill Trigger, University of Greenwich

Using Mathematical Resources More Creatively

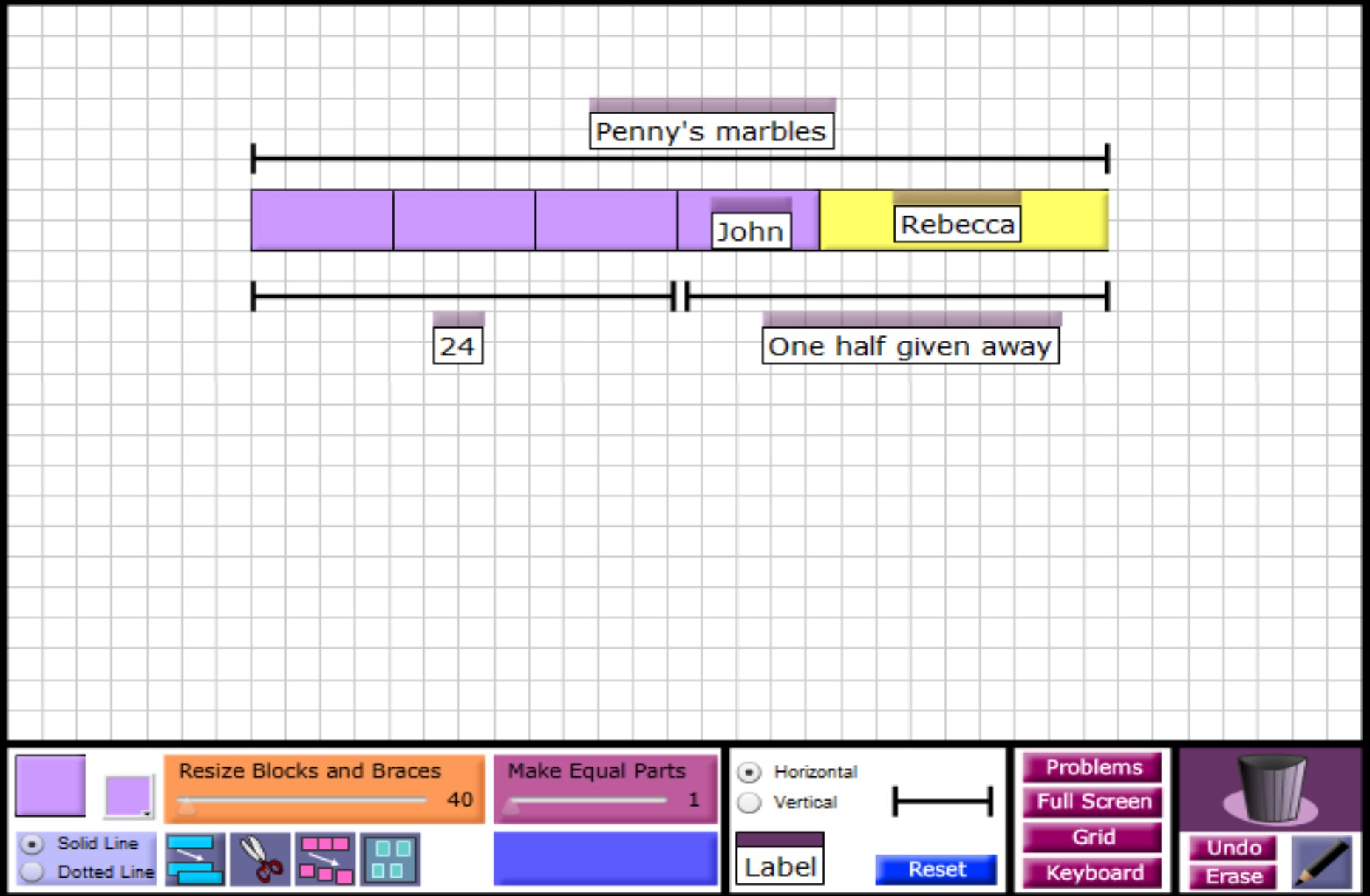
Author: Jill Trinder, University of Greenwich

How would you solve this problem?

- Penny had a bag of marbles. She gave one-third of them to Rebecca, and then one quarter ***of the remaining marbles*** to John.
- Penny then had 24 marbles left in the bag.
- How many marbles were in the bag to start with?

(Overall percent correct, Singapore: 81%, United States: 41%)

Author: Jill Trinder, University of Greenwich



Author: Jill Trinder, University of Greenwich

Josh spends half his money on a bike.

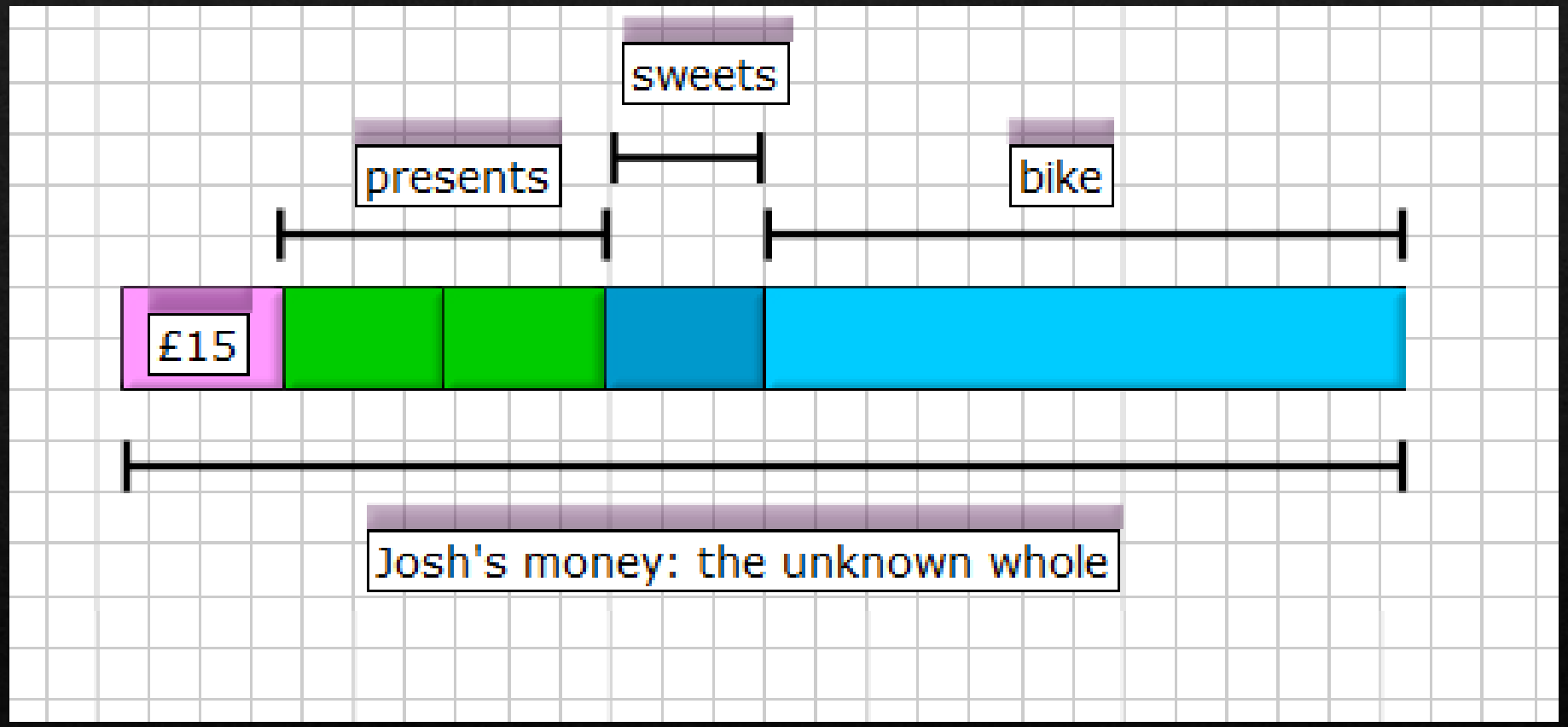
He then spends a quarter of what is left on sweets.

He then spends two thirds of what is left on presents.

He now has £15 left.

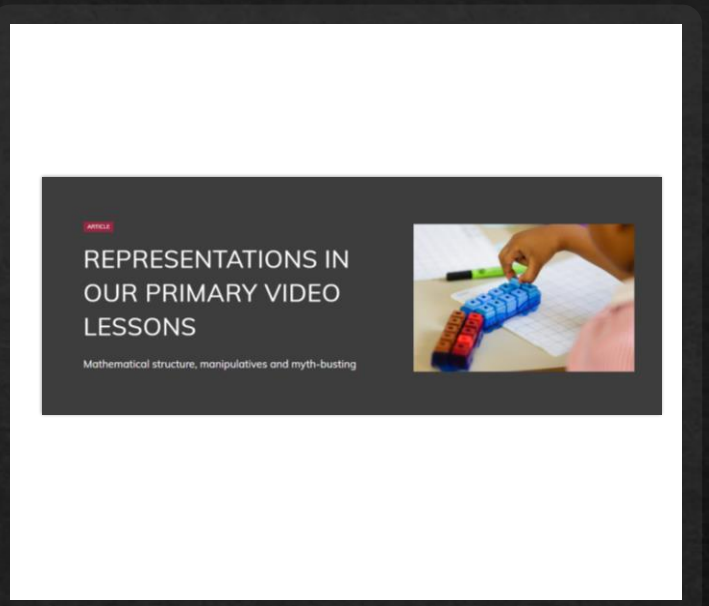
How much did Josh have to start with?

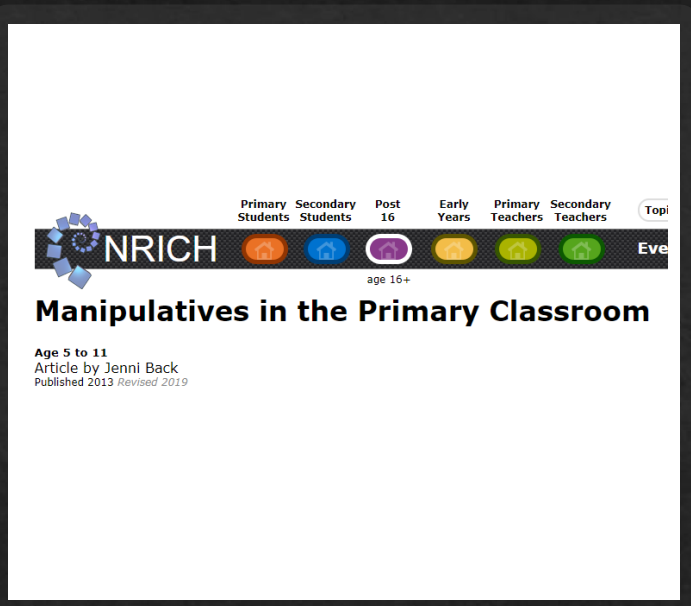
Author: Jill Trinder, University of Greenwich

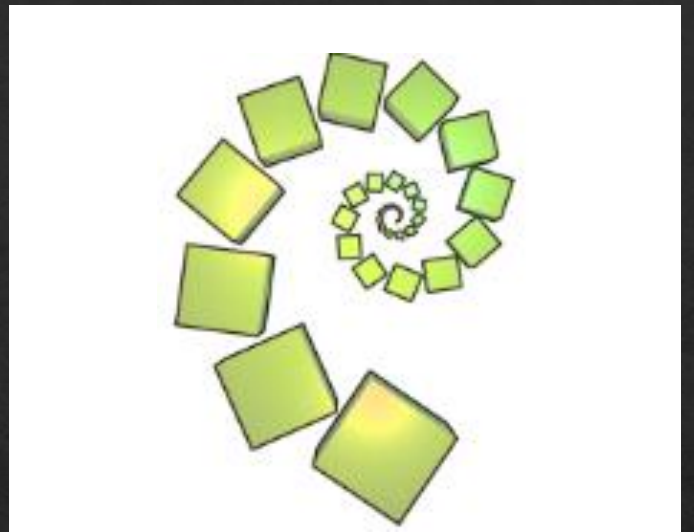


White Rose produce 'Barvember' materials every year for schools to use for free!

Author: Jill Trinder, University of Greenwich







Places to go for more ideas…

Author: Jill Trinder, University of Greenwich