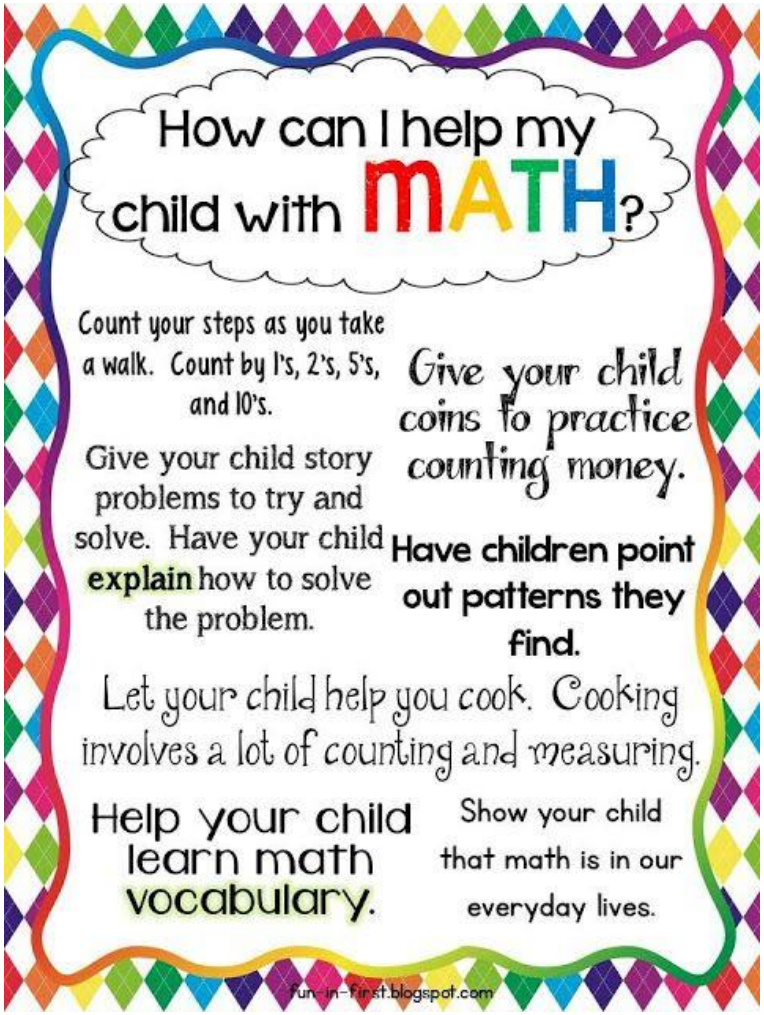
Parent Workshop

Developing Number sense

Year 1 and 2



Over Learning, Mastery and Depth

Language: vocabulary/sentences *'In our classes mathematical language is very important. Our students must know how to do, say and express maths.' Teacher in Shanghai*

Over learning through

- an emphasis on explanation and review
- Contexts
- Concrete resources
- Range of manipulatives
- Meaningful practice

Mastery:
understanding, visualising and explaining structures and relationships

Depth through

- Making connections, describing structures, relationships and patterns
- Solving problems
- Reasoning
- Generalising
- Proof

Shanghai: Understanding the Basics
'Deep understanding of number. Fluency and flexibility, an understanding of structures and mastery of the vocabulary.'

What maths can be taken from a game?

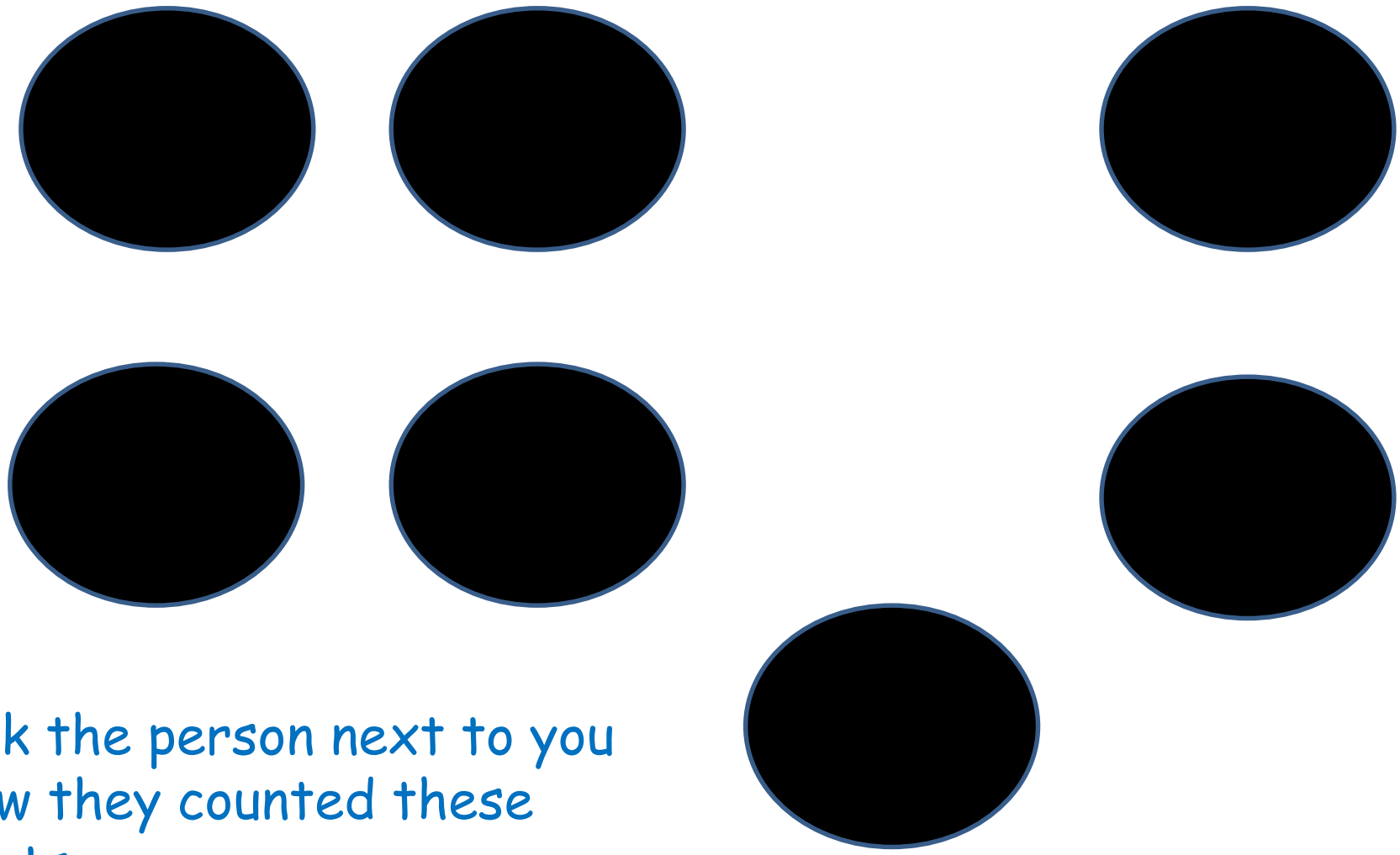
10 nice things

(One pair on each table please take 10 nice things from the pile)

1) Player 1 rolls the dice and has to give player 2 that many 'nice things'.
2) Player 2 rolls the dice and has to give player 1 that many 'nice things'.
3) Repeat the process until someone has no more nice things to give.
5) You decide who wins – is it the person with none left that wins or the person who has all the 'nice things?

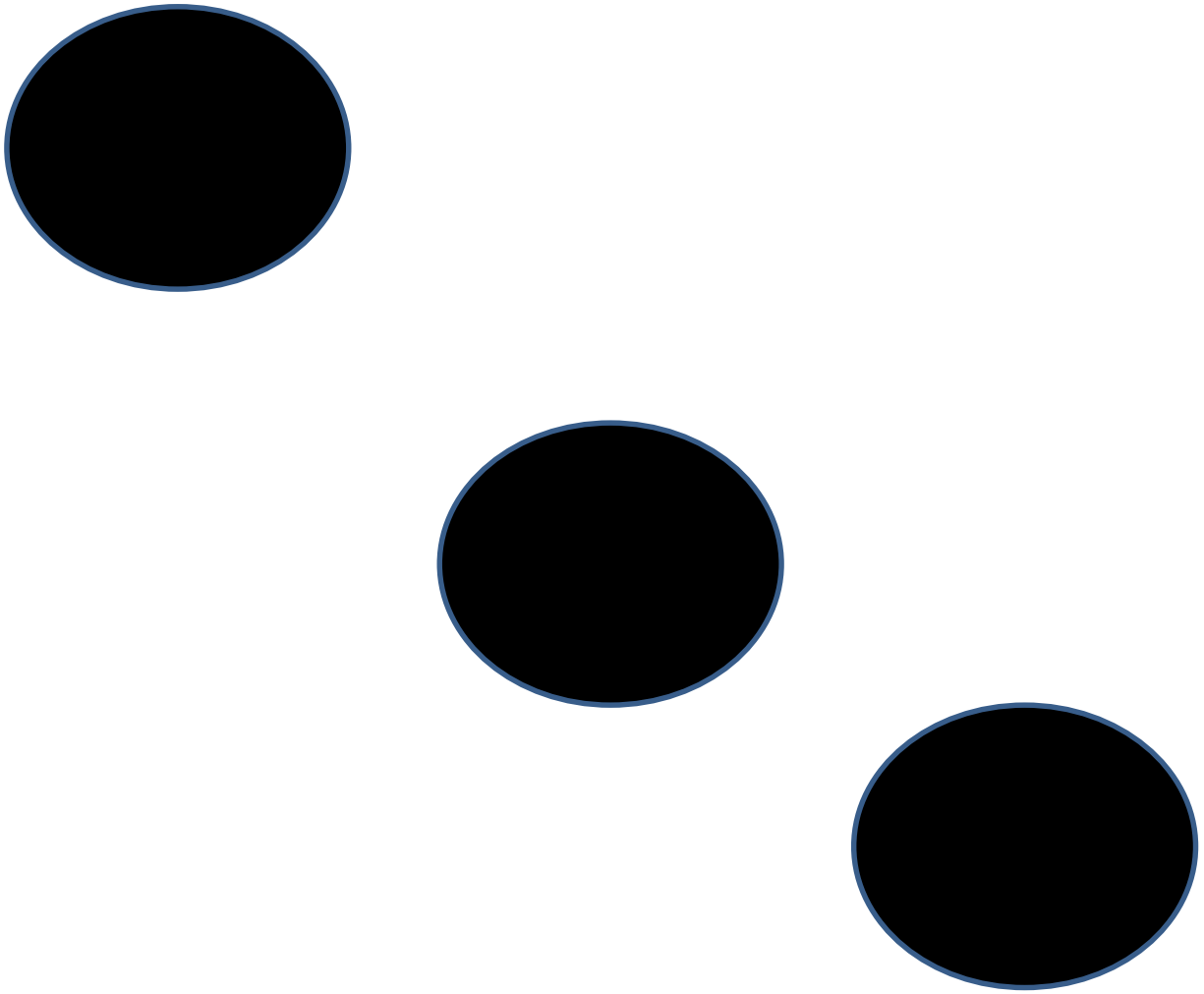
Other people on the table notice what questions they asked each other?

How many spots do you see?

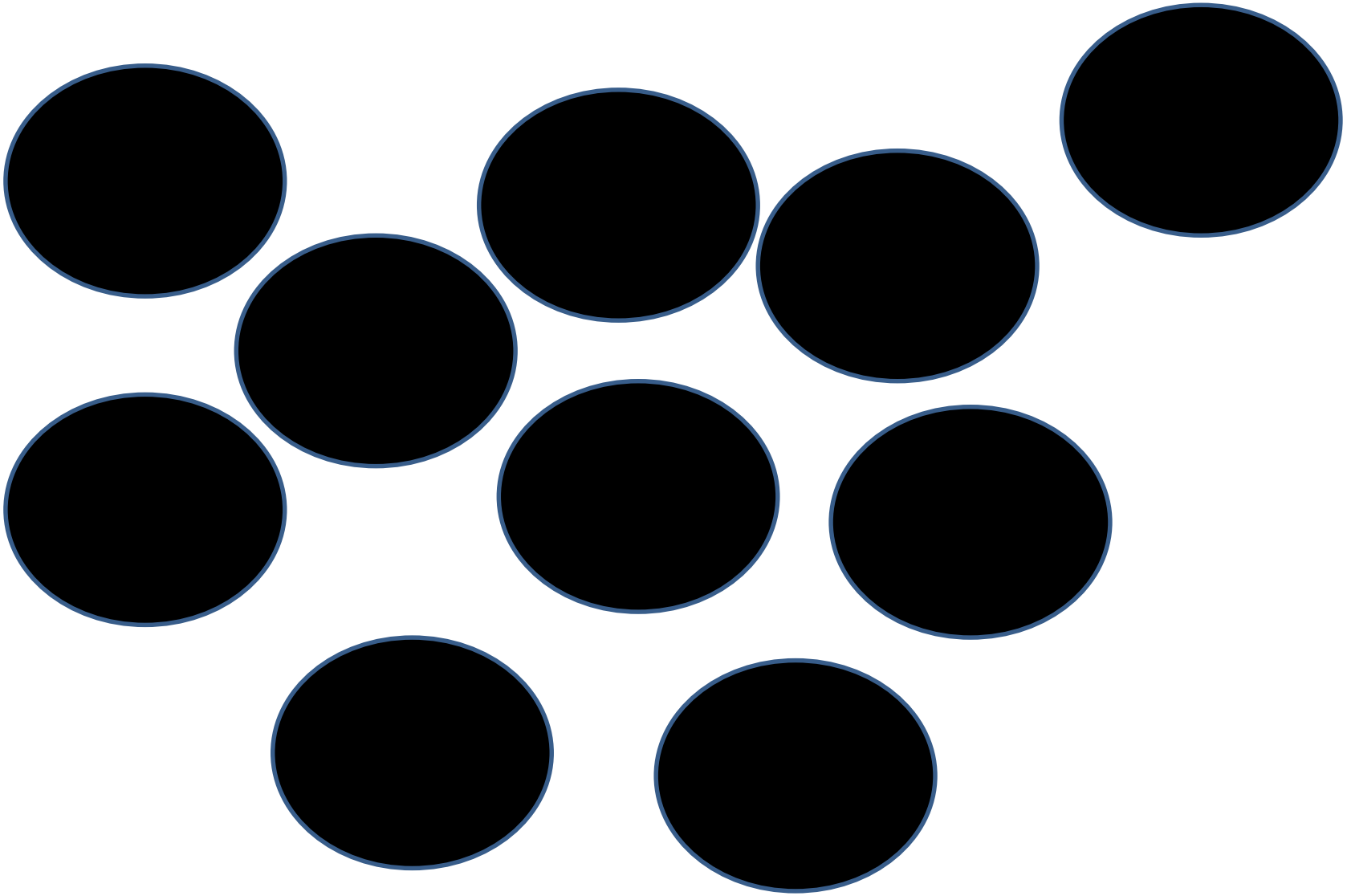


Ask the person next to you how they counted these spots.

How many spots do you see?



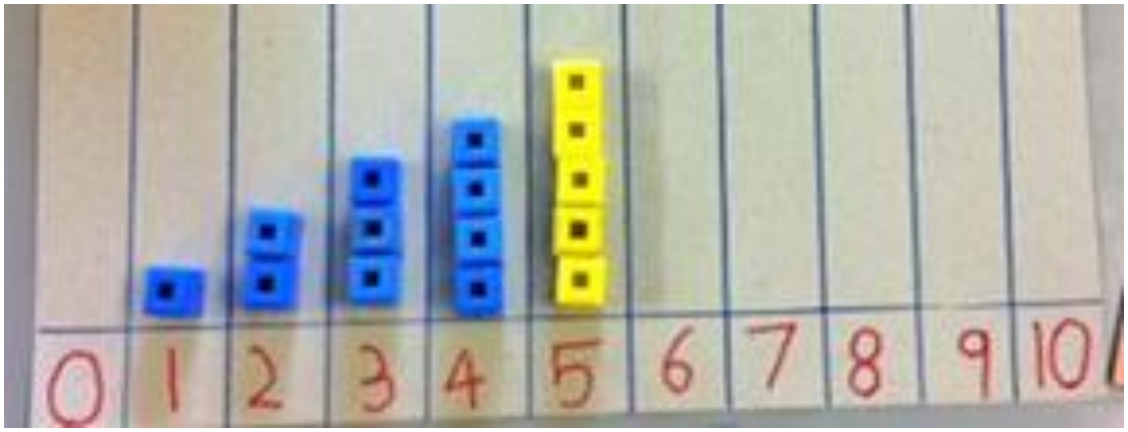
How many spots do you see?



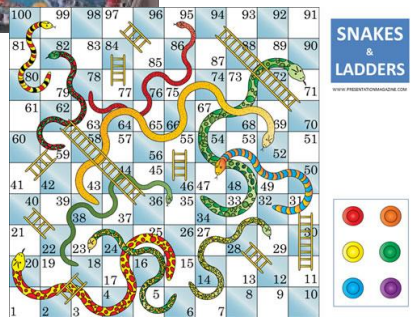
Staircase image

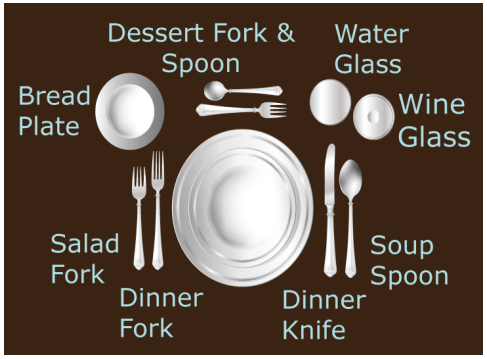
How many ways can you make 7?

Making Staircase Patterns



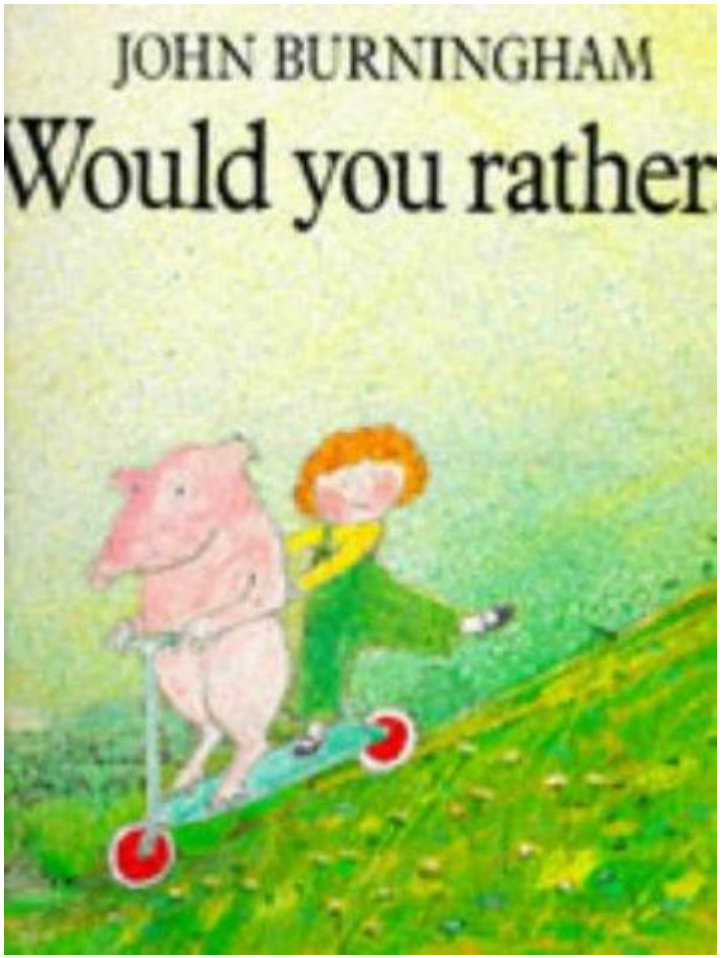

Frustration!
The exciting race game


SNAKES & LADDERS

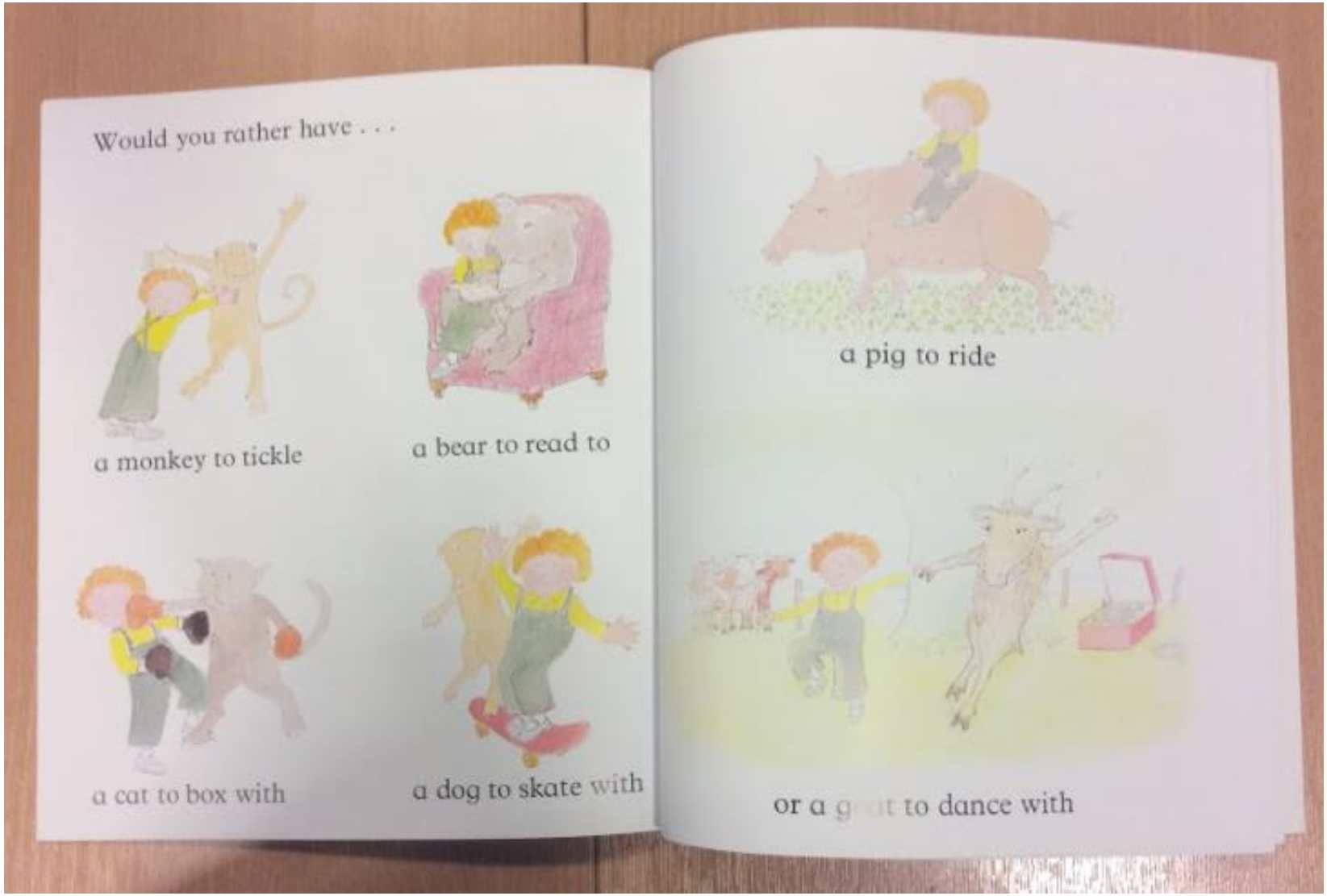

Dessert Fork & Spoon
Water Glass
Bread Plate
Wine Glass
Salad Fork
Soup Spoon
Dinner Fork
Dinner Knife

Counting for a Purpose

- Prepare
- Check
- Role play
- Keep score
- Surveys
- Labelling



Would you rather…



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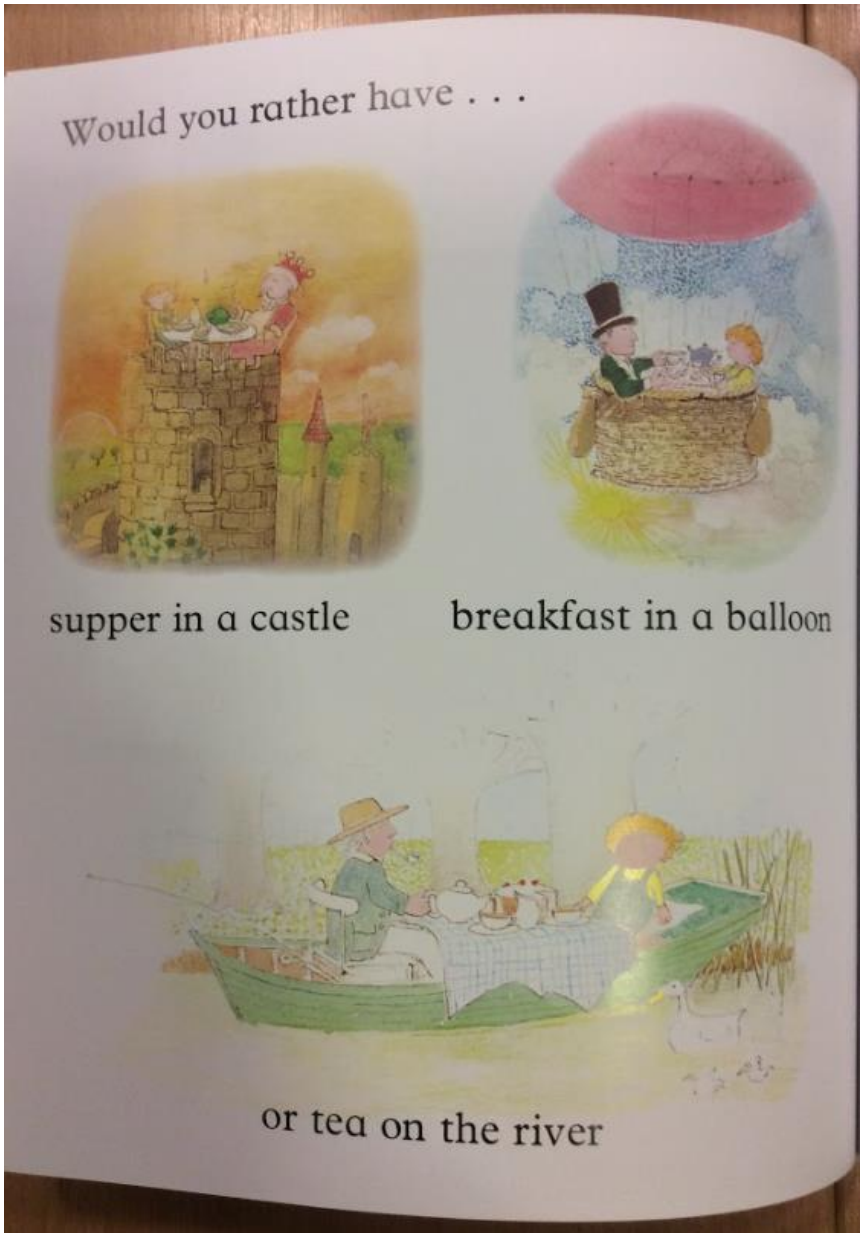
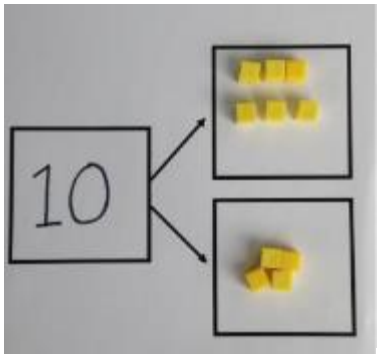
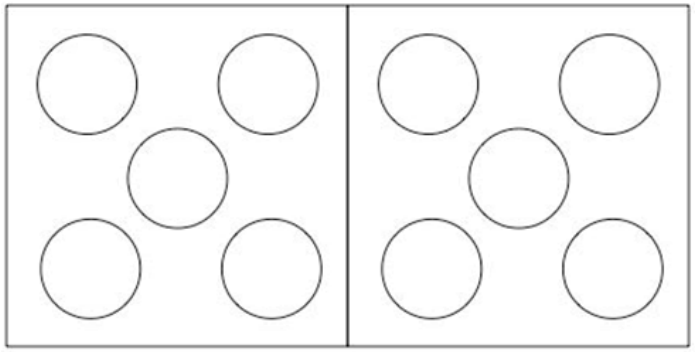
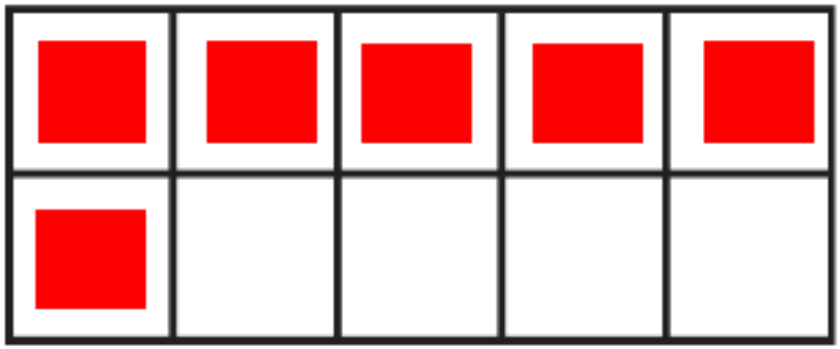


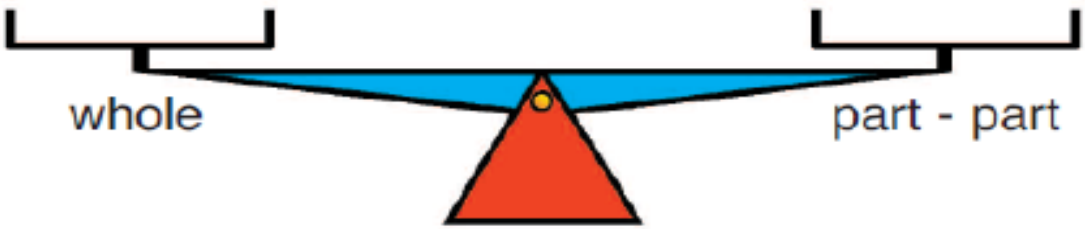
Would you rather…

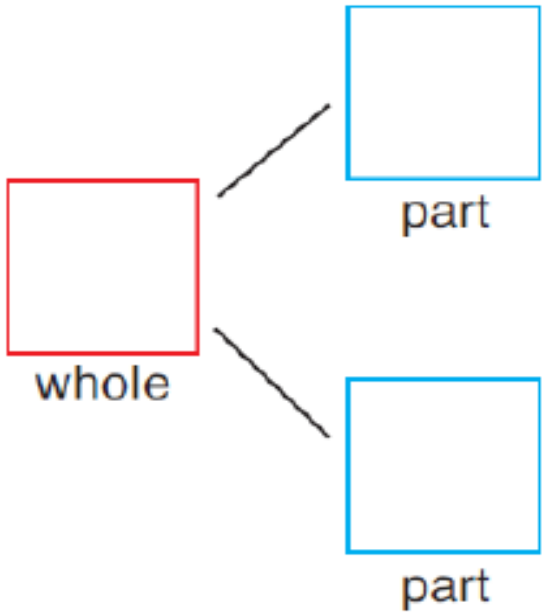
Models…





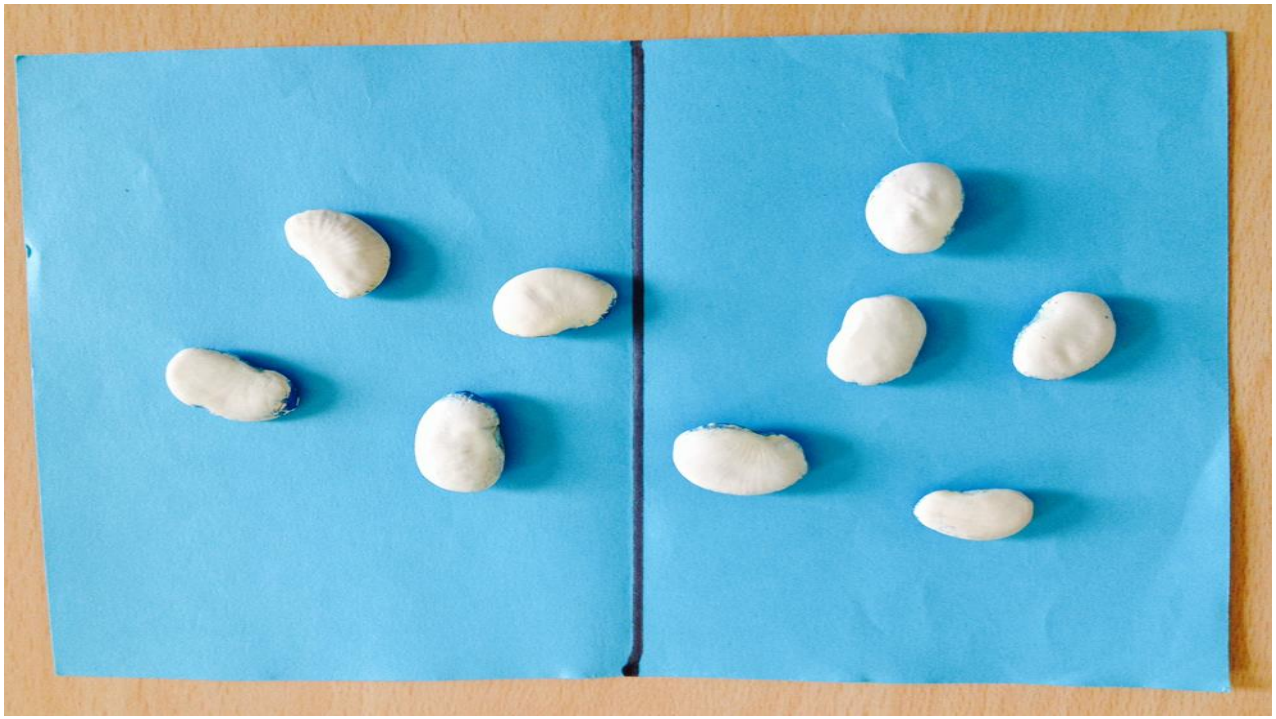






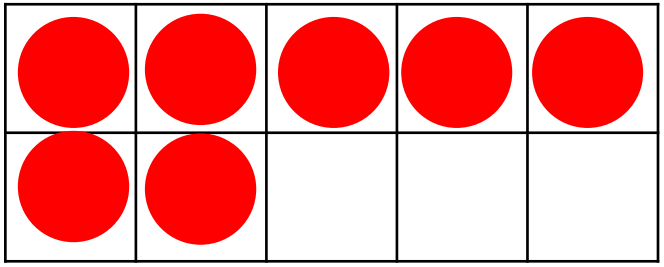
How many ways

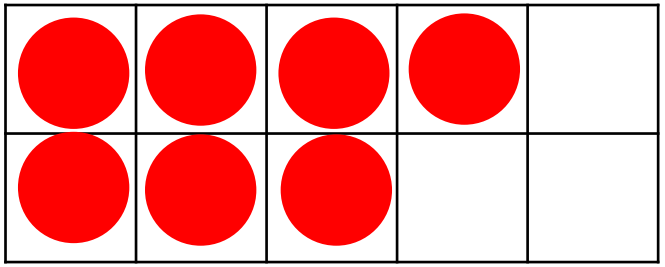
- beans, pennies, small world play, contexts

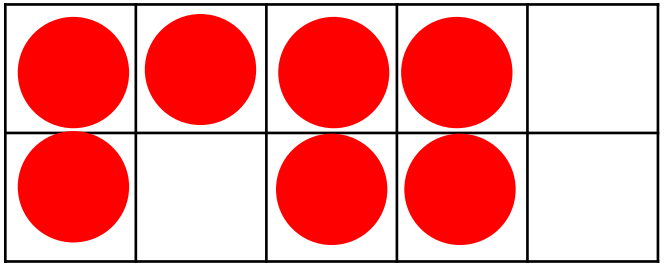


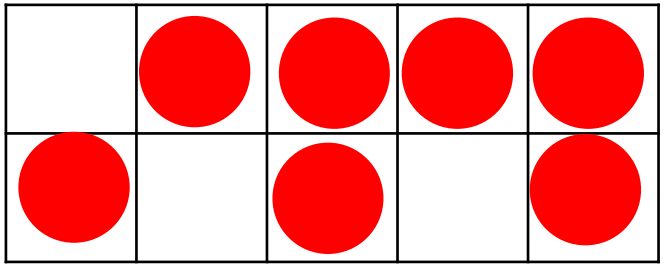
Tens Frames

What's left?





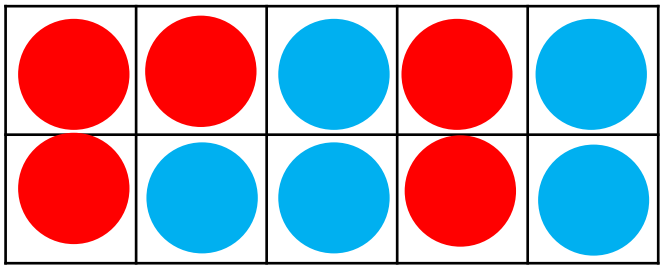


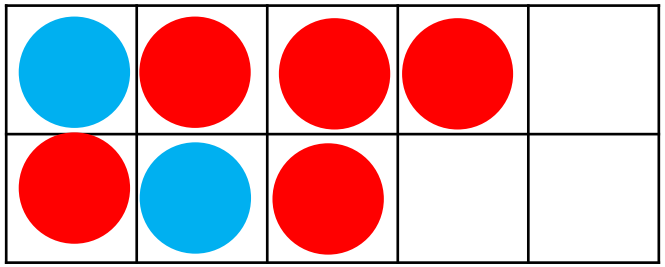


Tens Frames

First to 20

Working in pairs, each player can put 1, 2 or 3 cubes in the tens frames and the winner is the first to 20.

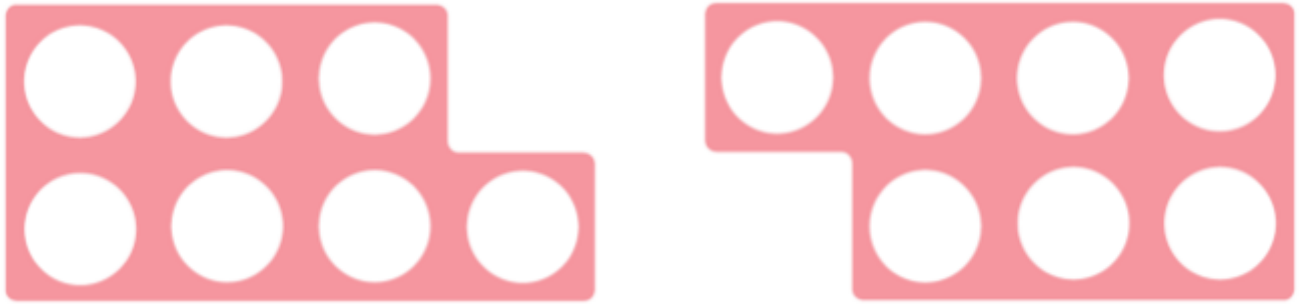




Where's the maths?

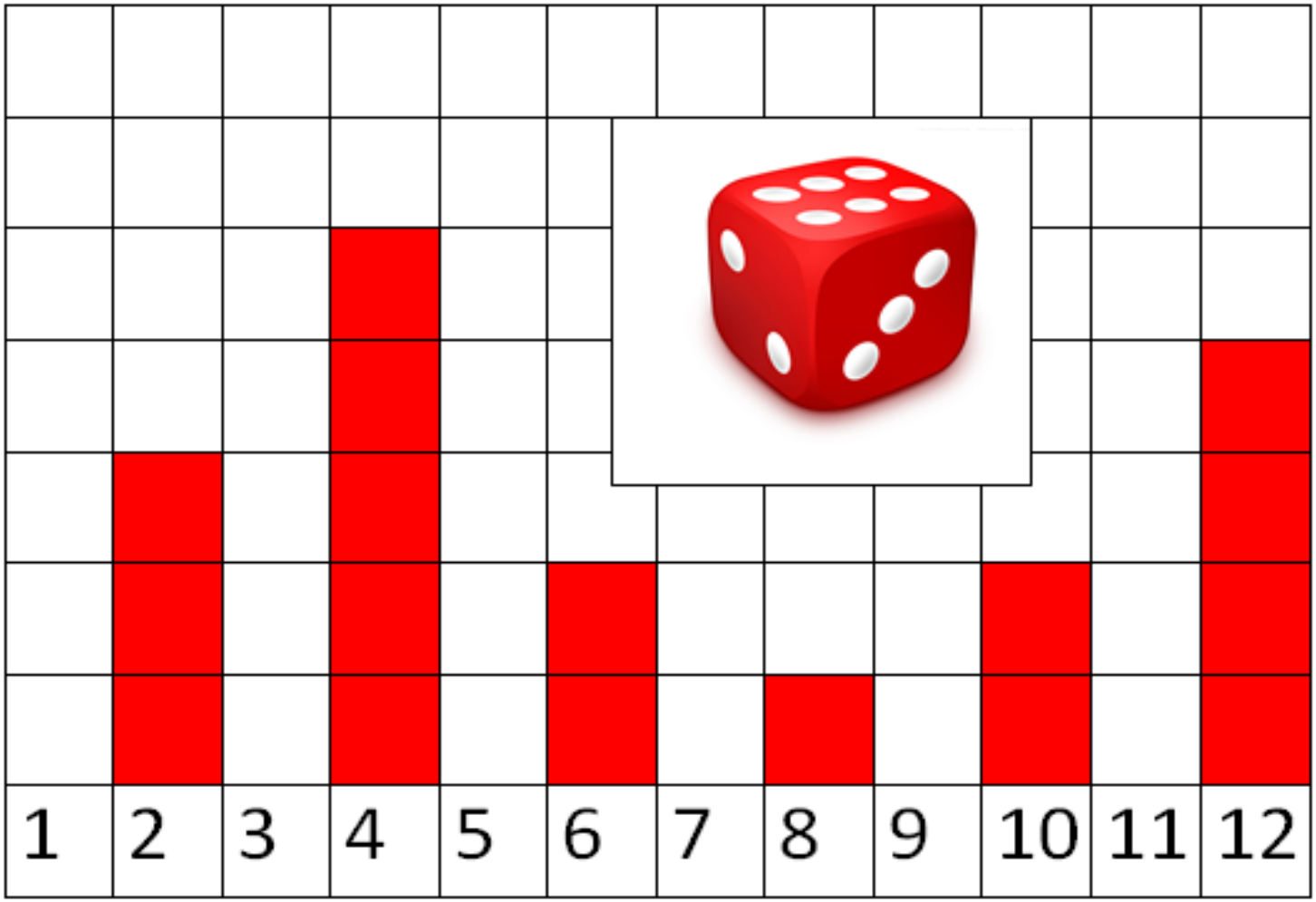
Visualising a structure or a relationship

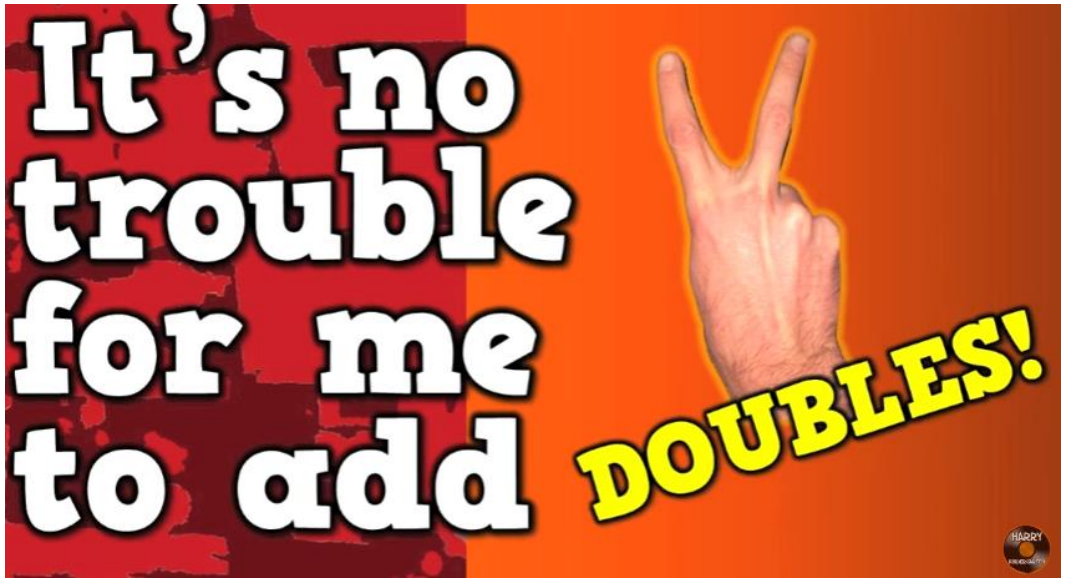
What happens when we add two odd numbers?

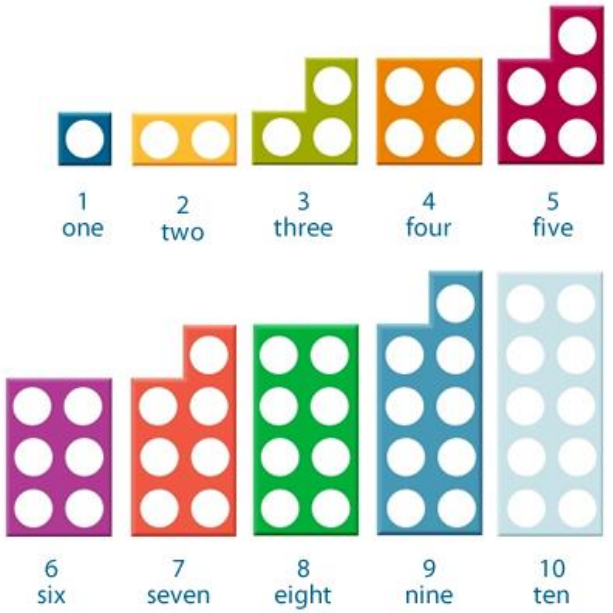


Double your dice throw and record

What do you notice?

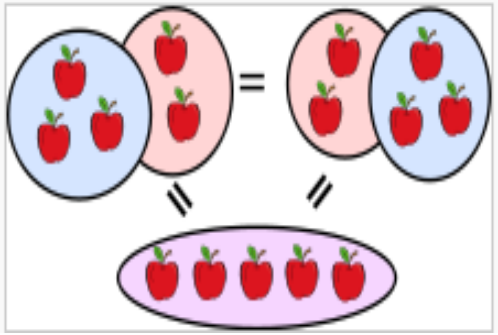






https://www.youtube.com/watch?v=Ik_-OAgzD-8

Commutativity: addition



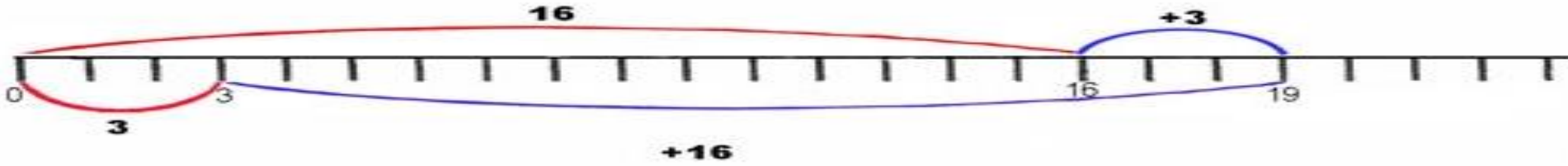
$$6+\_\_ = 7+6$$

*What is **not** commutative?*

(8-3 ≠ 3-8)

Generalising:

c=b+a=a+b

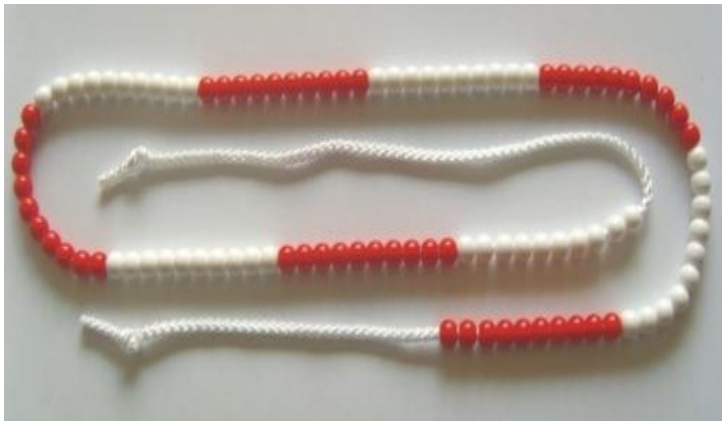


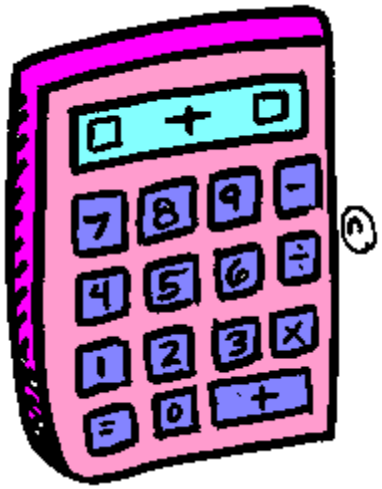
Place value +-10
How much is there?

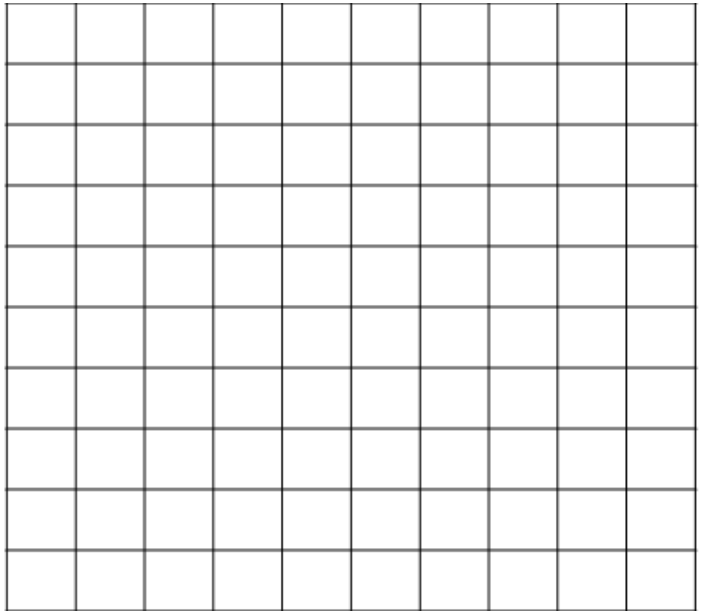
What if we subtract 10p?

Patterns, relationships and structures

- 12+3, 22+3, 32+3
- 6+?=10, 16+?=20, 26+?=30
- 30-1, 40-1, 100-1, 900-1
- 34-6, 44-6, 54-6
- -+10
- x÷10

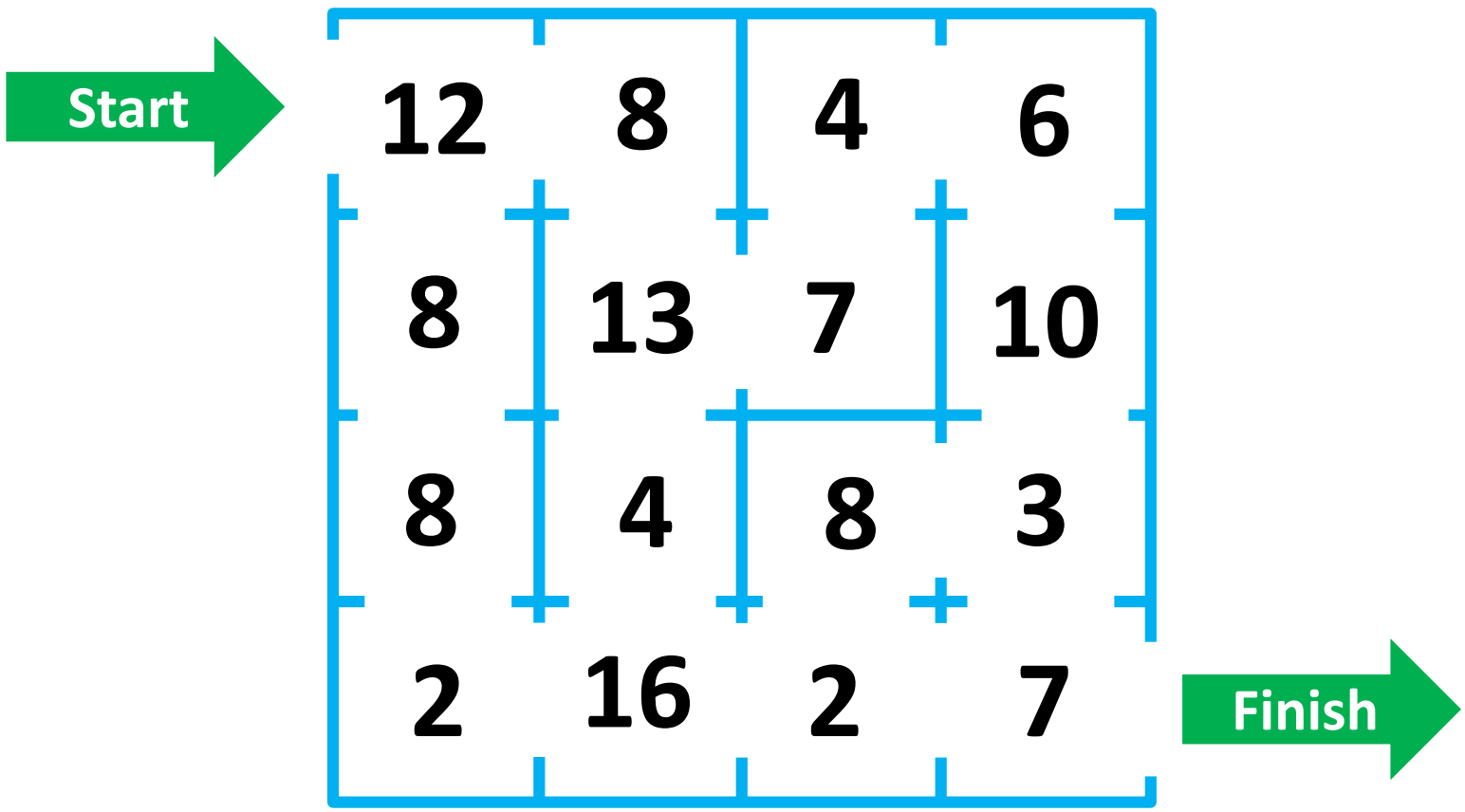






Mr Byrne found a route through the maze that totalled 100

Is this possible?



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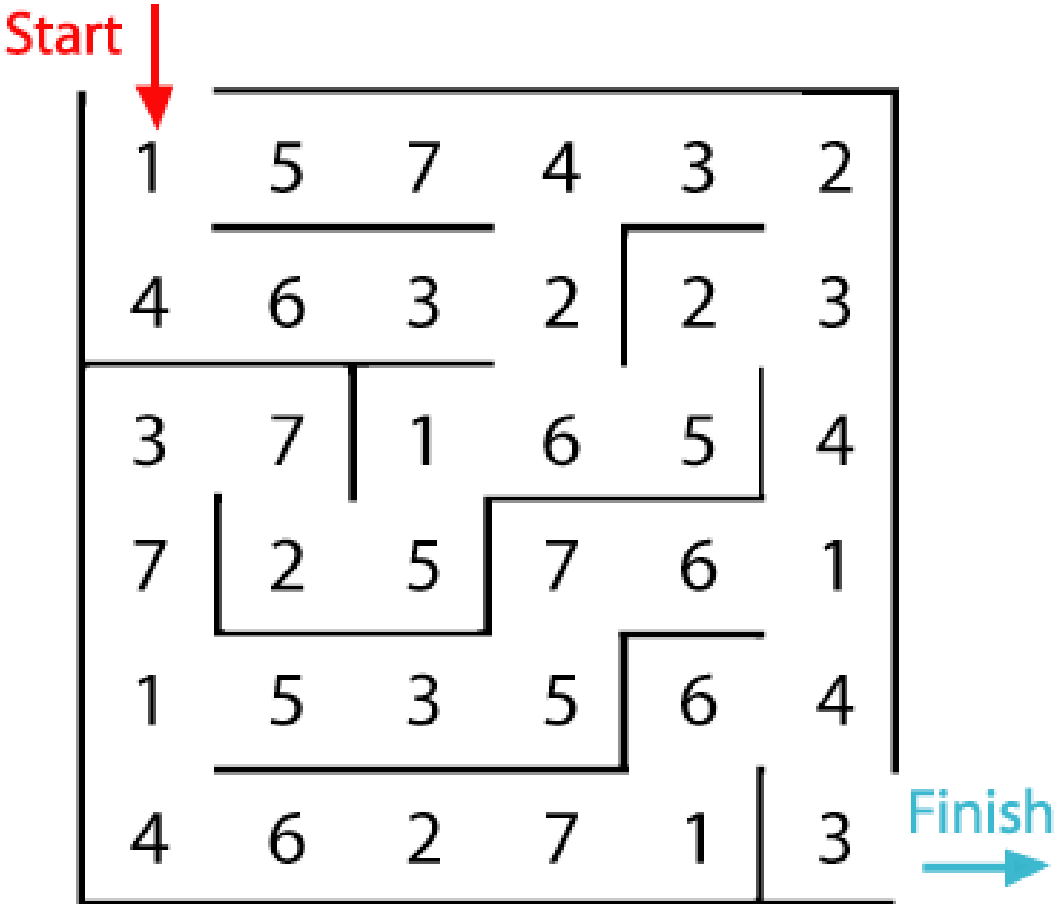

The dustbin game!

£ ___ ___ ___

What is counting?

-Saying numbers in correct order

-Start from any number counting forwards and backwards

-Counting objects 1:1 and knowing the last number is the amount there is (Cardinality)

-Idea that anything can be counted

-More challenging – abstract ideas to count e.g absent people, moving fish, how many skips, counting bubbles

- Count 5 objects and then mix them up, how many know? The idea that you haven't taken any away.

Always start with the concrete (mental images) and move towards the abstract.

What is counting?

At home

Have endless opportunities to know ‘how many’ e.g. setting the table, counting the stairs.

Showing you can partition 5 into 3 and 2, the idea of part/whole, that 4 is one less than 5. Who has less/more?

Rhymes and songs

Still count up and backwards but have cardinality

Skip counting