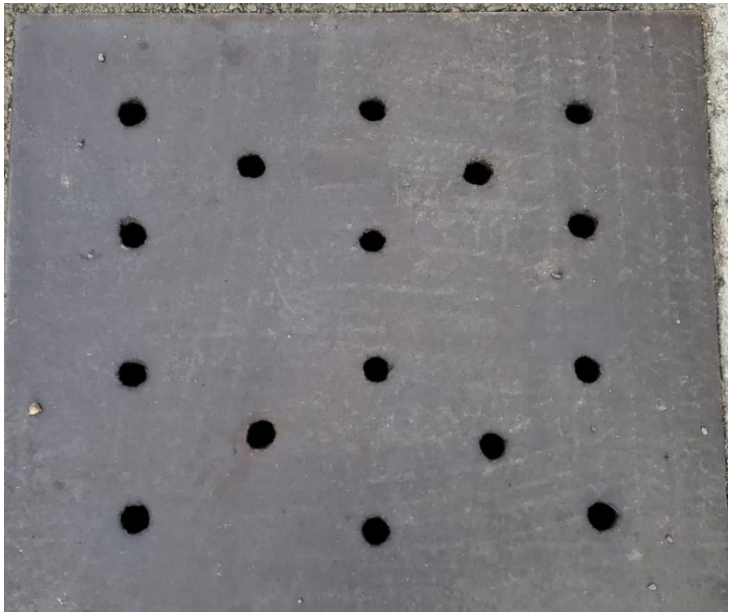
While we wait

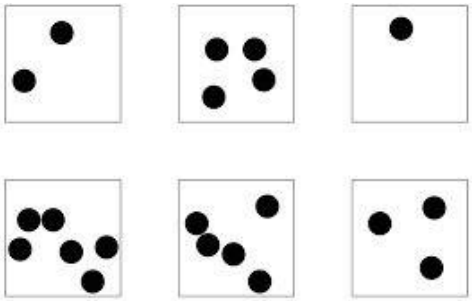
How many dots?

How do you see it?

Think pair share

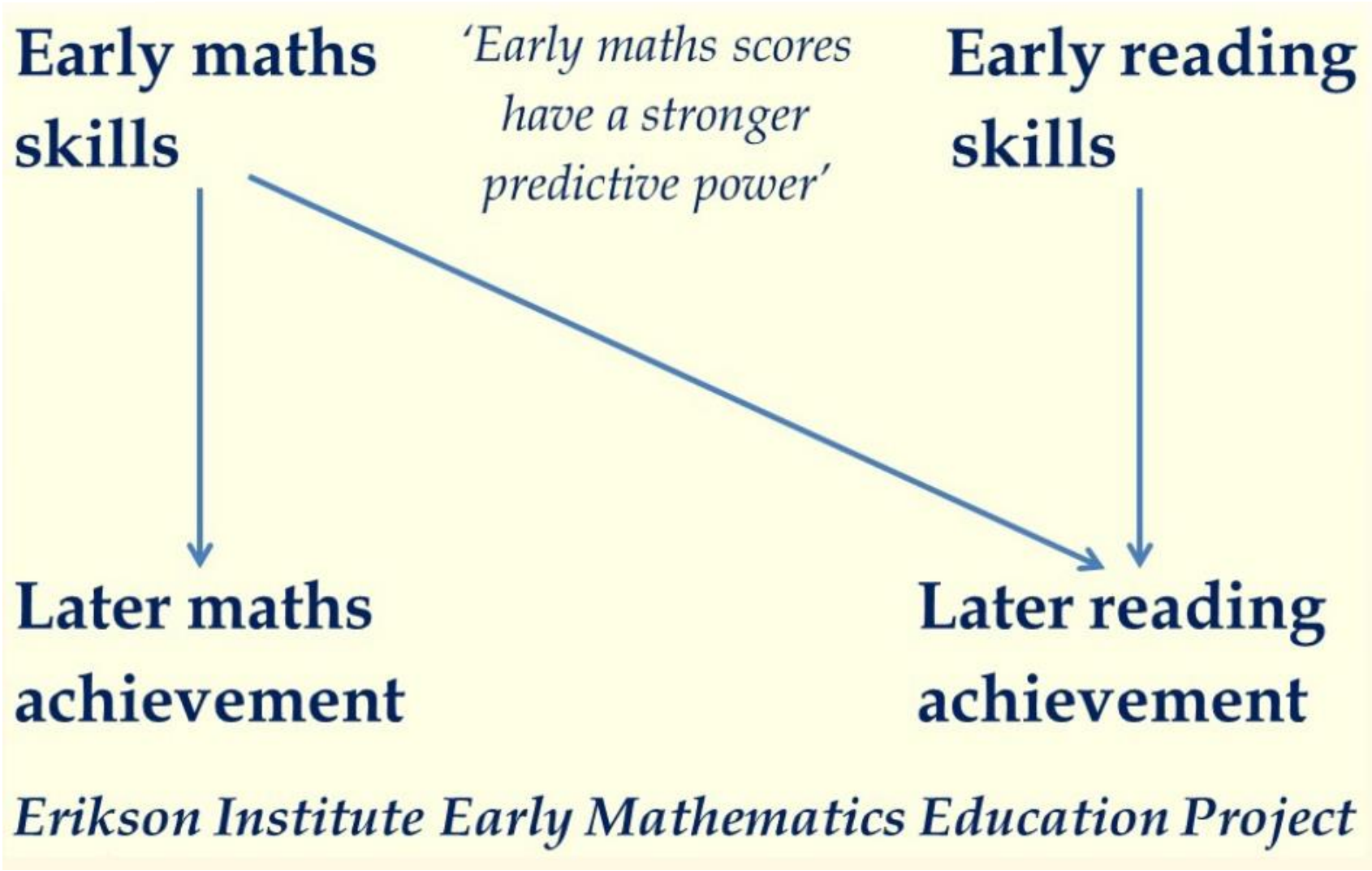


Maths Parent Workshop – Early Maths Skills



Aims of this session:

- What research tells us about the acquisition of early number skills and its impact on future learning.
- Principles of counting: What they are and the importance of mastering these skills
- Number composition (focussing subitising) : What it is, its importance and how we can develop this skill at school and home.


Early maths skills
'Early maths scores have a stronger predictive power'
Early reading skills
Later maths achievement
Later reading achievement
Erikson Institute Early Mathematics Education Project

The new EYFS Framework 2021

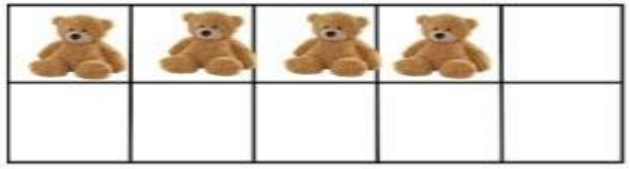
Prioritising a focus on numbers to 10

Why?

THE PRINCIPLES OF COUNTING

We often want to rush towards symbols in maths and counting is no different.

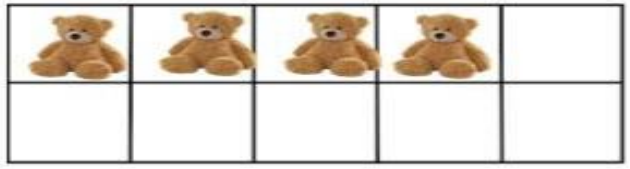
Help your child to develop a firm grasp of counting before formally introducing the symbols of number (the digits).



FIVE COUNTING PRINCIPLES

1. One to one correspondence principle
This is understanding that each object being counted must be given one count and only one count.

It is useful in the early stages for children to actually tag or move each item as it is counted.



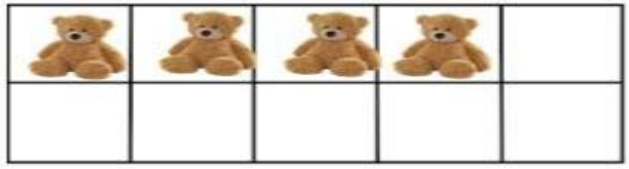
FIVE COUNTING PRINCIPLES

2. Stable order Principle

This is understanding that counting sequence stays consistent. It is always 1, 2, 3, 4, 5, 6, 7, 8, 9, etc not 1, 2, 3, 5, 7, 6, 9.

Think: When counting with your child can they pot your mistake?

Singing/reciting nursery rhymes, practice counting a variety of everyday object in different ways.

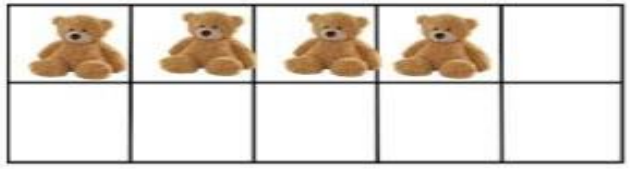


FIVE COUNTING PRINCIPLES

3. Cardinality Principle

This is understanding that the last count of a group of objects represents how many are in the group.

Tip: Keep modelling there are 1. 2. 3. 4. spoons. There are 4 spoons.

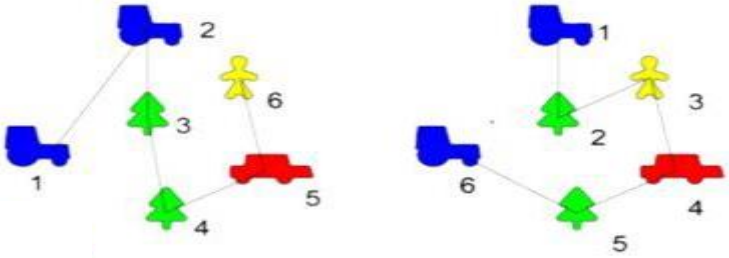


FIVE COUNTING PRINCIPLES

4. Abstraction Principle

This is understanding that it doesn't matter what you count, how we count stays the same. For example, any set of objects can be counted as a set, regardless of whether they are the same colour, shape, size, etc.

This can also include non-physical things such as sounds, imaginary objects, etc



FIVE COUNTING PRINCIPLES

5. Order Irrelevance:

This is the knowledge that the order that items are counted in is irrelevant as long as every object in the set is given one count and only one count.

We can count left to right, right to left, in a random order.

Tip: Recount real objects that can be touched starting from different positions.

Principles of counting

One-to-One Correspondence: Understanding that each object receives one count and one only one count

Stable Order: Understanding the verbal sequence of counting; being able to say the number names in sequential order

Cardinality: Understanding that the last number spoken in a counting sequence names the quantity for that set

Abstraction: Understanding that it doesn't not matter what you count, how we count stays the same. For example, any set of objects, regardless of the same colour, shape, size, etc. This can also include non-physical things such as sounds.

Order Irrelevance: Knowledge that the order that items are counted in is irrelevant—left-to-right, right-to-left, in a random fashion

Have a deep understanding of number to 10, including the composition of each number

Working with small numbers we can begin to understand cardinality (the quantity of things it represents. When children understand the cardinality of numbers, they know what the numbers mean in terms of knowing how many things they refer to).
We can look at the numbers inside (composition).
We can arrange numbers spatially, drawing out the different properties – odd, even, equal groups, square, rectangle – this draws out properties and relationships.
We can partition and combine numbers (the pre-requisites of calculation).
We can subitise.

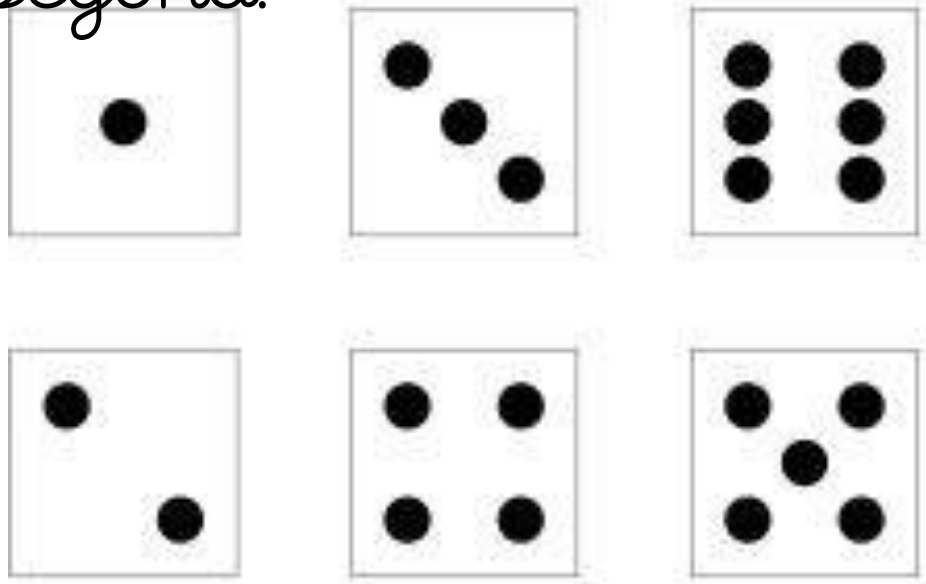
Subitise (recognise quantities without counting) up to 5

Subitising is "instantly seeing how many." From a Latin word meaning suddenly, subitising is the direct perceptual apprehension of the numerosity of a group. (Clements and Douglas 1999)

Importantly, poor performance on both perceptual subitising (Landerl et al., 2004) and conceptual subitising (Mulligan et al., 2006) may be linked to later mathematical difficulties. In particular, they will be handicapped in their learning of arithmetic (Clements, 1999)

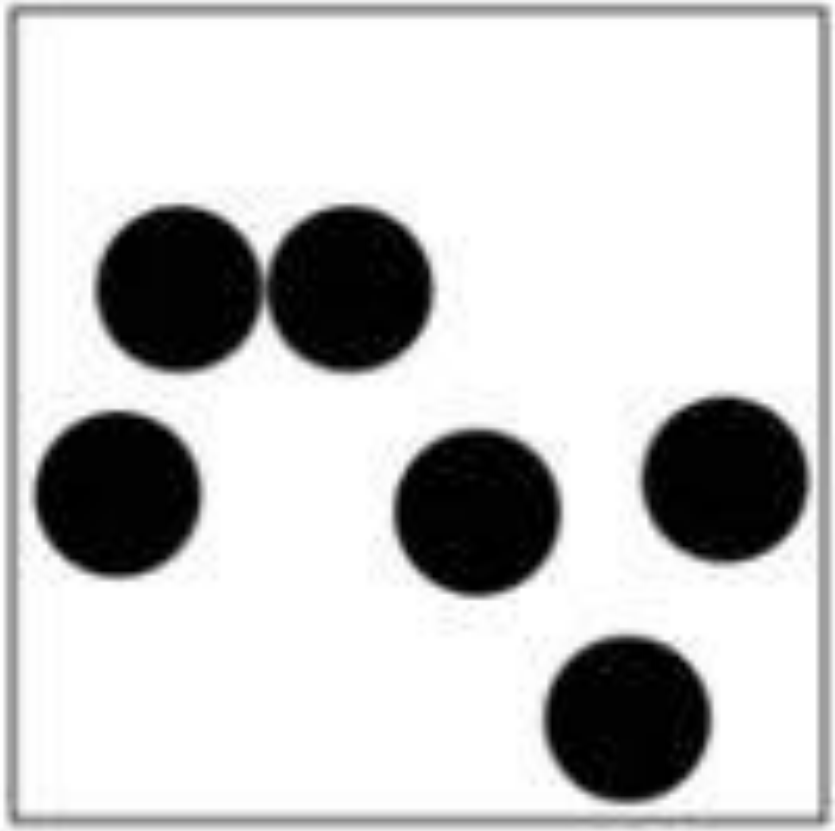
Subitising

- It is the ability to quickly recognise how many objects are in a group without actually counting
- Reinforces principles of counting and beyond.

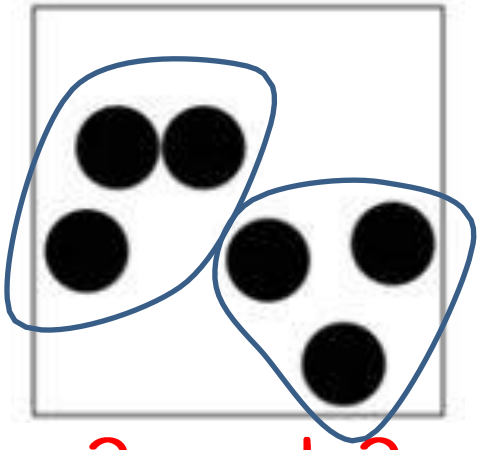


What numbers are represented here?

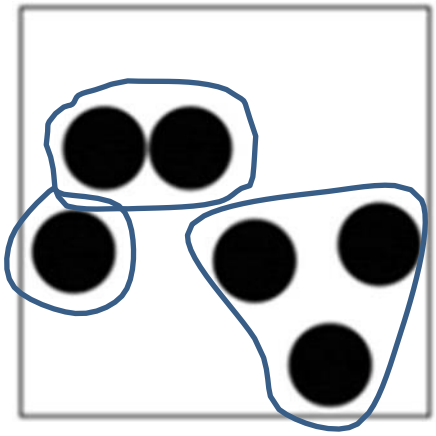
How did you see the number?



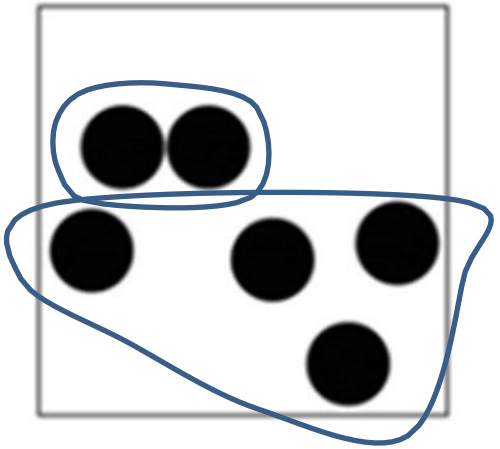
What numbers can you see hidden?



3 and 3



2 and 1 and 3

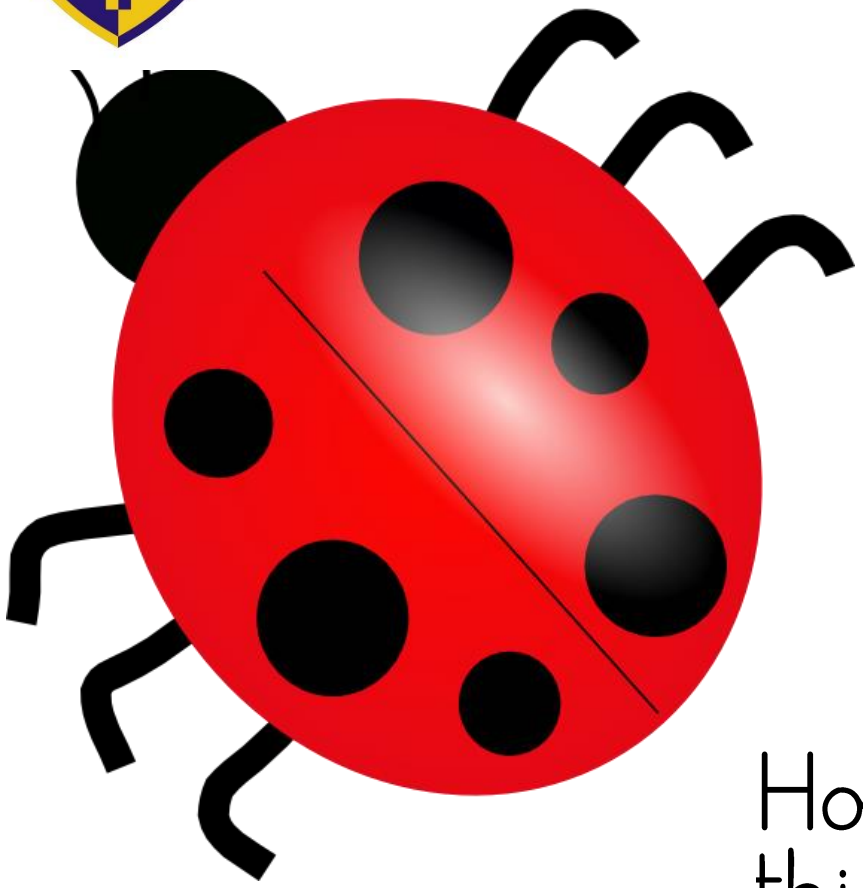


2 and 4

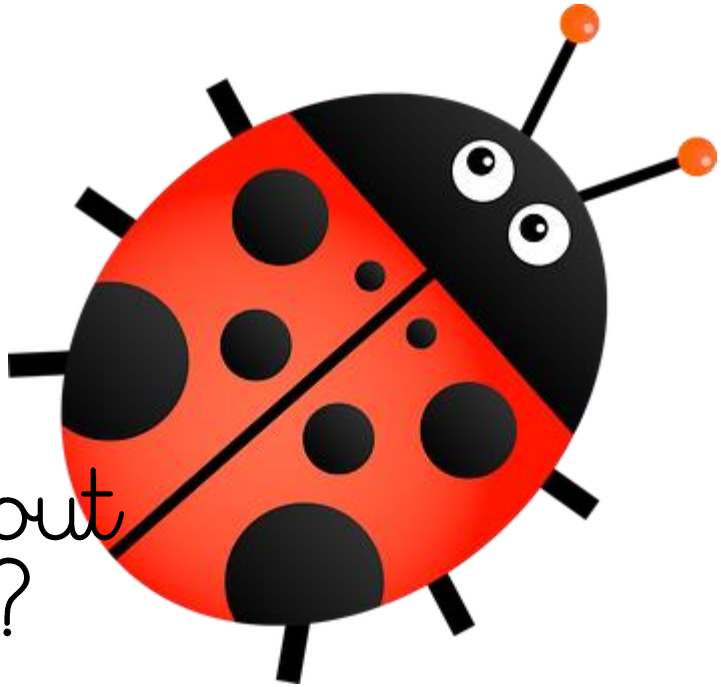
There are more ways to recognise 6. By asking the children to investigate images and talk about what they can see helps children develop their understanding of different numbers.

I know 1 and 3 makes 4.

2 more than 4 is 6



How many do you see?



How about this one?

"There are 5. One and one and one and one and one."

"I can see 3 and 2."

"I can see 2 and 2 and 1!"

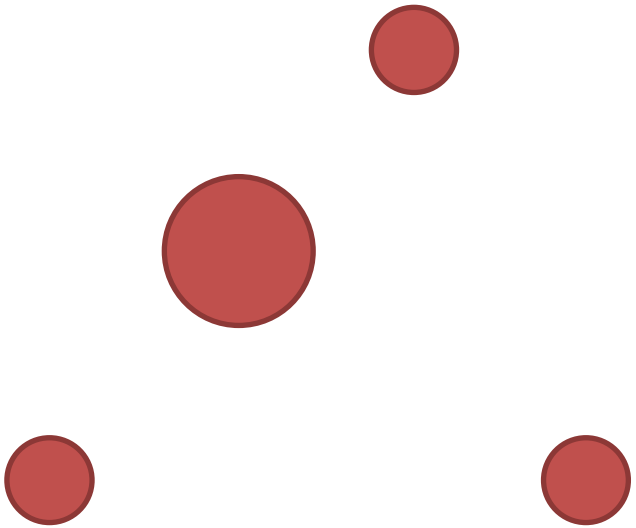
"Four over here and one over there."

You will see some dots very quickly.
Then they will be hidden.

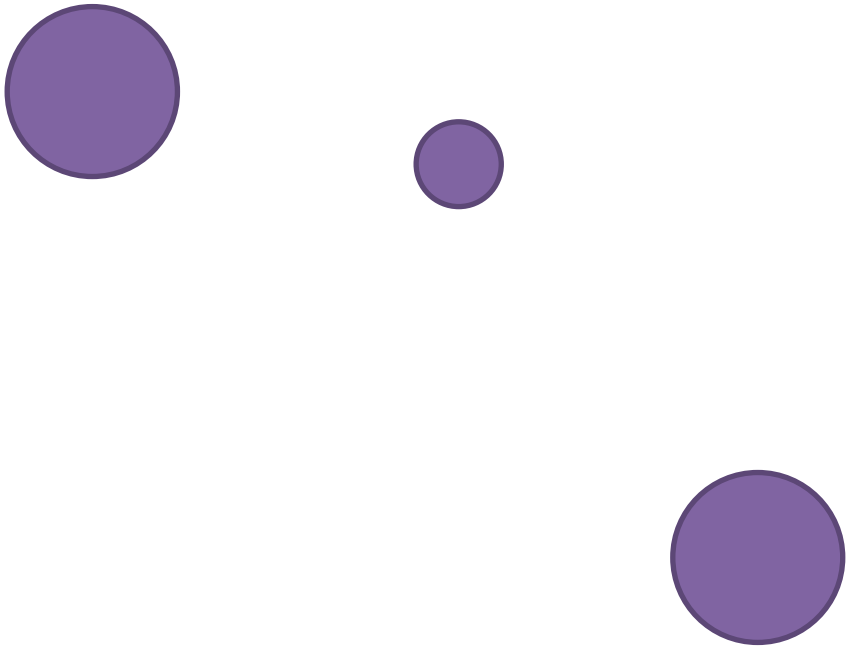
Show me on your fingers:

How many dots?

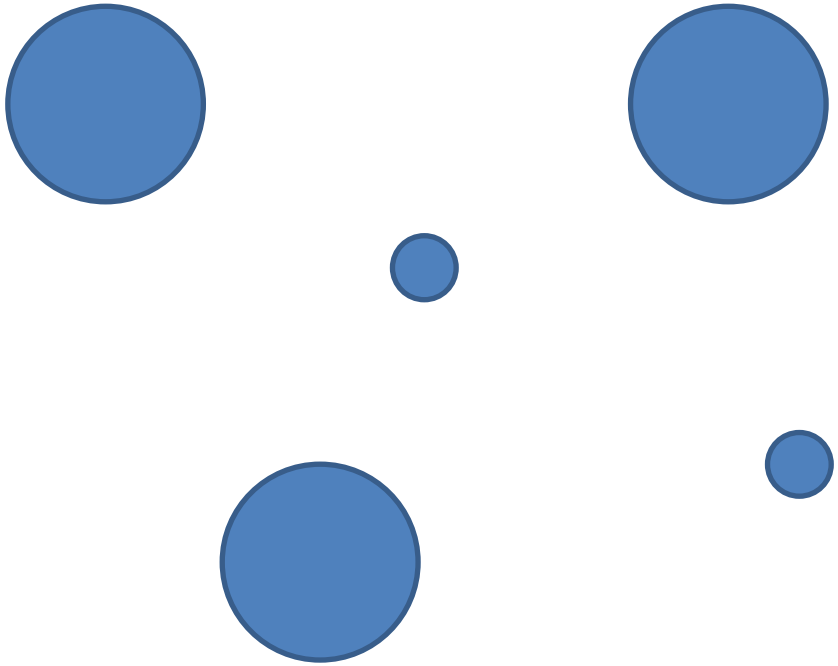
There are 4 pictures.



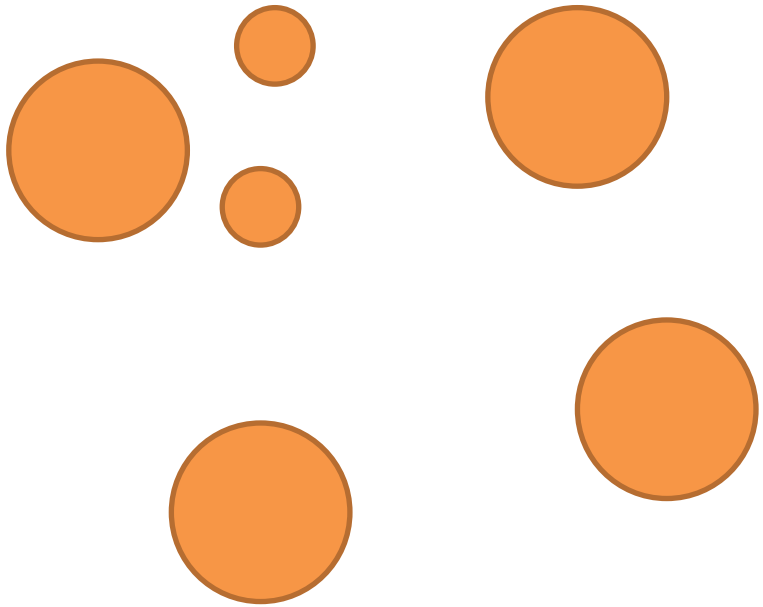
How many dots?



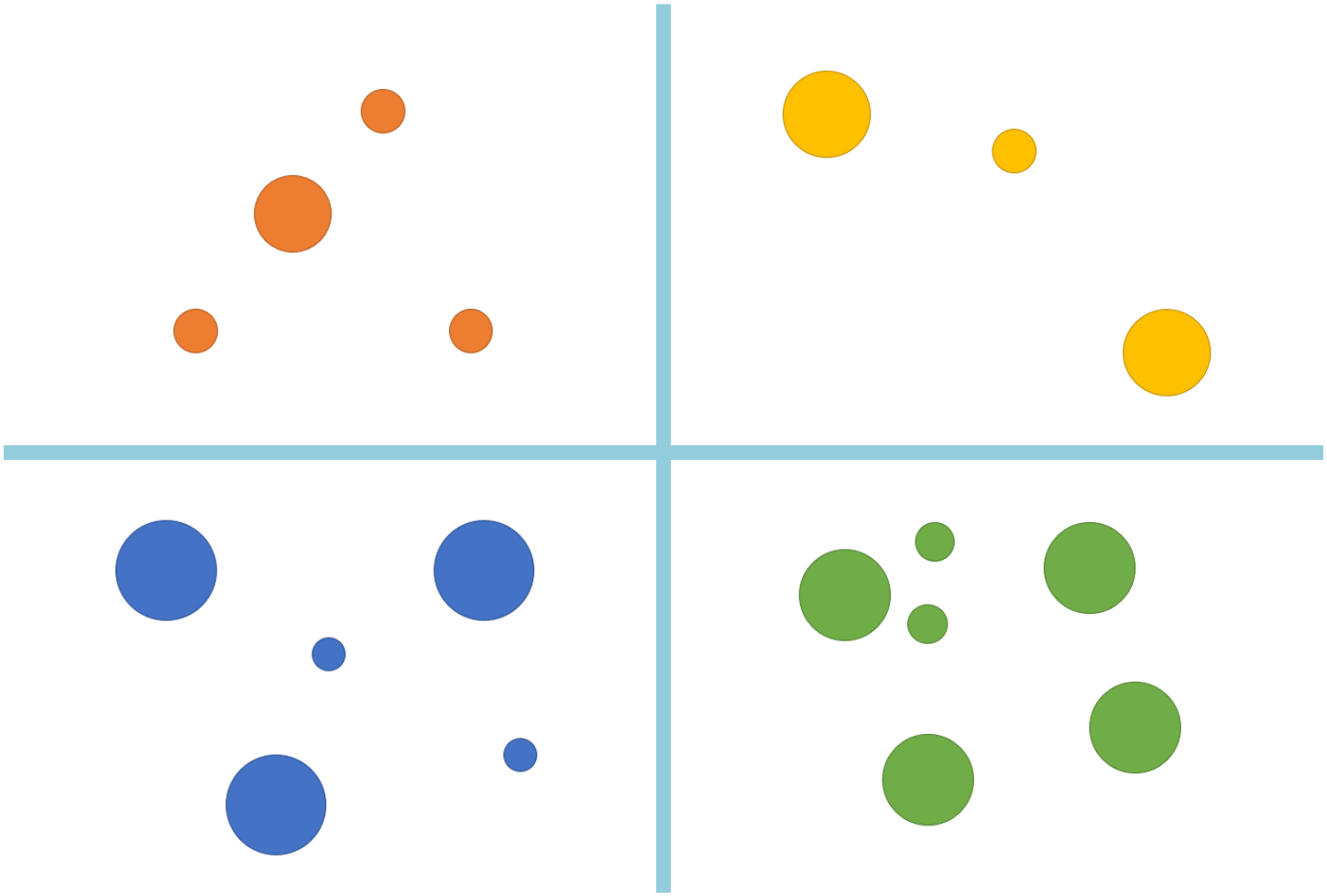
How many dots?



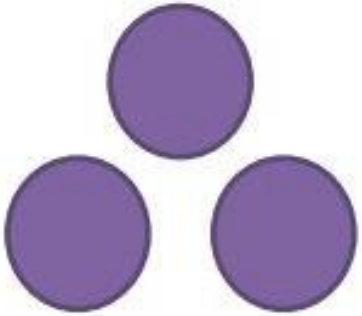
How many dots?

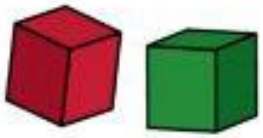


How many dots?

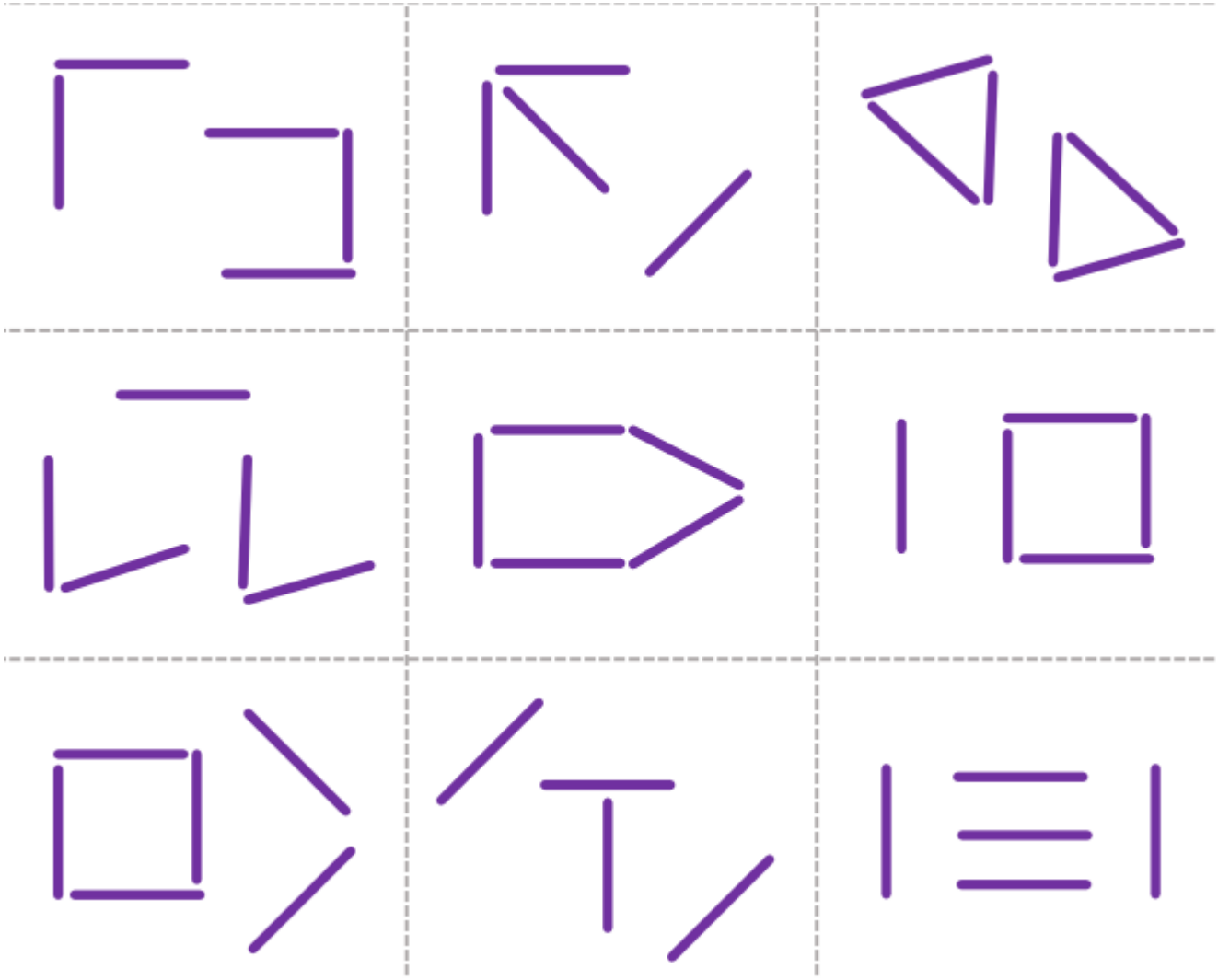


Not just dots

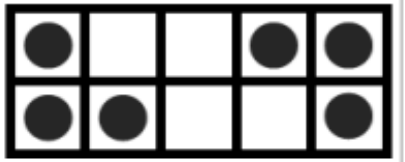
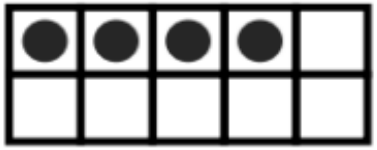
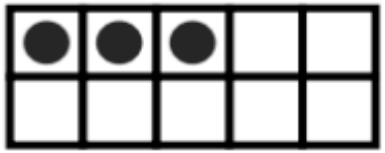




A game you could try at home.

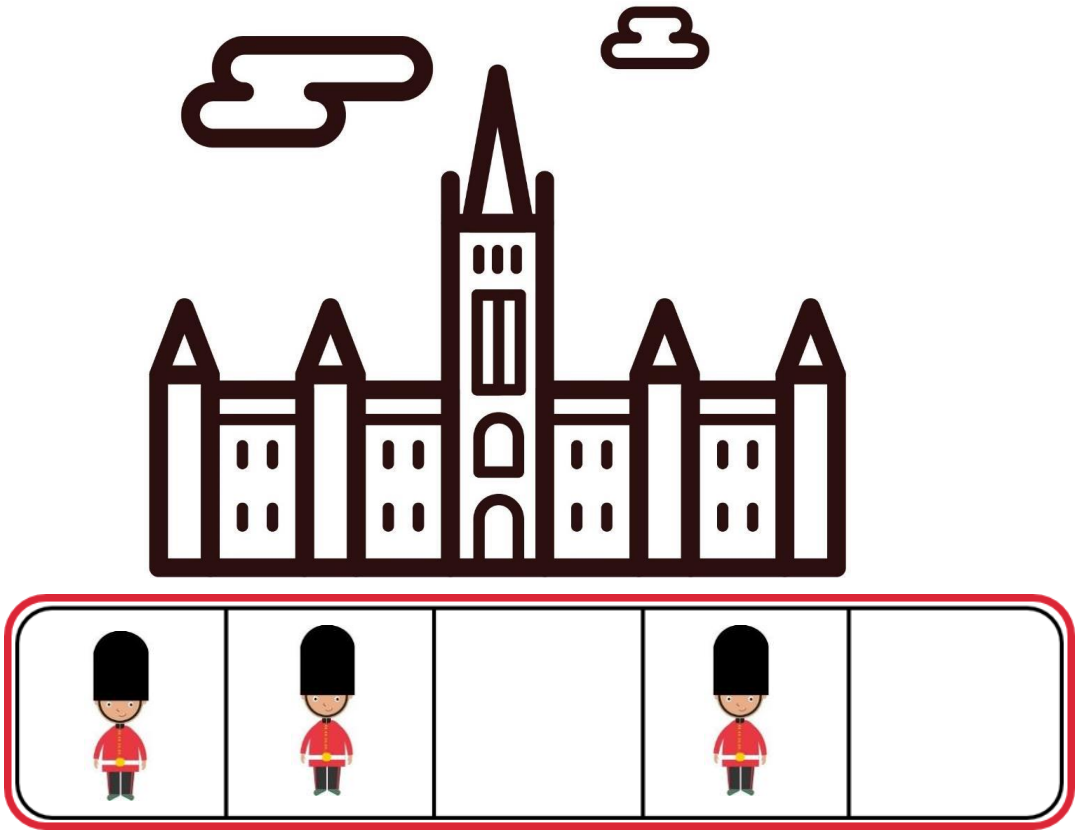


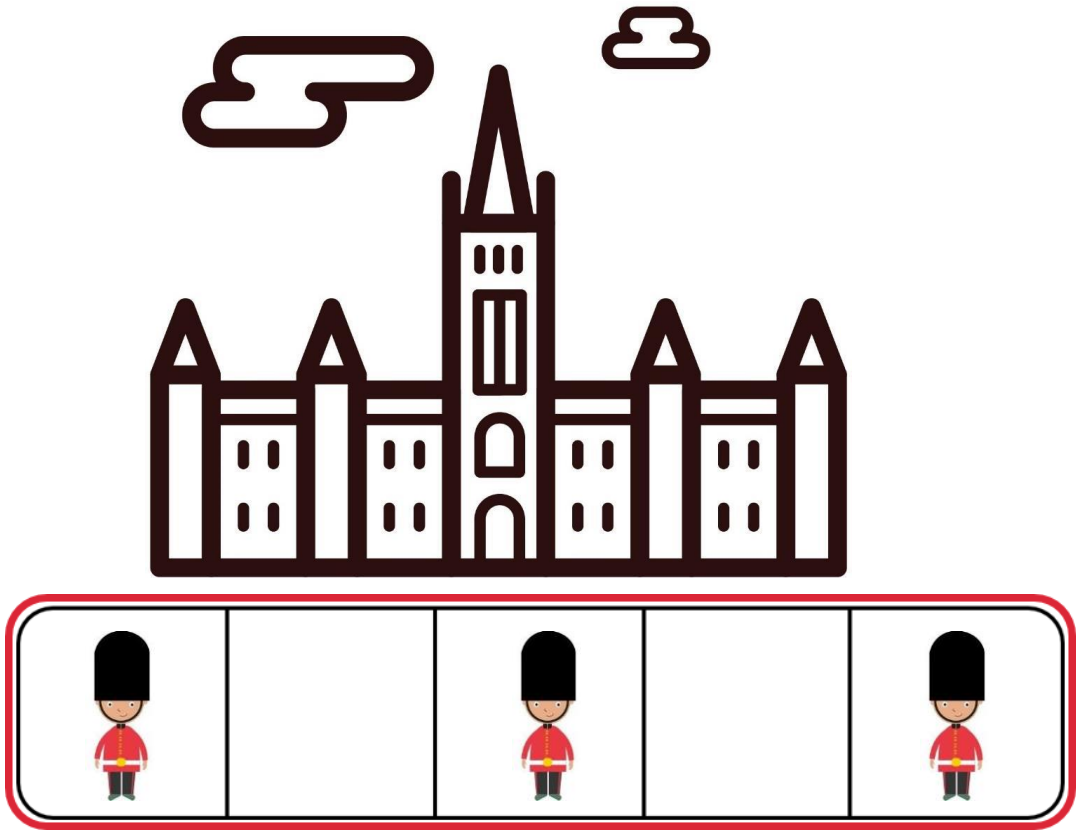
A game you could try at home.

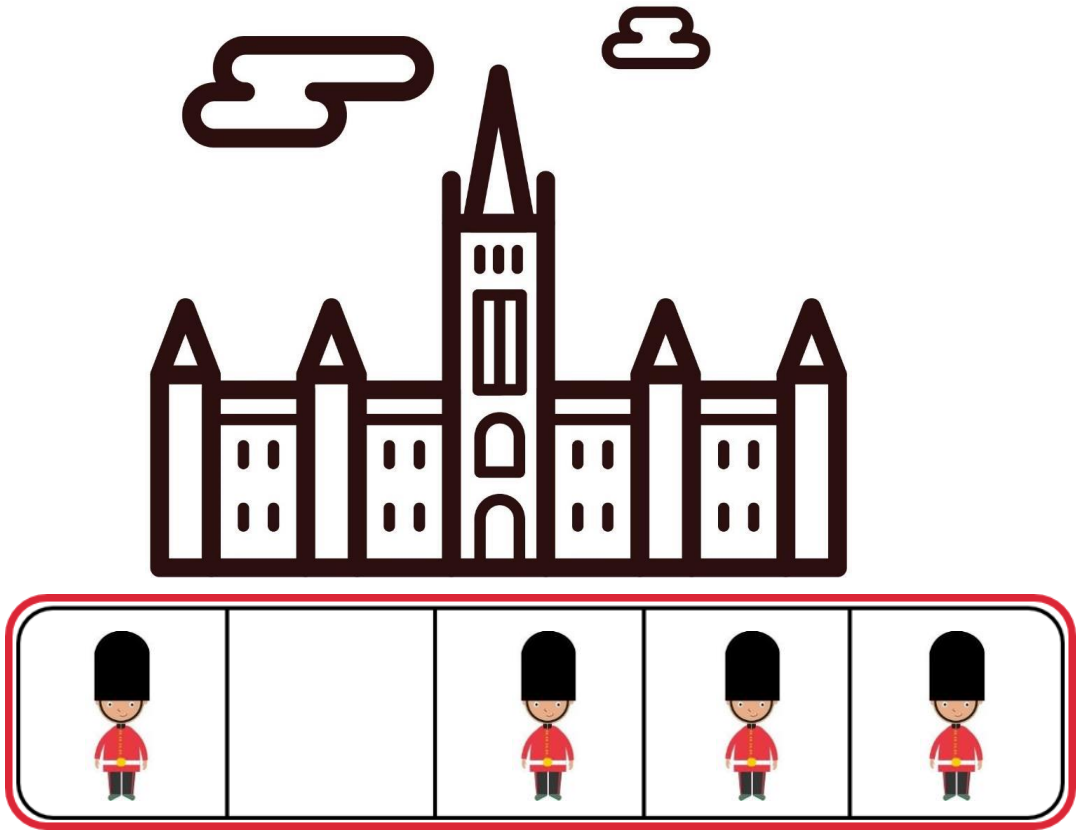
			
			
			

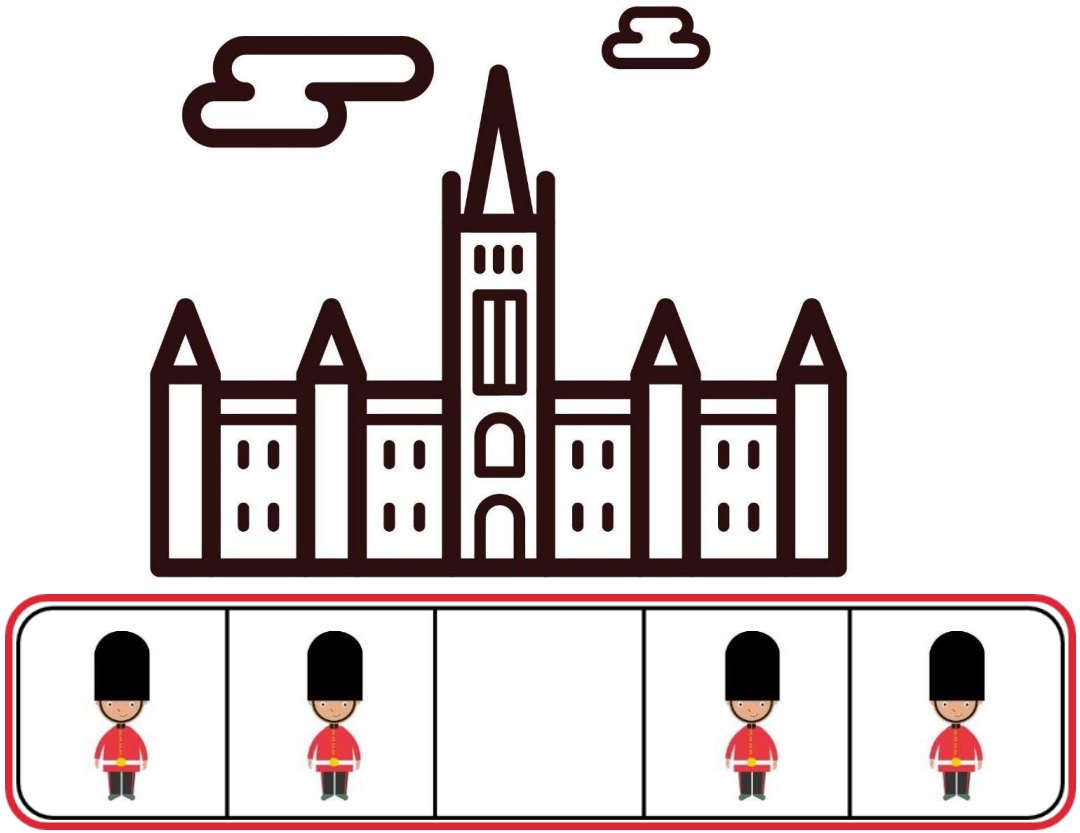
'Being able to correctly determine the number of objects in a small collection is a critical skill that children must develop to help them learn more complex skills, including counting larger collections and eventually adding and subtracting.'

What Works Clearinghouse, 2013







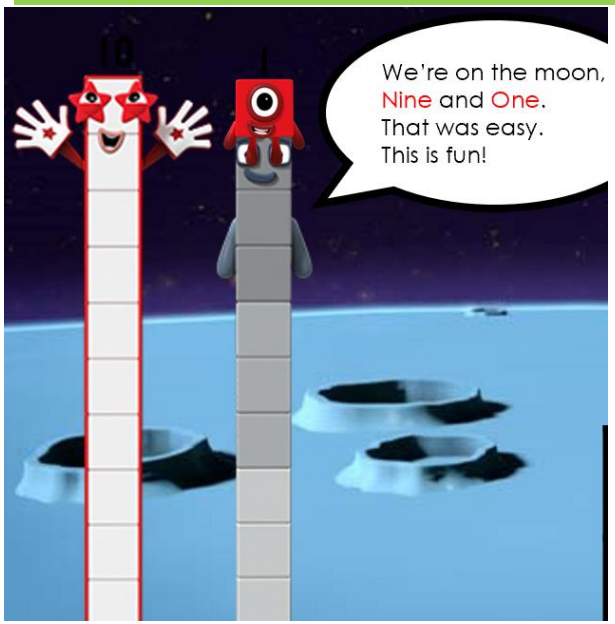


Your turn....Find a partner and play the subitising game

Verbally count beyond 20, recognising the pattern of the counting system.

here

Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts



Series 2 Blast Off

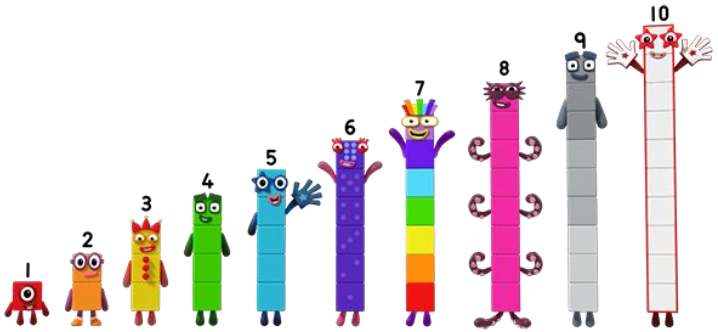
Series 3 Ten again

Your turn....Find a partner and play the Making 5 game

Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts

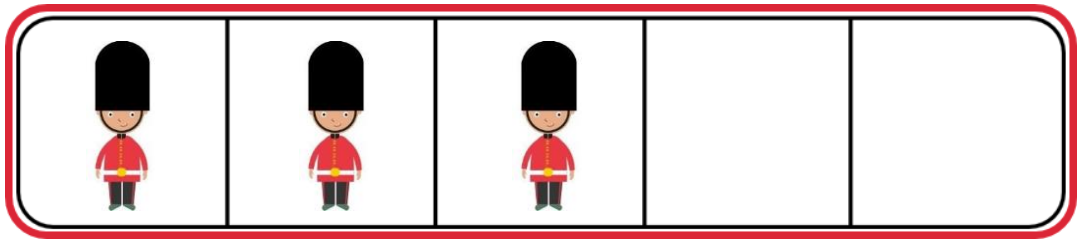
Bunny ears

Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity

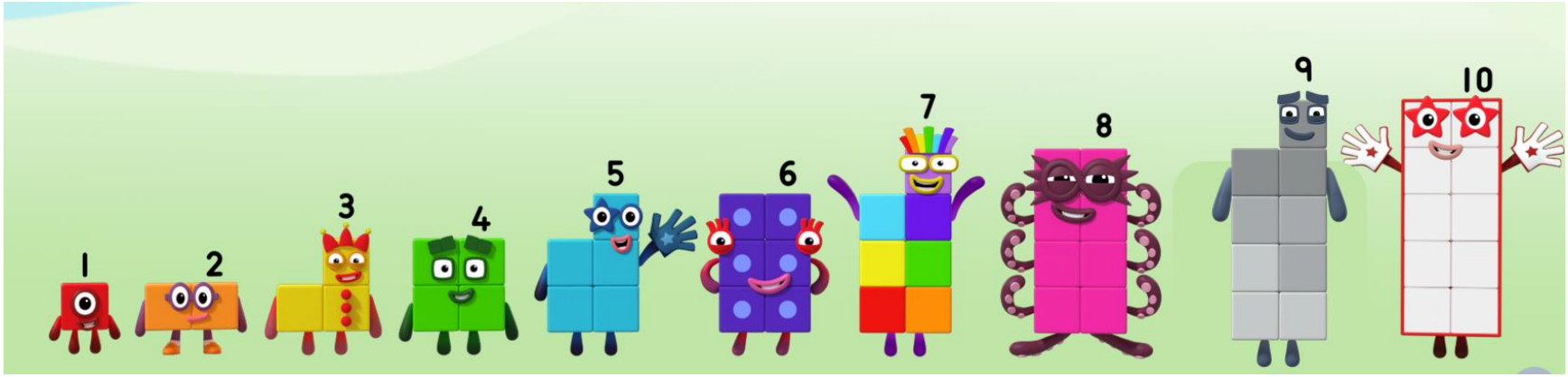


Neighbour Numbers

Comparing



Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally



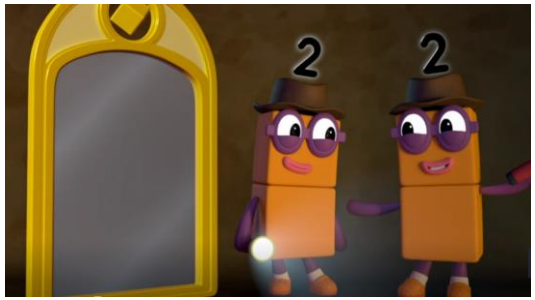
Noticing and drawing attention to...

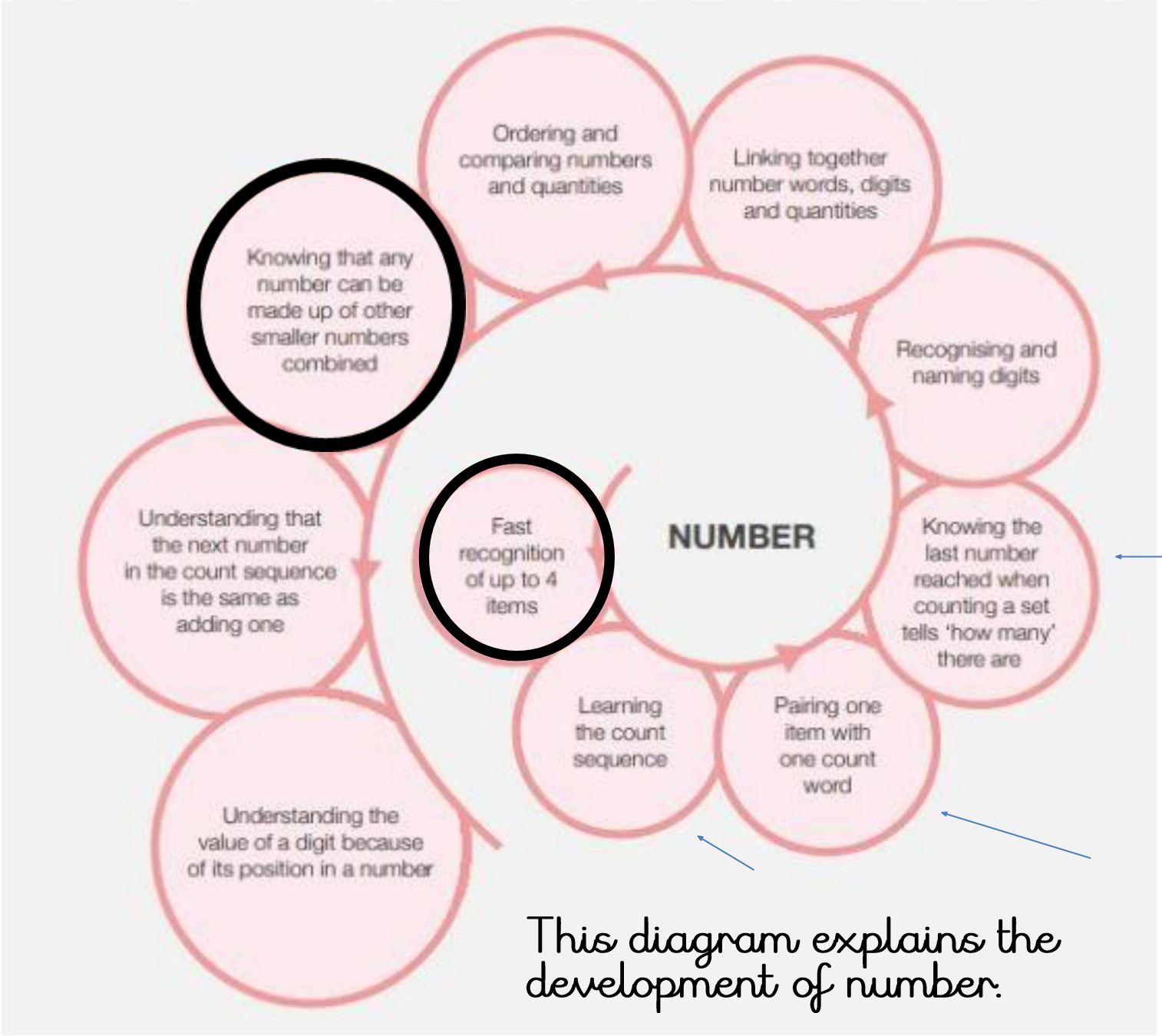
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

Your turn – numicon

When you explain you MUST use full sentences.

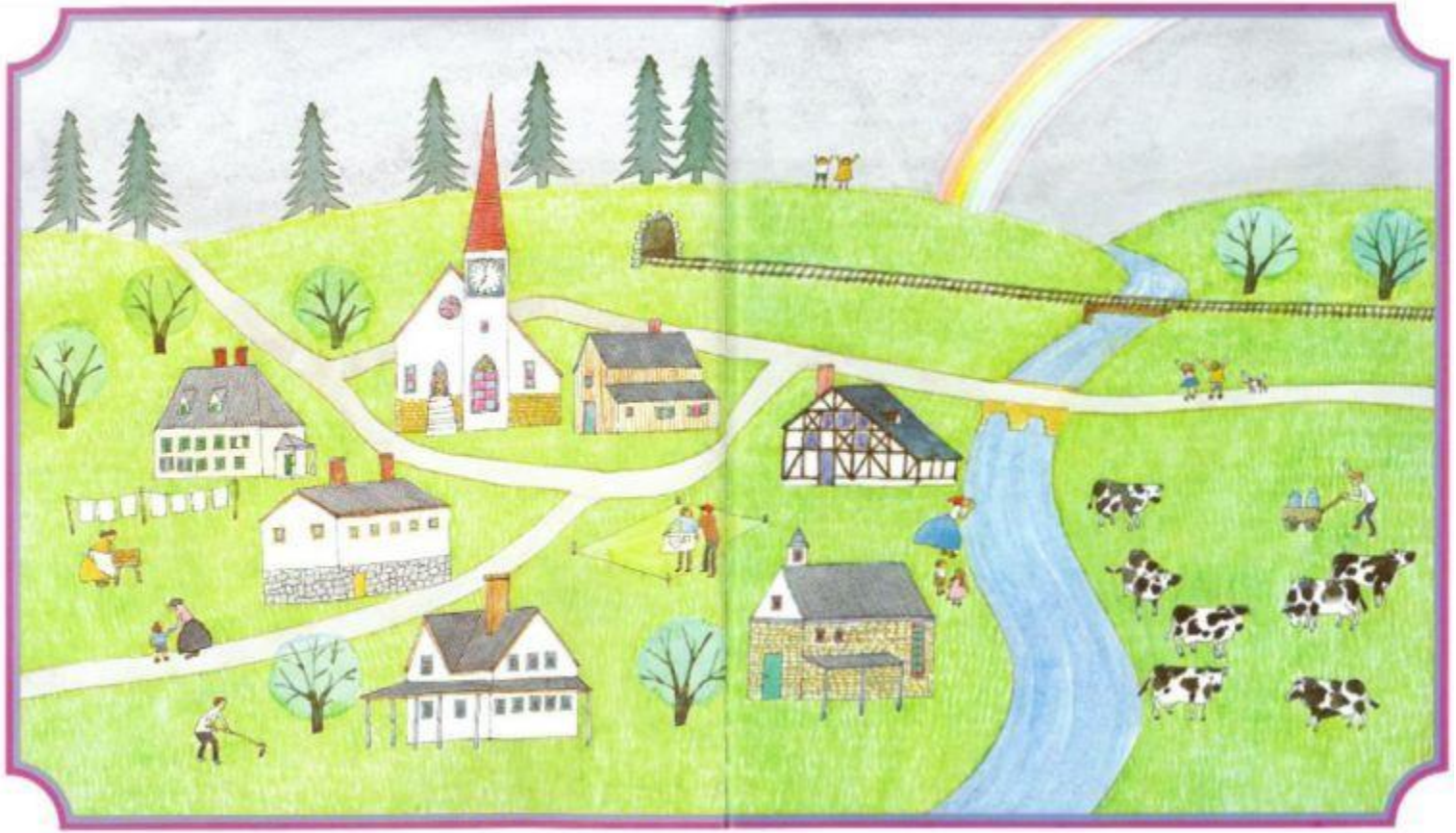
Noticing and drawing attention to...





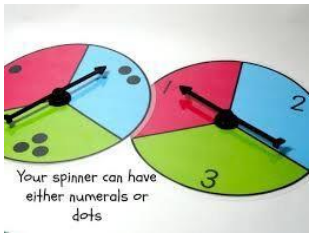
This diagram explains the development of number.

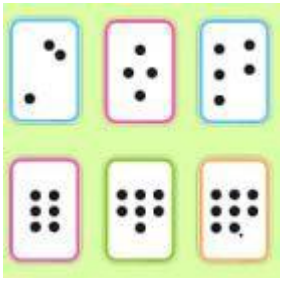
Subitising in the environment



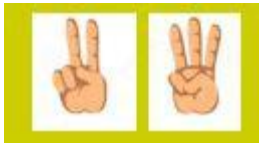
How many times can you see 7 objects?

Subitising at home





- Number pairs
- Quick flashcards
- Bingo
- Number treasure hunt
- Find a number the same as mine, more than mine, less than mine.
- Play your cards right!
- Dice games/spinner games
- Track games
- Domino games
- Fingers: Bunny ears / Grow, show and throw
- Resources eg egg boxes, muffin trays and candle holders

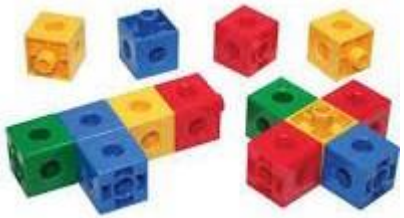


Subitising helps children to understand the composition of number.

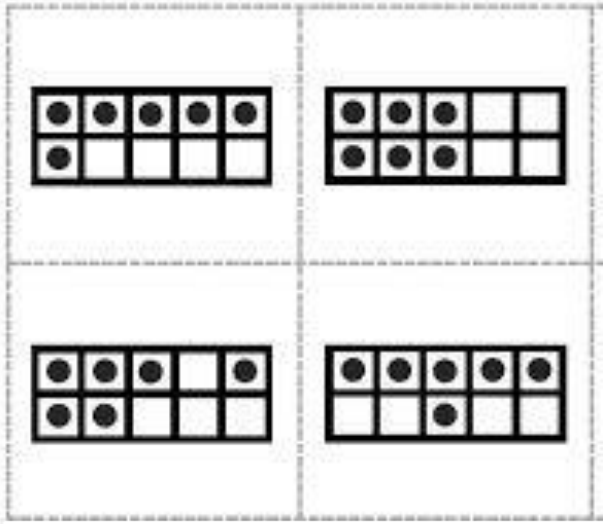
- Numbers are composed of smaller number
- Numbers can be made up of 2 parts
- Numbers can be made up of more than 2 parts.
- Numbers can be made of equal parts.
- Numbers can be made of unequal parts.

Resources

6 is 5 and 1

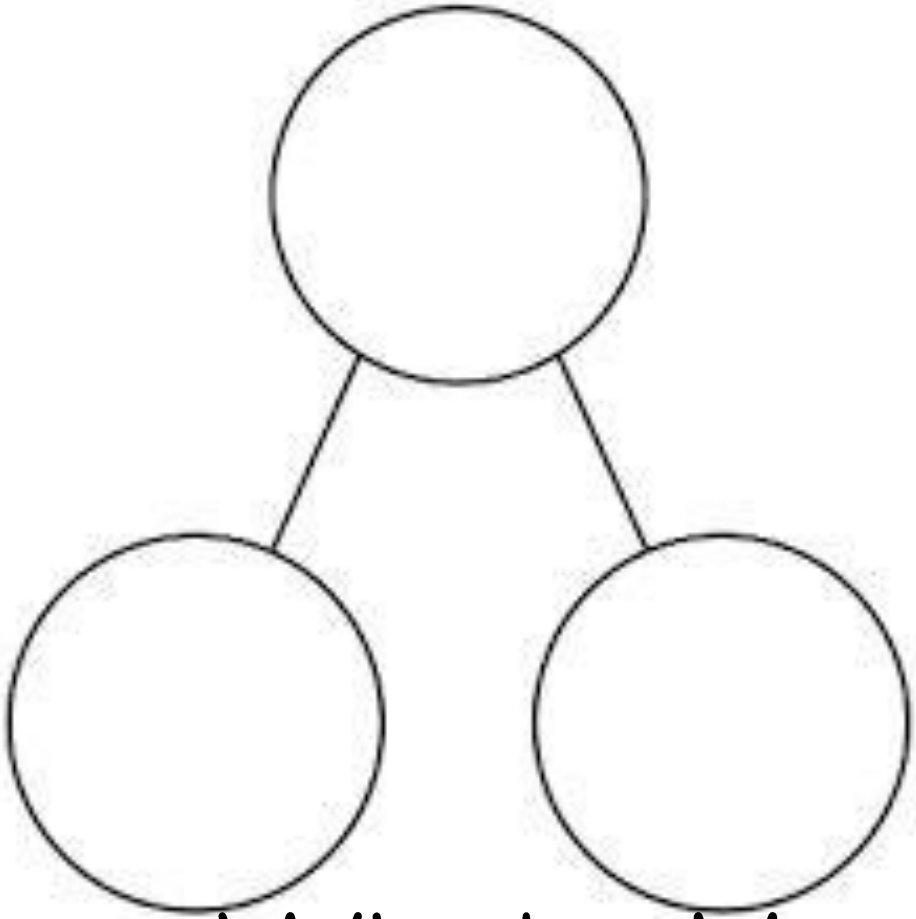


What can you build with 5 cubes?



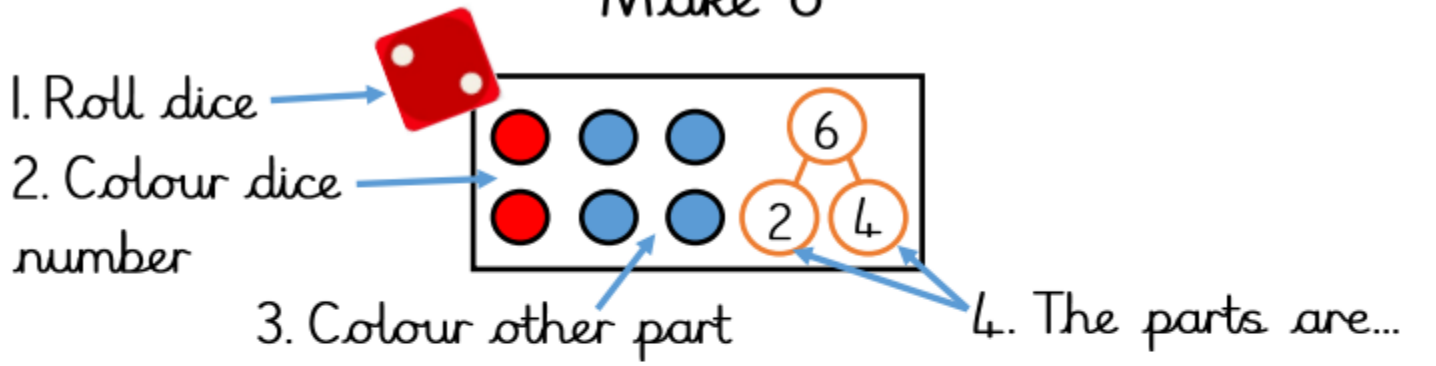
Tens frames – How can you place 6 counters onto the tens frame? What hidden numbers can you see?

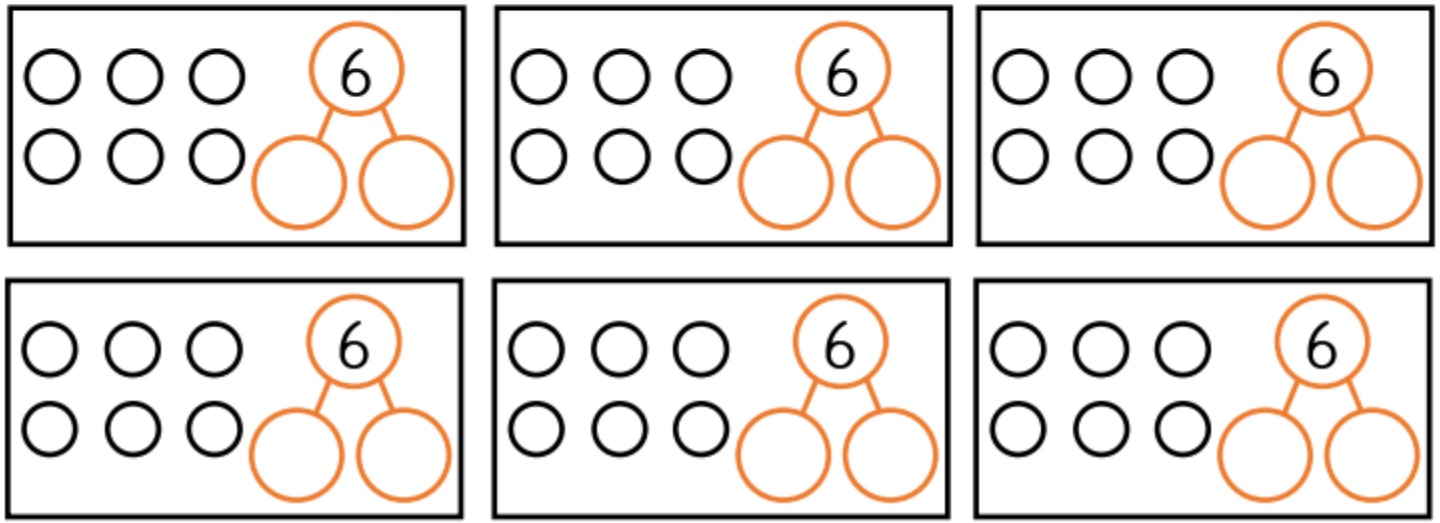
Progression

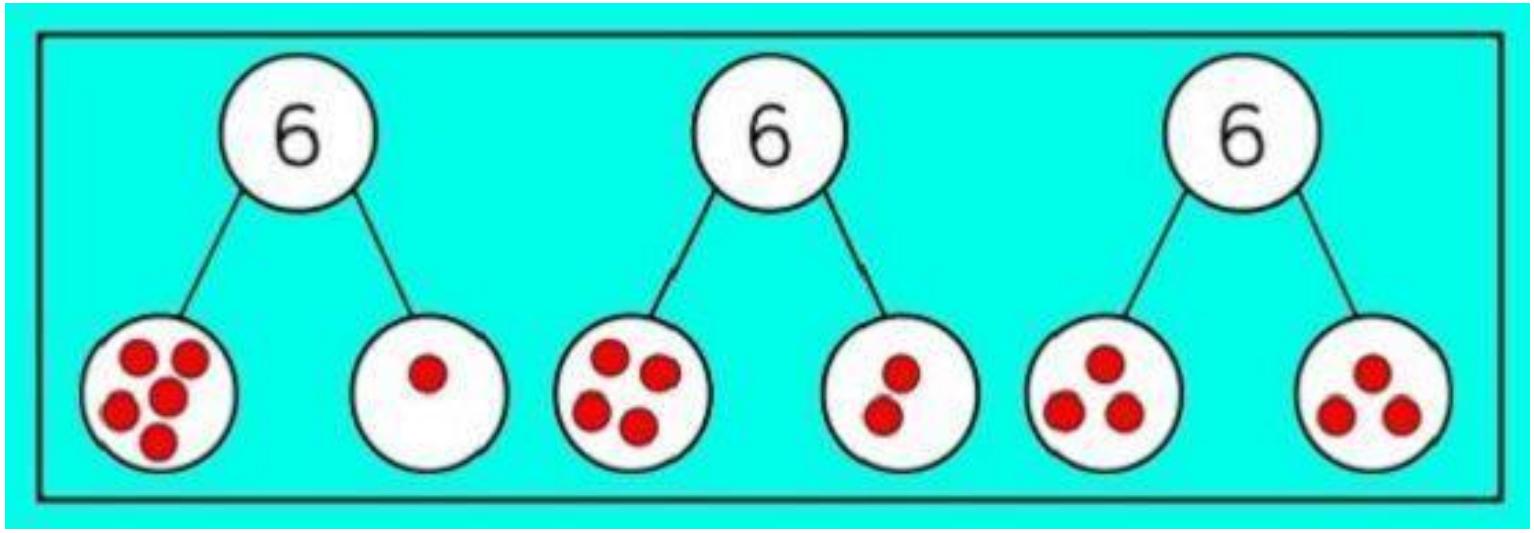


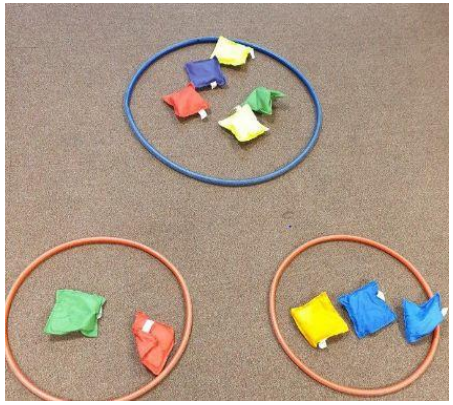
Part Whole Model

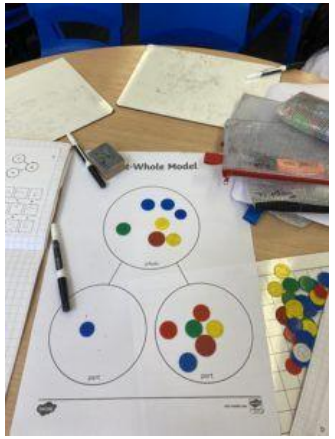
Make 6


1. Roll dice
2. Colour dice number
3. Colour other part
4. The parts are...
6
2
4


6
6
6
6
6
6


6
6
6




Whole Model

A skill for the future...

5 + 6 = 5 + 5 + 1 = 11

40 + 30 = 3 tens + 4 tens = 7 tens = 70

3 + 3 = 6. Half of 6 is 3

8 ÷ 2 = 4 8 sweets divided into groups of 2 is 4

4 x 3 = (3+3) + (3+3) = 12

Remember to practice half termly BFFs


THANK YOU


Any Questions