Maths – How Can I Help at Home?

Parent Workshops

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Maths – How Can I Help at Home?

- Why is maths important?
- Some new ways of working that you may not be aware of
  - Subitising
  - Ten Frames
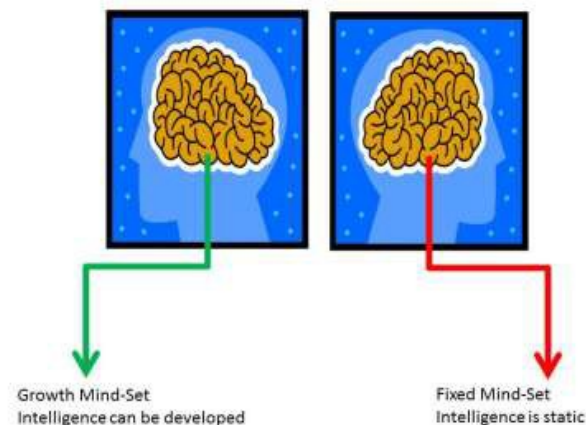 - Part Part Whole Model
- Number lines
- Fluency

Fixed Vs Growth Mindsets (Carol Dweck)

- We believe that *everyone* can get better at maths…when they put in the *effort* and work at it.

- Do not praise children for being clever when they succeed at something, but instead should praise them for working hard.

- Children learn to associate achievement with effort (which is something they can influence themselves – by working hard!), not 'cleverness' (a trait perceived as absolute and that they cannot change).
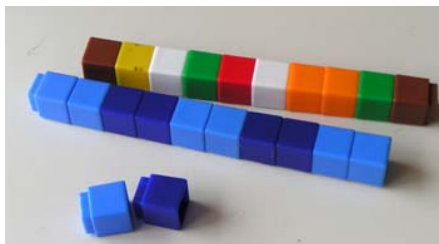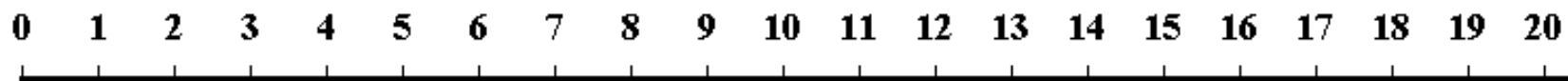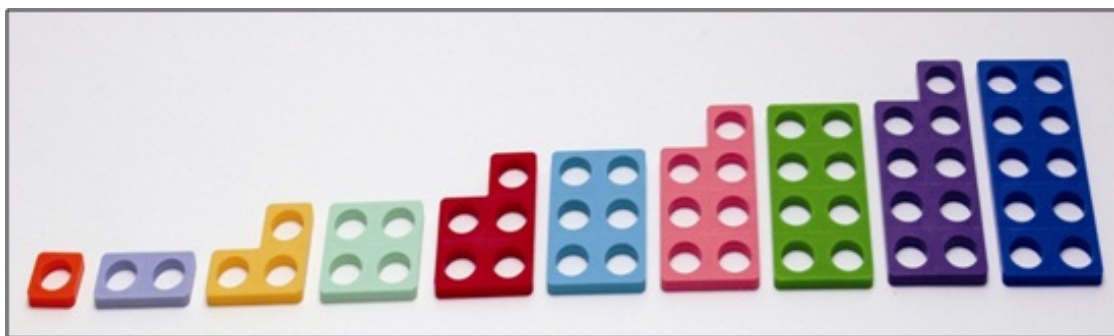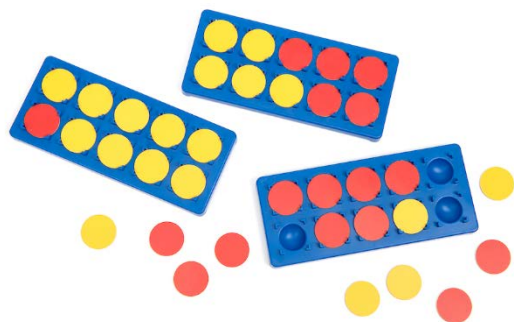
Fixed Vs Growth Mindsets (Carol Dweck)

- If children hear 'I can't do maths' from parents, teachers, friends they begin to believe it isn't important
- People become less embarrassed about maths skills as it is acceptable to be 'rubbish at maths'

https://www.youtube.com/watch?v=2zrtHt3 bBmQ

Growth Mind-Set
Intelligence can be developed

Fixed Mind-Set
Intelligence is static

Resources

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
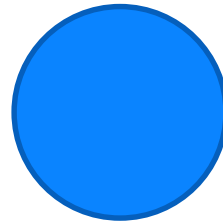
At the beginning...
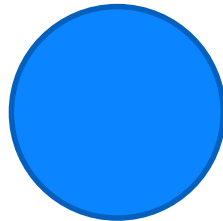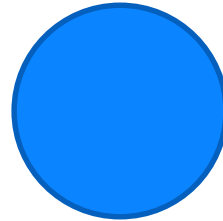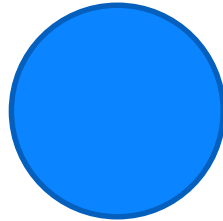
Subitising and Ten Frames

What is subitising?

- All children are born with an innate ability to perceive the difference between one and two objects

- With support and experience, they can quickly perceive up to **6 objects**.
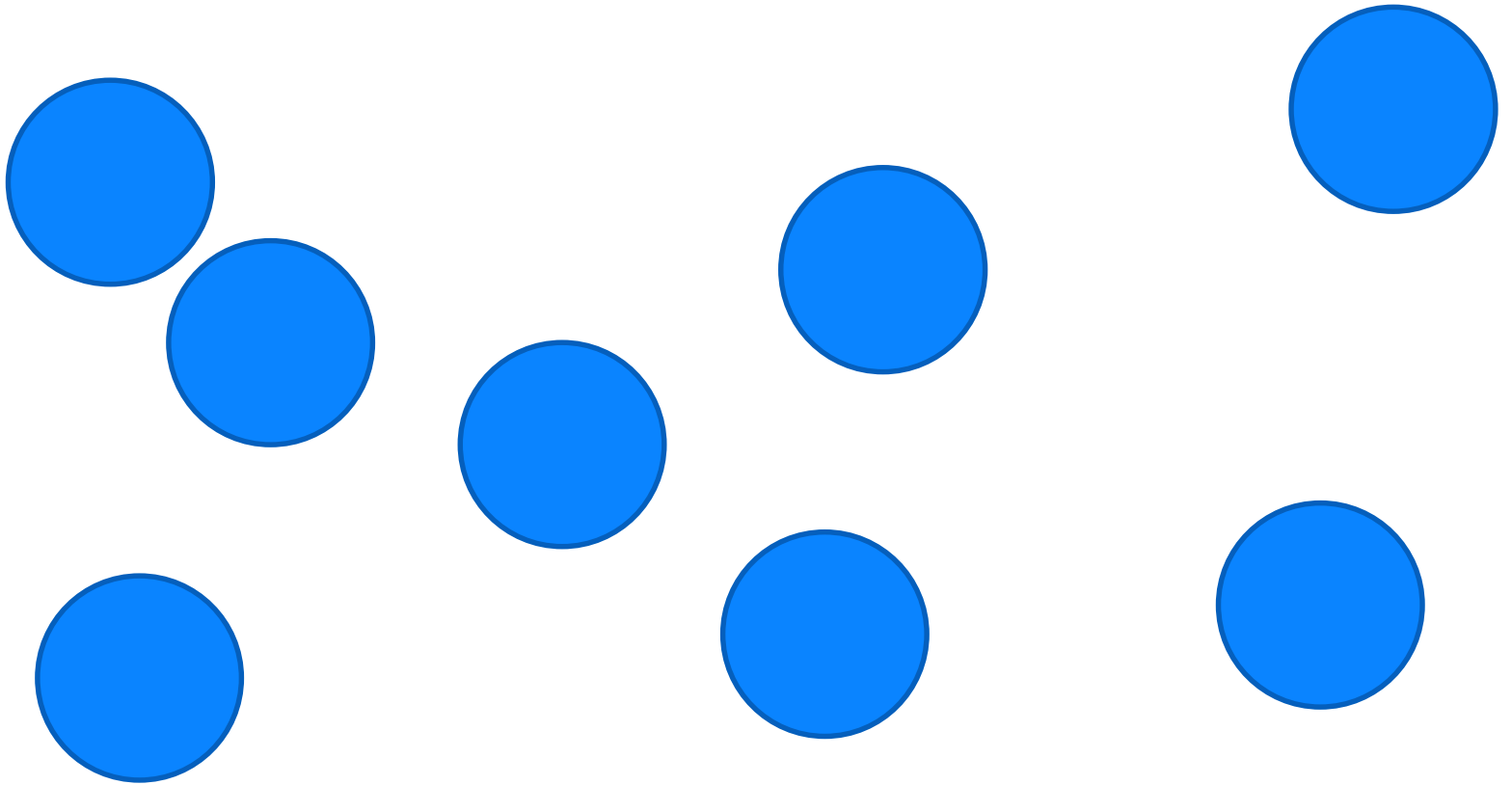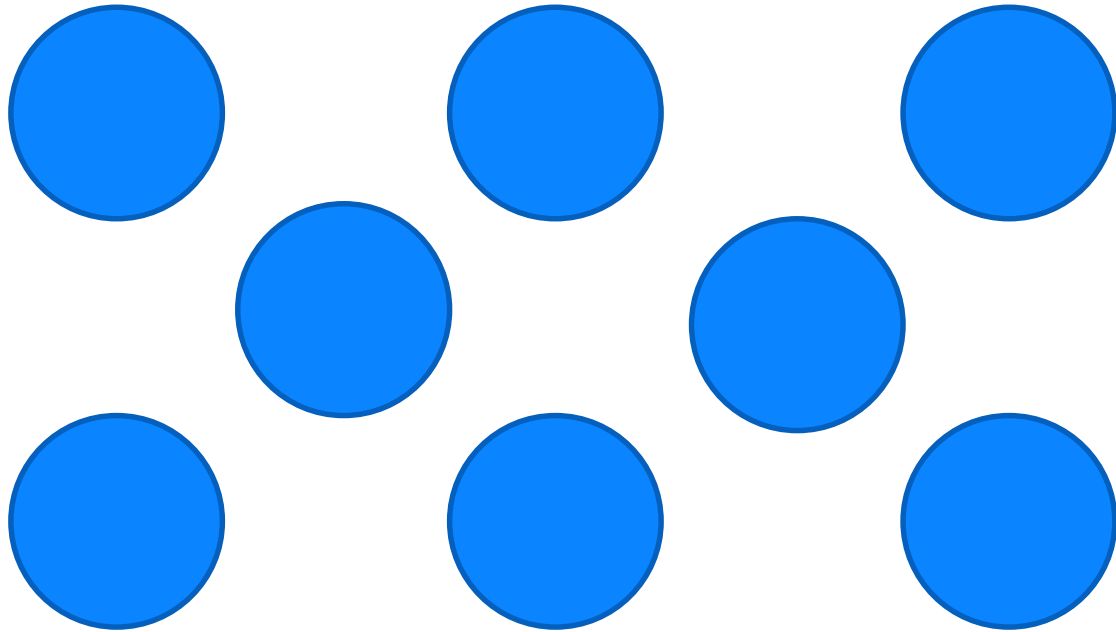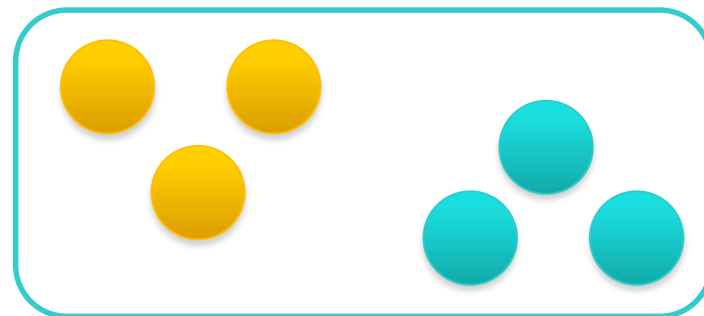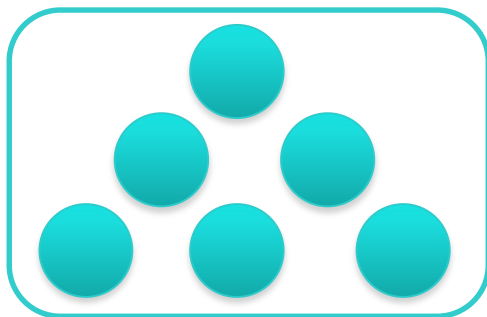
1 - How many?
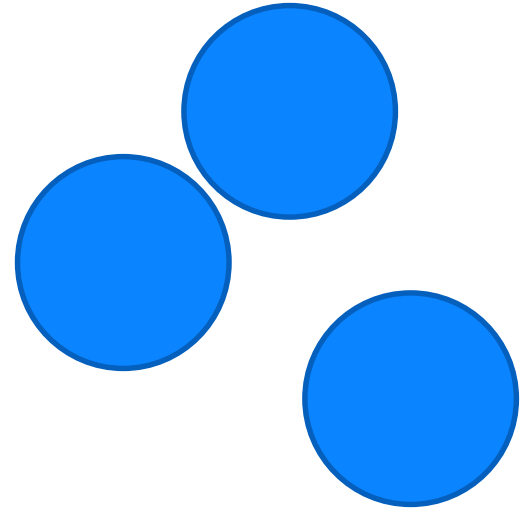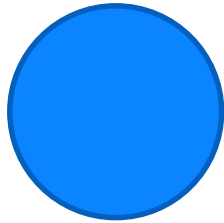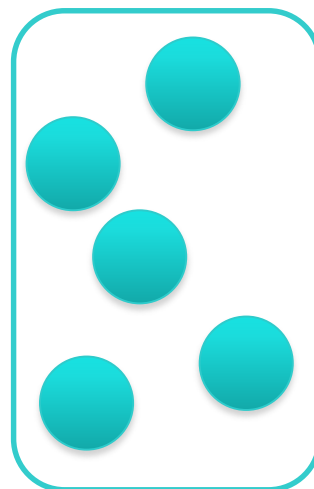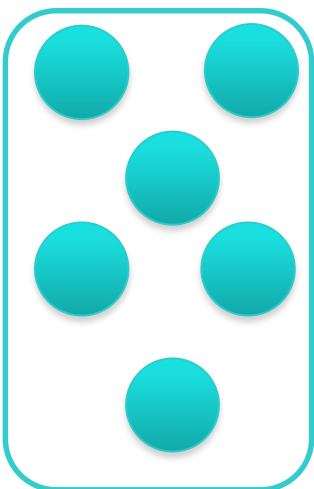
2 - How many?

3 - How many?

4 - How many?

What is subitising?

- Perceptual Subitising – When the number of items is three of less.

- Conceptual Subitising – Building groups i.e. six is two groups of three. You 'see' the numbers in sets.

What is subitising?
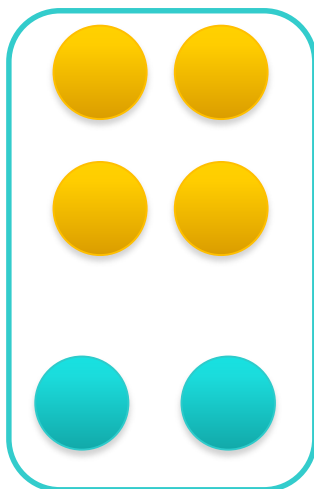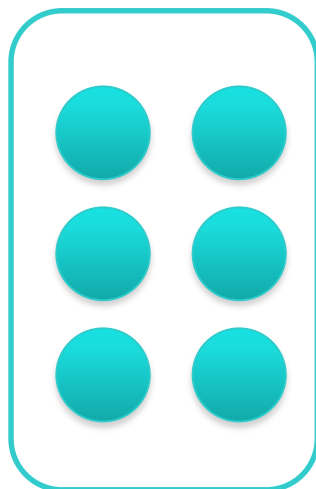
Why is this important?

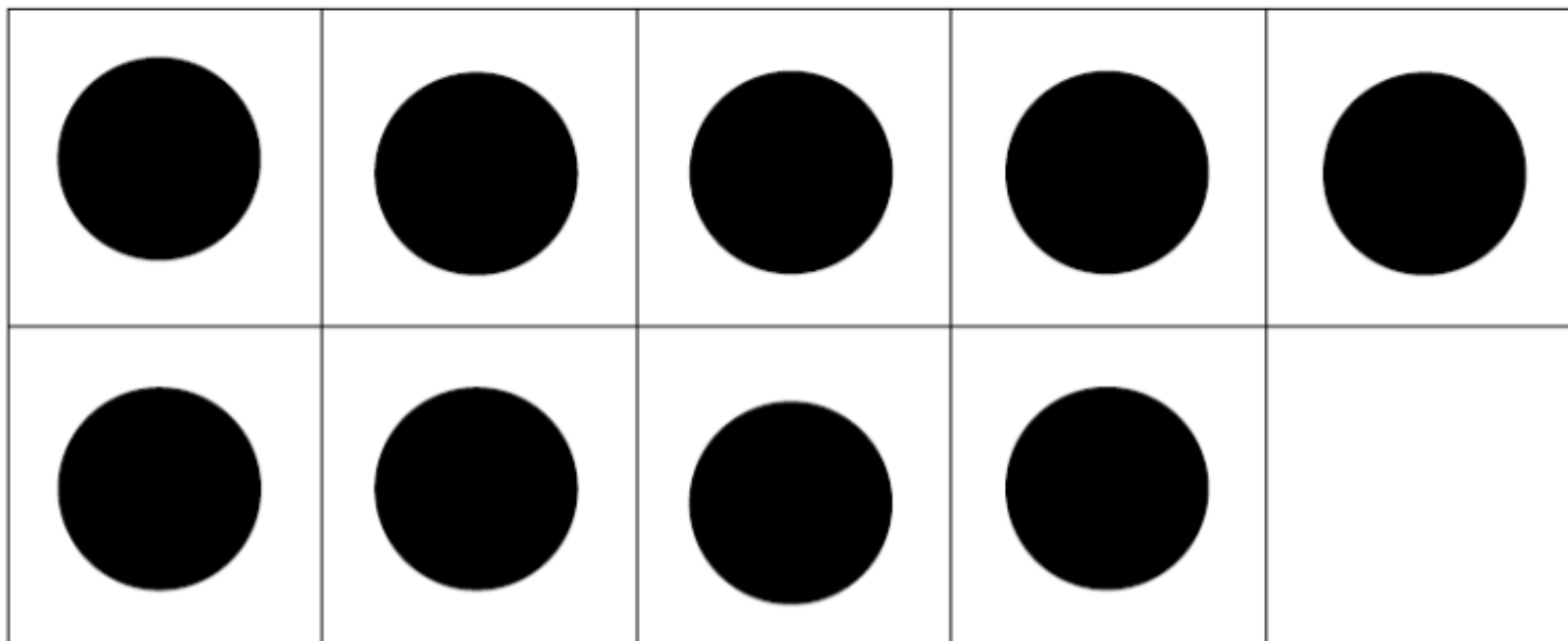- Without a good sense of early number, children are not developmentally ready to make sense of the numerosity involved in larger numbers.

- Numbers above 20 just become 'a lot'.

Why is this important?

- The idea of 'sets' and 'sub-sets' allows children to visualise part-part whole strategies
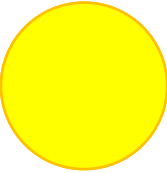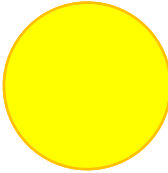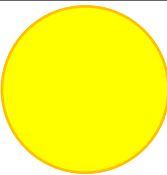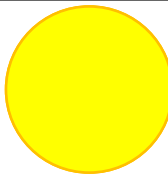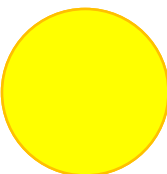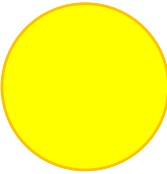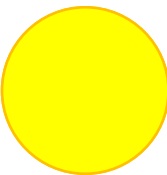
Ten Frames

Ten Frames

Make 7

6 + 1= 7
5 + 2 = 7
4 + 3 = 7
3 + 4 = 7
2 + 5 = 7
1 + 6 = 7
0 + 7 = 7

Ten Frames and Numicon
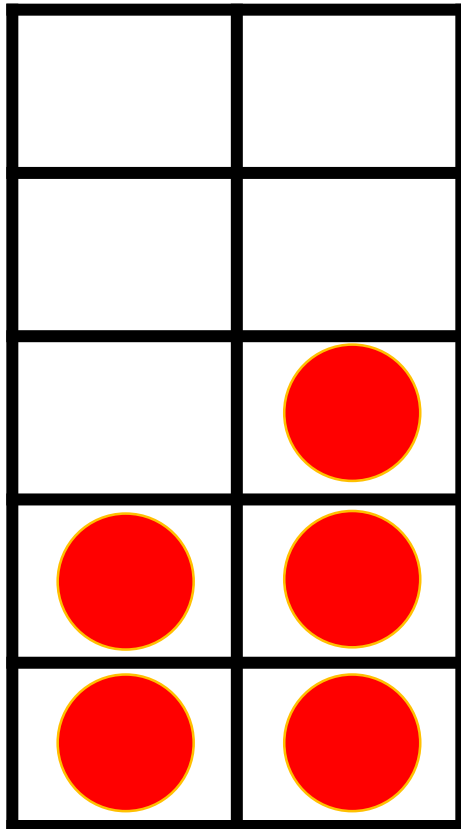
Seeing pattern and structure is important in a mastery curriculum
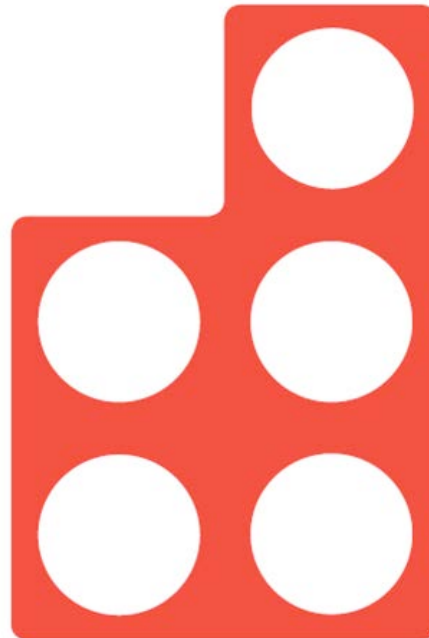
Playing games that involve dice can really help!

At the beginning…

Groups and Sub-sets

Part Part Whole Model

Part Part Whole Model
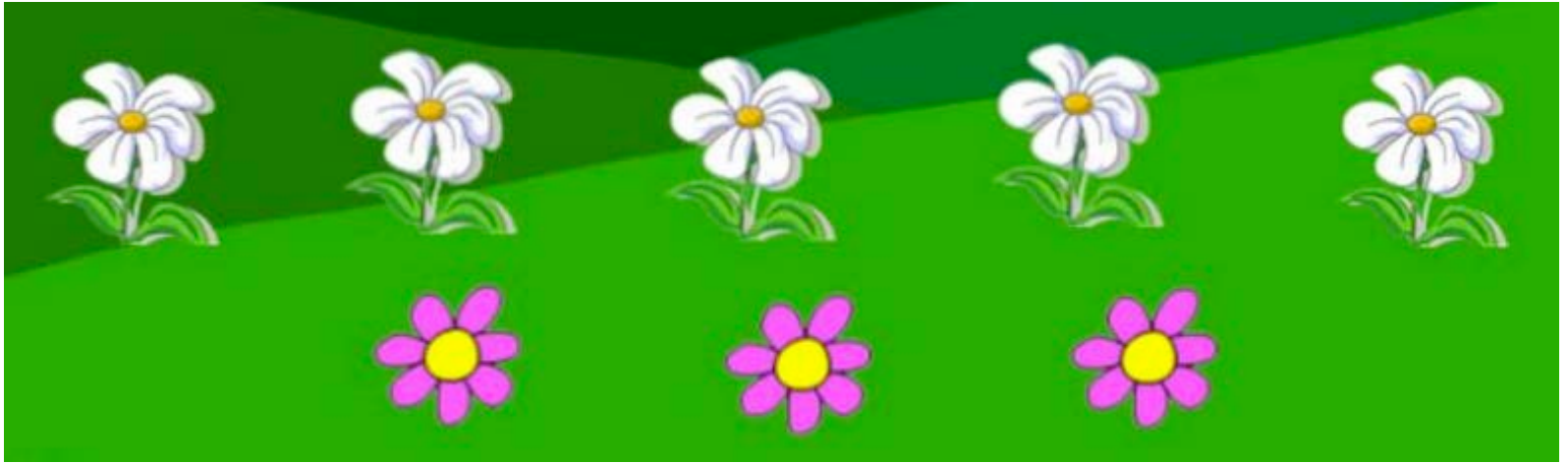
- How many white flowers?
- How many pink flowers?
- How many flowers?

Part Part Whole Model
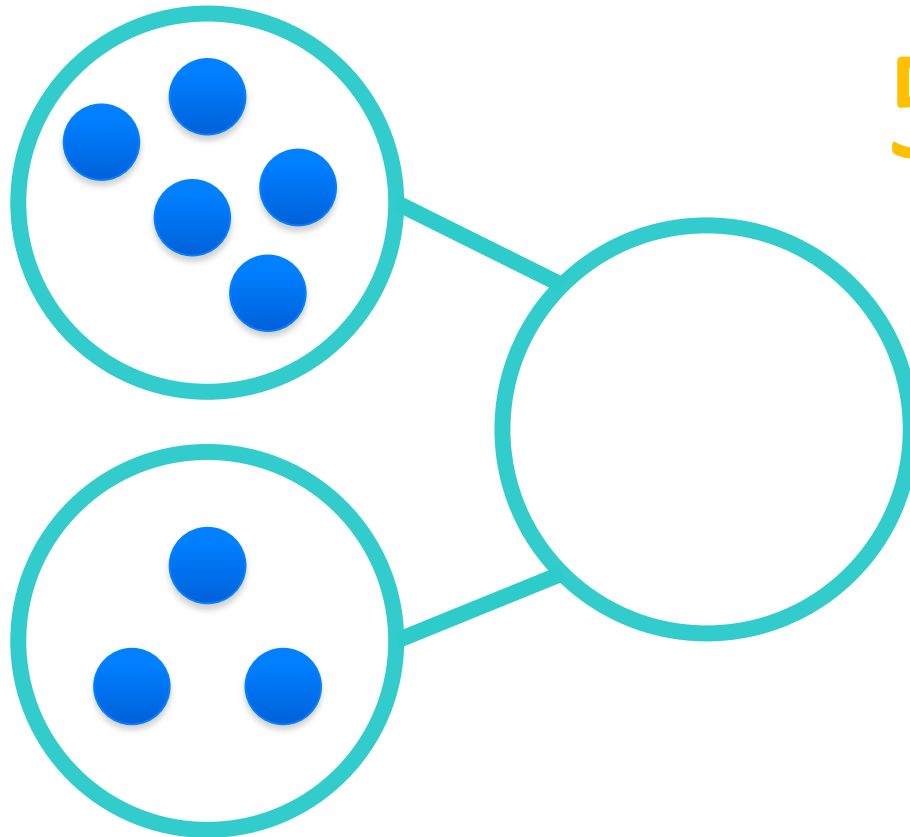
$$5 + 3 = 8$$

Part Part Whole Model
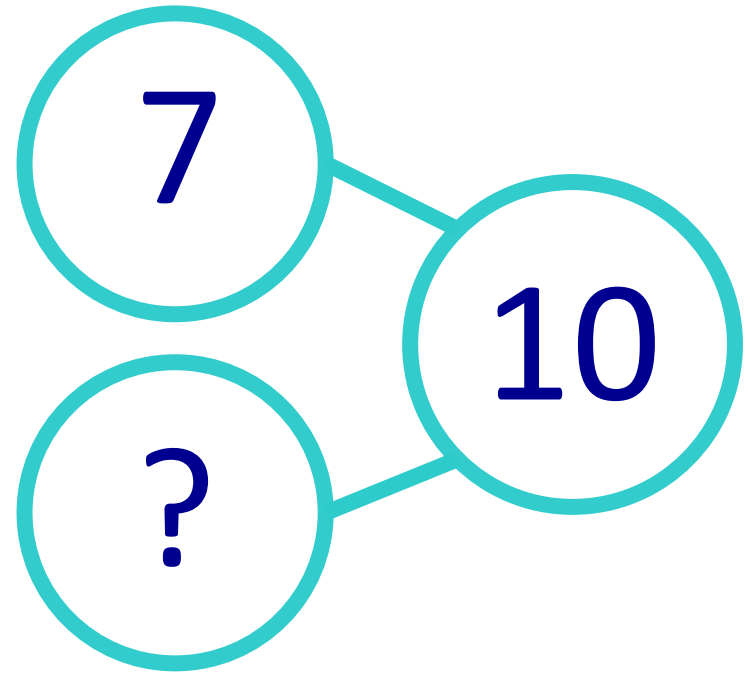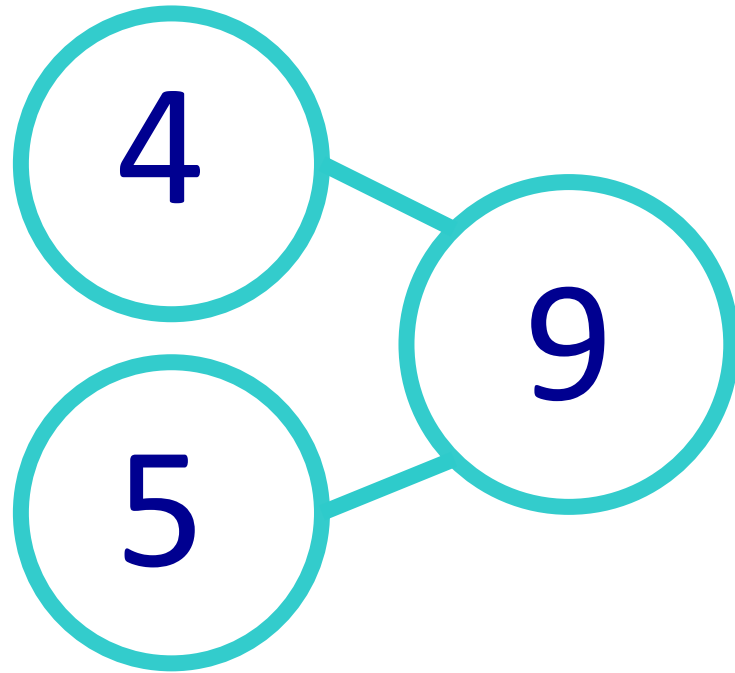
Addition & Subtraction – Calculation Methods

- Children are not taught to add / subtract numbers using the column method until Key Stage 2.

- We teach children mental strategies and give them a variety of different resources which they can use to support these mental strategies (Numicon, bead strings etc)

- In Year 2 we expect the children to be confident using a "Structured Number Line" so they can move on to an "Empty Number Line" or "Unstructured Number Line".

Addition – Structured Number Line

6 + 8 = 14
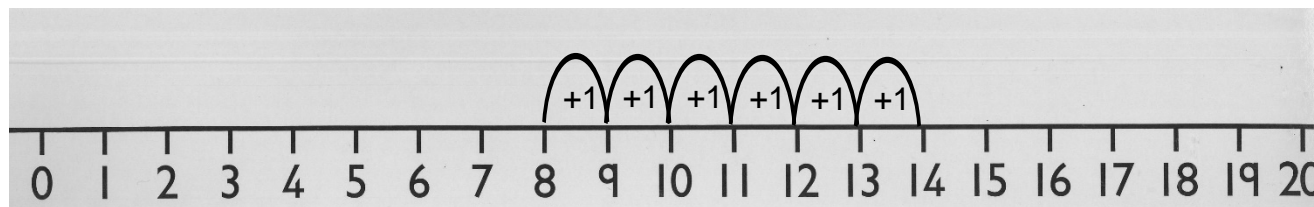
- Children are taught to start with the biggest number
- Count on (add) in units
- The final number will be the answer

Addition – Structured Number Line

16 + 15 = 31
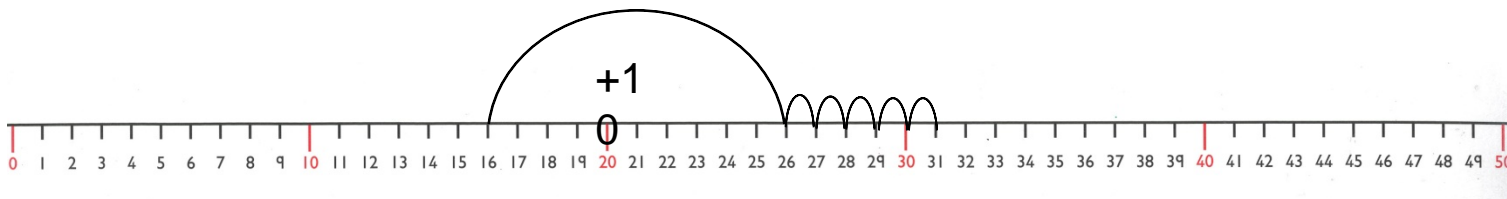
- Children are taught to start with the biggest number
- Count on (add) in tens and then units
- The final number will be the answer

Addition – Structured Number Line

38 + 37 = 75
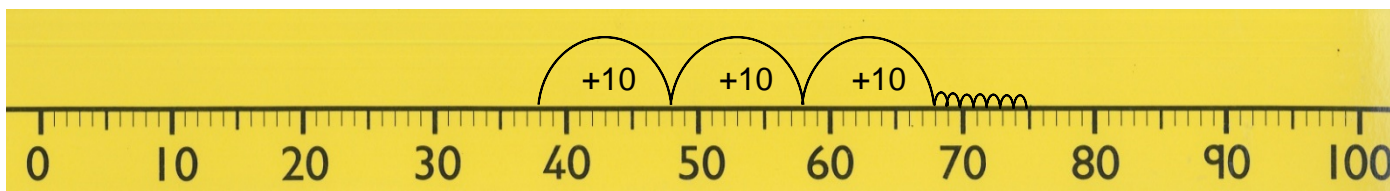
Addition – Empty Number Line

38 + 59 = 97
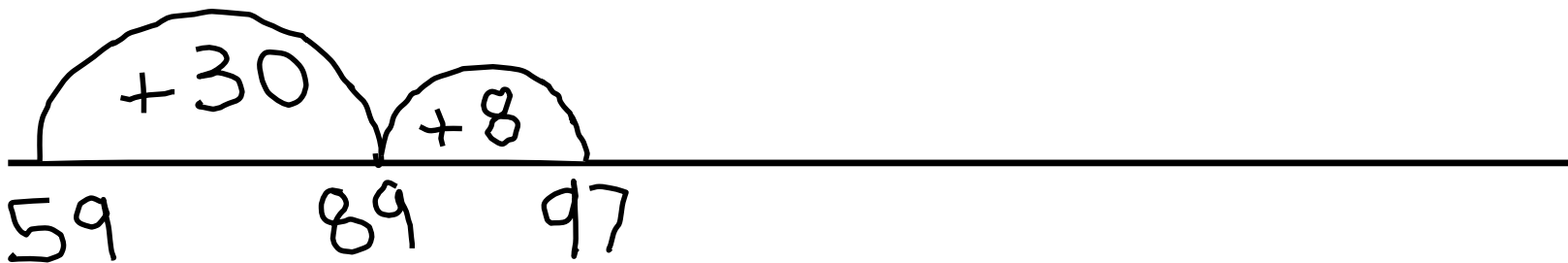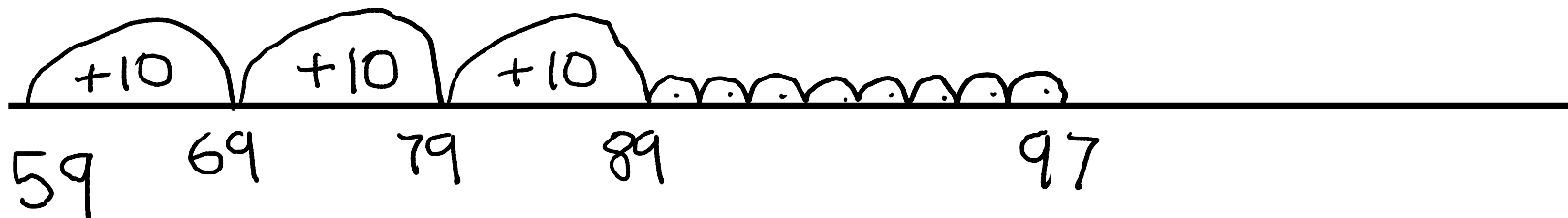
Subtraction – Structured Number Line

14 - 6 = 8
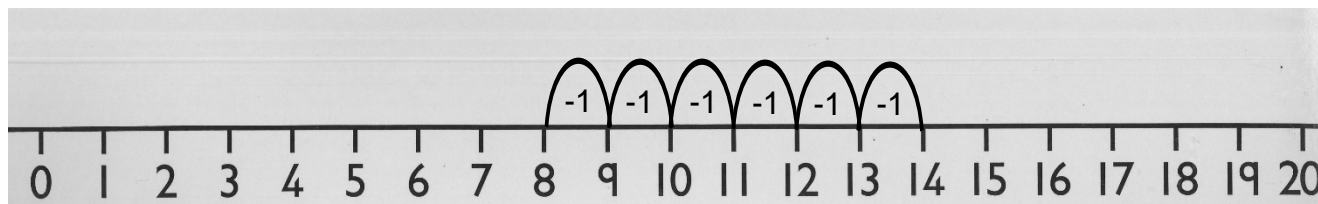
- Children are taught to start with first number
- Jump back in units
- The final number will be the answer

Subtraction – Structured Number Line

35 - 15 = 20
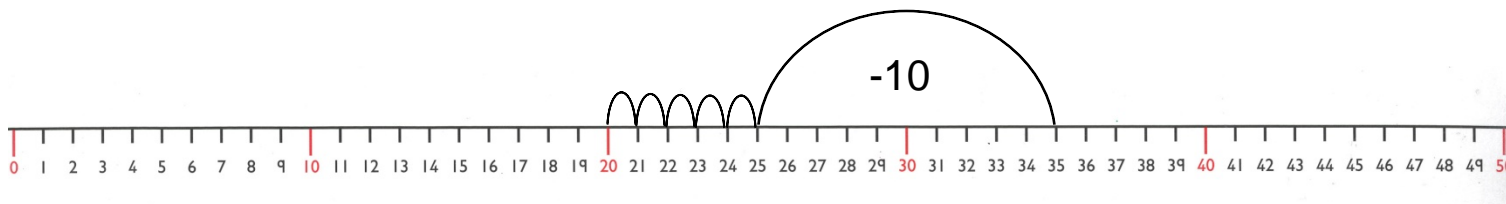
- Children are taught to start with the first number
- **Count back** in tens and then units
- The final number will be the answer

Subtraction – Structured Number Line
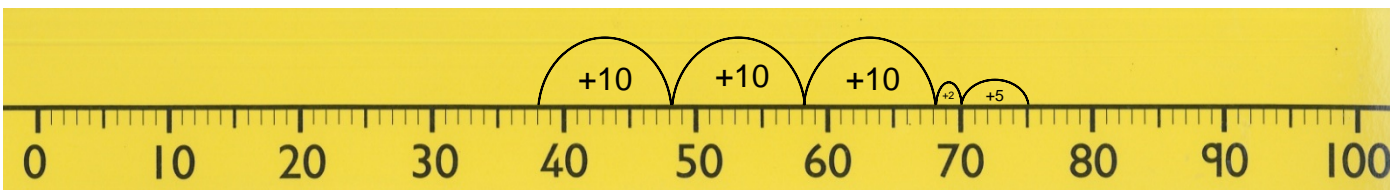
75 - 37 = 38
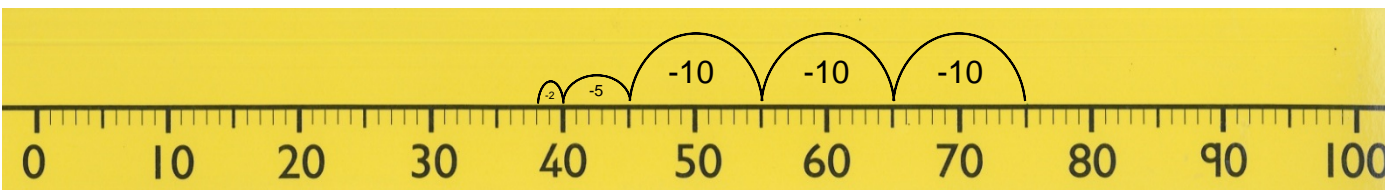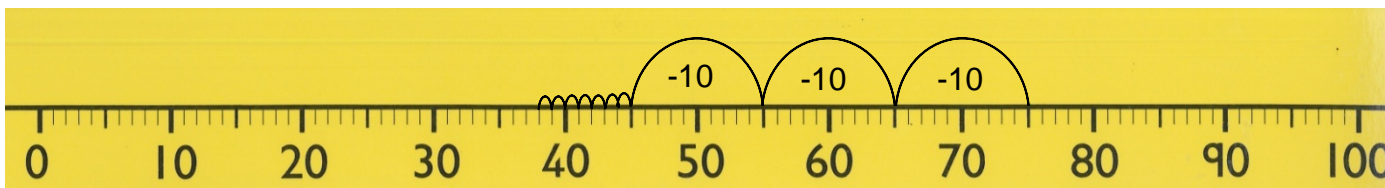
Subtraction – Empty Number Line

89 – 66 = 23
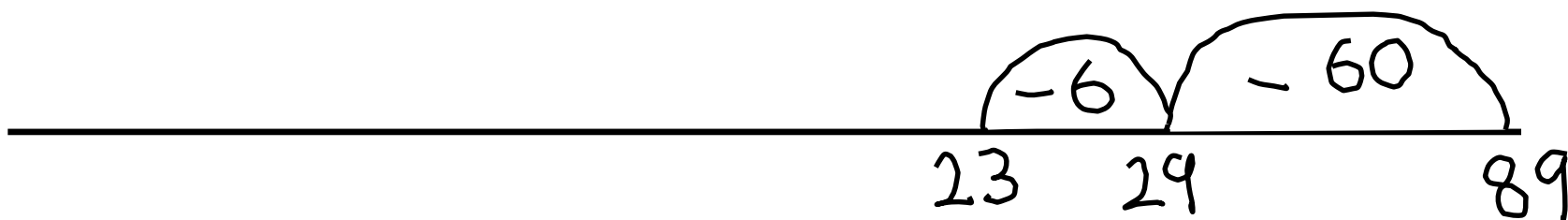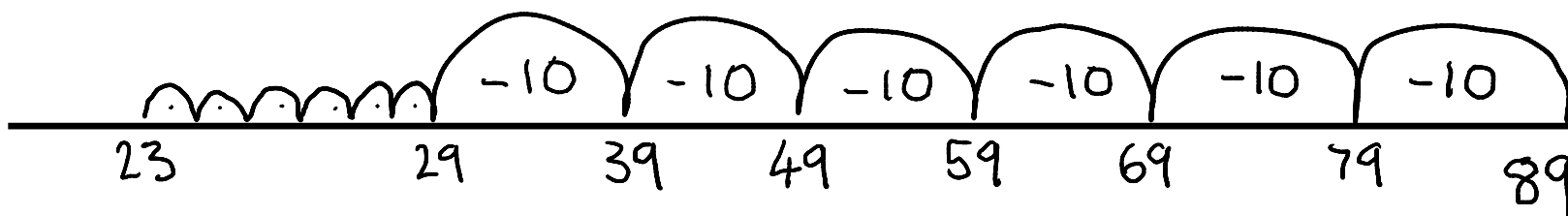
Multiplication – Calculation Methods

- In Year 1 children will be introduced to the concept of multiplication through repeated addition using structured apparatus.

- In Year 2 we teach children to answer multiplication questions either using their knowledge of the times tables or by drawing an array.

- Once they are confident in using these methods they may go on to using repeated addition on the "structured" and/or "empty number line".

Models & Images - Drawing an Array

6 x 7 = 42

Think of it as 6 lots of 7
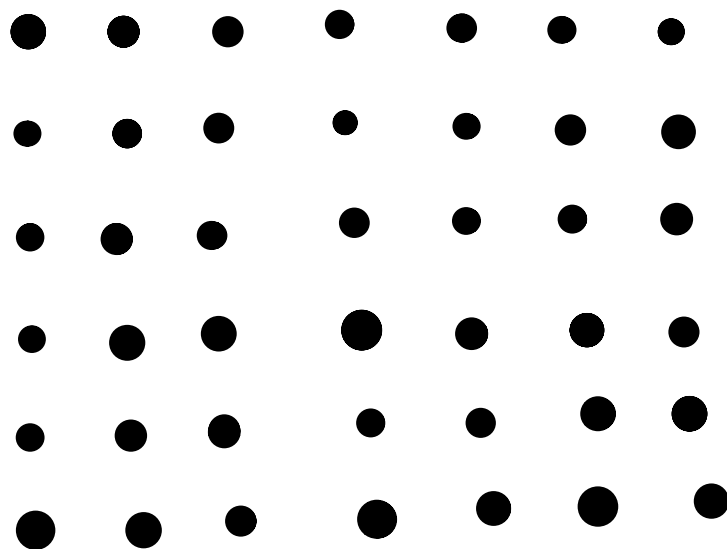
42

Models & Images - Drawing an Array
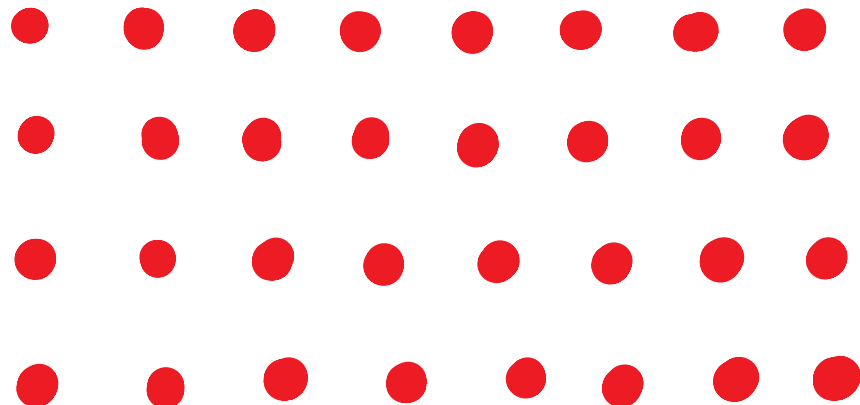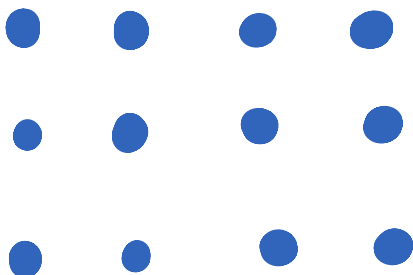
Multiplication – Repeated Addition

5 x 8 = 40
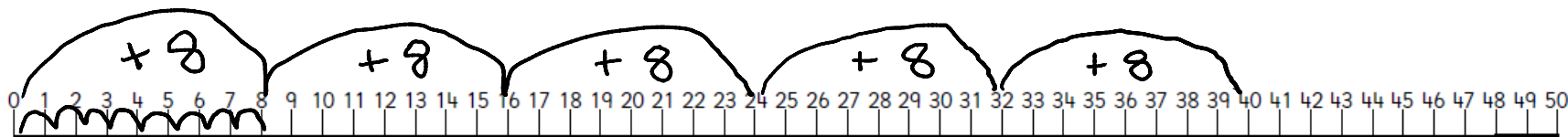
- Children are taught to start at zero
- Count on in groups (in this case 8)
- The final number will be the answer

Division – Calculation Methods

- Early in Key Stage 1 the children will be introduced to the concept of 'sharing' through practical activities

- Initially in Year 2 we teach children to answer division problems / questions using the sharing or grouping method

- Both methods will give you the same answer, but each model / image will help answer a different type of word problem

- Children then go on to answer division questions / problems using a repeated subtraction method on a structured or empty number line.

Division – When to Group / Share

Grouping Questions

You have 25 cubes.

How many towers of 5 can you make?

There are 30 pencils. Each child gets 3 pencils. How many children are there?

You buy 15 flowers. You put 3 flowers in each vase. How many vases do you use?

Sharing Questions

A chef shares 14 pieces of pepperoni between two pizzas. How many pieces of pepperoni does each pizza get?

Marge gives her five grandchildren £30 to share between them. How much do they get each?

Models & Images - Sharing

$$24 \div 6 = 4$$

Put one in each circle until you have counted out all 24. The number in each circle is your final answer.
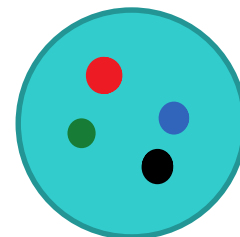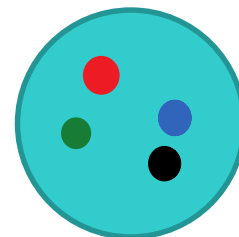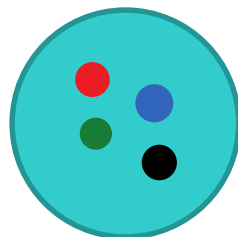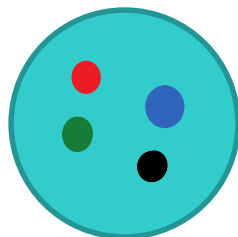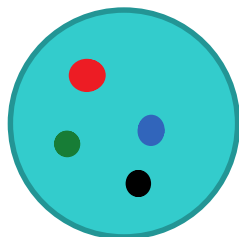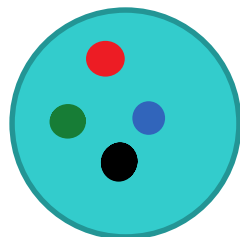
Models & Images - Grouping

$24 \div 6 = 4$

Work out how many groups of 6 you can make from 24

Division – Repeated Subtraction

$24 \div 6 = 4$
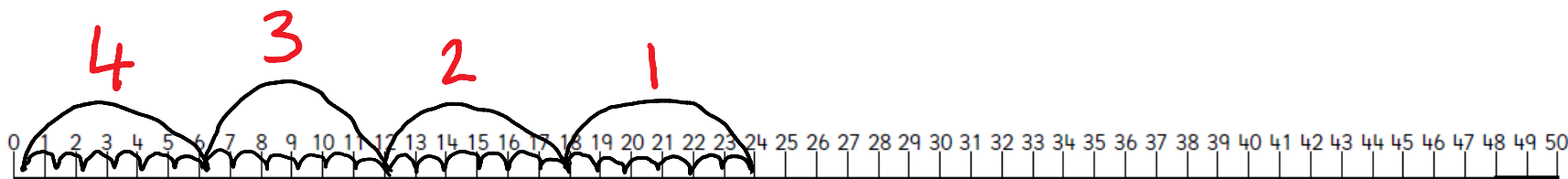
- Children are taught to start with first number.
- Count back (subtract) in groups (6 in this case).
- The children will then have to count how many groups they have made. This will be the answer.

How can I help?

Fluency

Fluency

- Fluency = how fast a person can retrieve correct maths facts to working memory from storage memory.
- Storing in Long term Memory needs lots of rehearsal, repetition and regular retrieval.

Fluency

- Tom knows his 10 times tables
- When asked what is 13 x 10 he looks blank

- Does Tom have fluency and understanding
- What can you do to help him?

Fluency – What facts do they need to be able to recall?

- Number bonds (up to 20)
  - Addition and subtraction facts.
- Doubles and halves
- Near doubles (5 + 5 = 10, 5 + 6 = 11)
- Skip counting (counting in 2s, 5s, 10s etc)
- Times tables (2s, 5s and 10s (3s is helpful for fractions)) and division facts

What can I do to help at home?

'The most effective support you can offer your child is your time. Highlight the mathematical situations in everyday life wherever possible e.g. counting stairs, shopping, journeys, planning TV viewing and playing games. Games do not have to be expensive – a pack of cards, a set of dominoes, some dice and a calendar provide endless opportunities to explore mathematics'.

How to Help Your Child with Numeracy Please try not to...

- Don't expect them to understand after you've explained it once. It is normal for a child to 'get it' one day, and then in a different context not know how to find an answer

- Don't tell them you are hopeless at maths – You may remember maths as being hard, but you were probably not hopeless, and even if you were, that implies to your child, "I was hopeless at maths, and I'm a successful adult, therefore maths is not important"

How to Help Your Child with Numeracy
Take home messages

- Try to make maths as practical as possible

- Make maths fun, play games such as snakes and ladders, ludo, dominoes etc.

- Link maths to real life experiences. It is important that children see why they need maths

How to Help Your Child with Numeracy
Take home messages

Chinese Bamboo

● When you plant it, nothing happens in the first year, nor in the second year or the third or the fourth years. You don't even see a single green shoot.

● And yet, in the fifth year, in a space of just six weeks, the bamboo will grow nine feet high.

● The question is, did it grow nine feet in six weeks or in five years?