Calculation Meeting

Year 2

+ − x ÷

How do we solve problems?

Addition

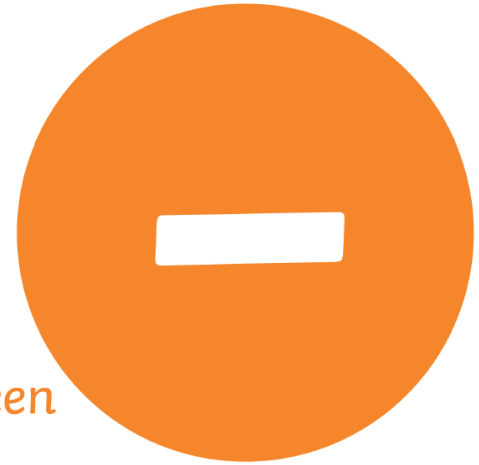
- add
- more
- plus
- make
- sum
- total
- altogether

Multiplication

- lots of
- times
- multiply
- groups of
- product
- multiplied by
- multiple of
- repeated addition
- array

Subtraction

- subtract
- minus
- leave
- less
- take away
- difference between



Division

- divide
- divided by
- divided into
- share
- share equally
- equal groups of

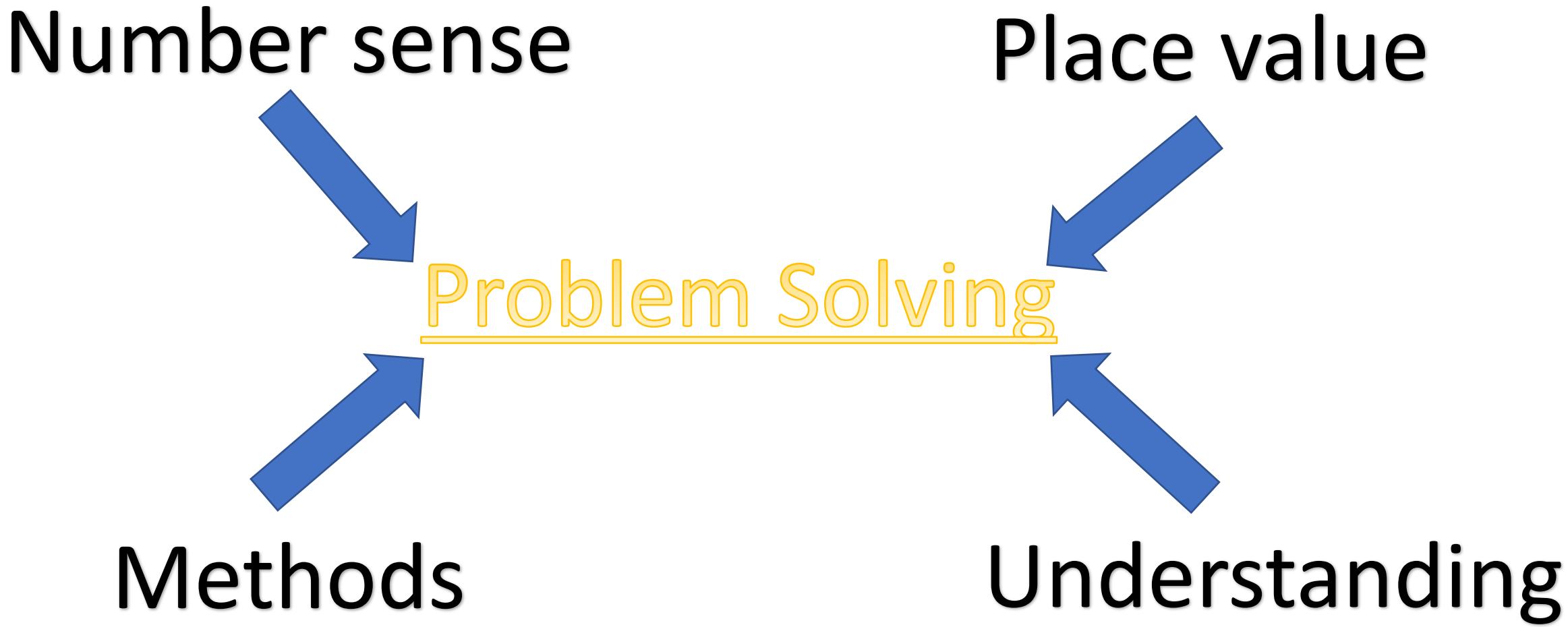
Year 2 maths curriculum

The national curriculum is broken down into the following sections:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurement
- Properties of shapes
- Position and direction
- Statistics

The road to problem solving

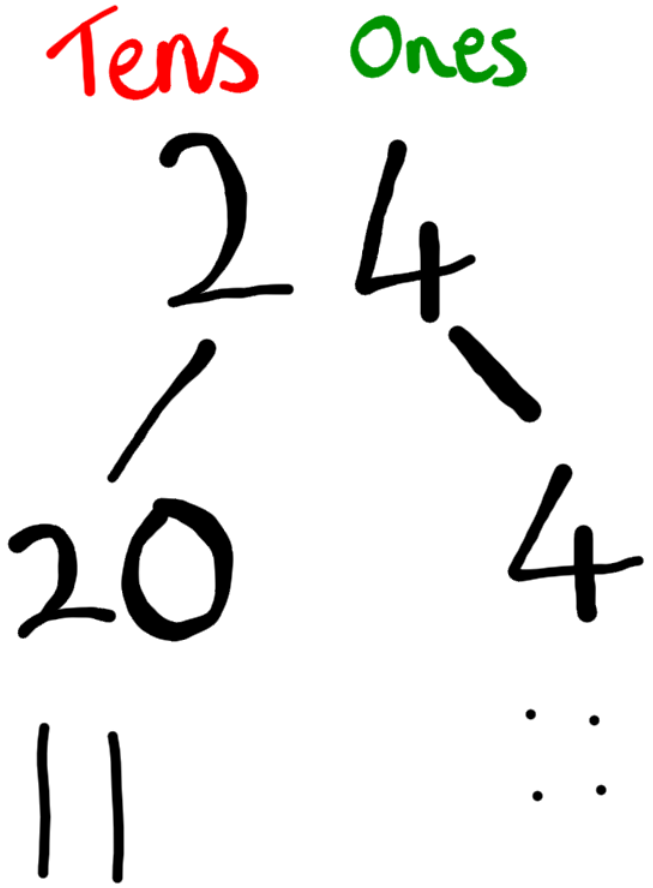
Each year we want to build on the children's ability to solve mathematical problems and reason mathematically. In order to do this, these 4 areas are hugely important.



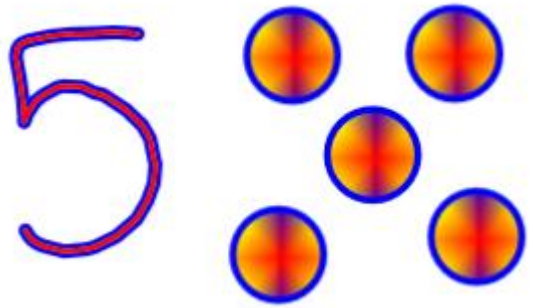
Place Value

Understanding that each number represents an amount. Especially important when using double and triple digit numbers.

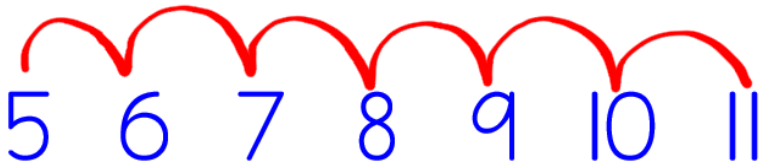
- Understanding how many ones, tens or hundreds are in a number.
- Good place value knowledge will allow children to break down equations and problems into manageable chunks.
- Important skill to understand column method

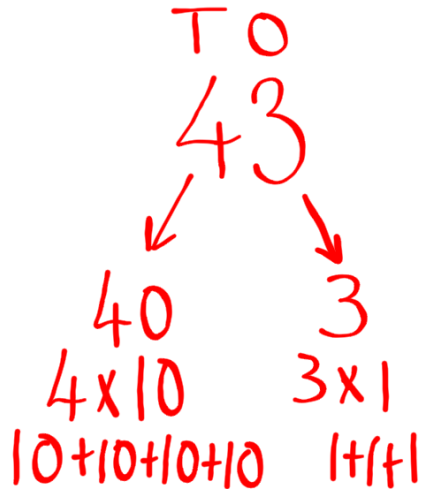


Barriers to learning
What might be getting in the way?

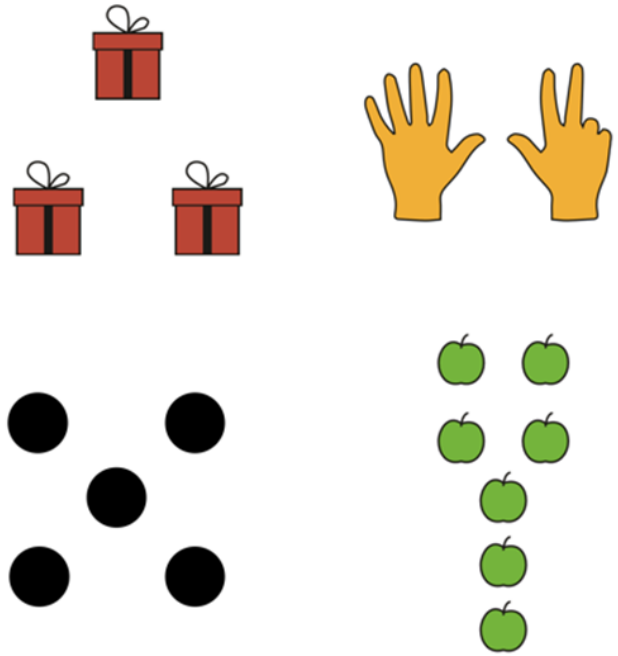


- Understanding what a number is representing
- Counting on/back from a given number
- Knowing 1 more and 1 less
- Knowing 10 more 10 less
- Understanding place value – 100s, 10s and 1s





Some things to practise



- Simple number facts
- Asking how do you know?
- Subitising – knowing without counting

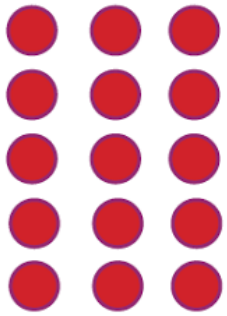
Concrete, pictorial and abstract

Objects/things to handle

-Cubes

-Pencils

-10s and 1s

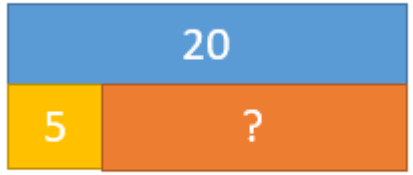


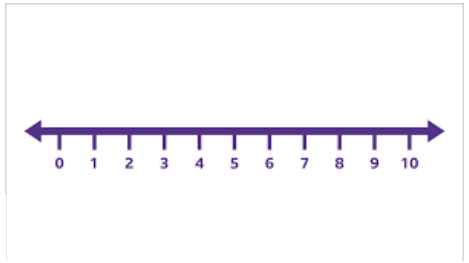
A visual representation

-Drawings

-Bar models

-Arrays





Numbers and symbols

-Equations

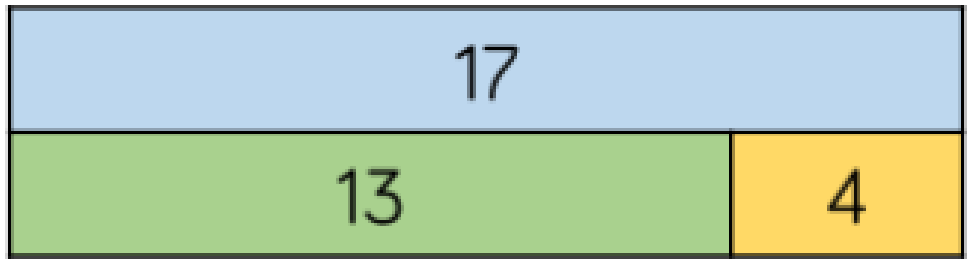
-Operations e.g. + -

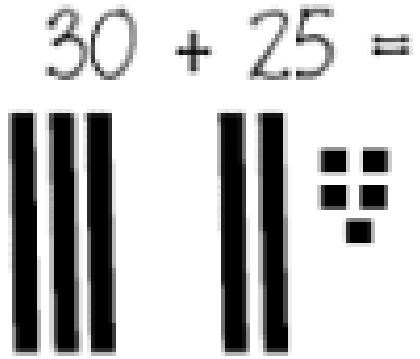
Addition

Methods we teach:

- Manipulatives such as bead strings, numicon, cubes,
- Number lines
- Lines and dots
- Partitioning – Breaking down
- Counting on

Bar models





Addition using objects and manipulatives

- Cubes, tens and ones, numicon, bead strings, rekenreks.
- All of these give clear visual representations of the amounts and allow children to physically move objects to see it changing.

1 - Make the greater amount

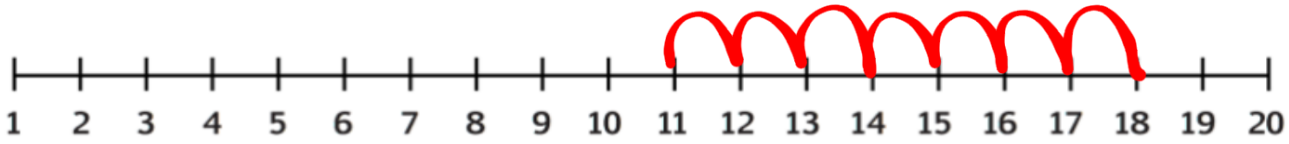
2 – Add the other amount

3 – Count to find the total – Either count all or count on from the greater amount

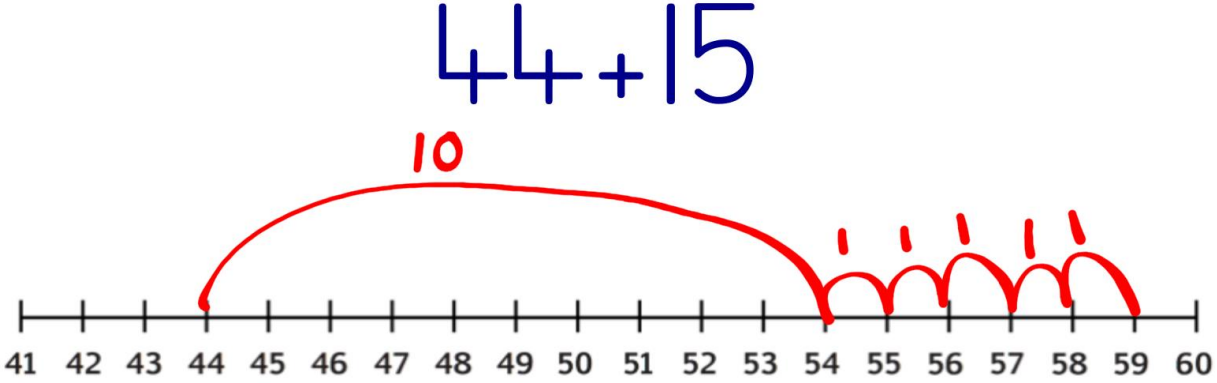
Addition – Number lines

- Start from the greater number
- Do the correct number of jumps
- The answer is the number you land on
- Extend to jumps of 10s then 1s

11 + 7 =

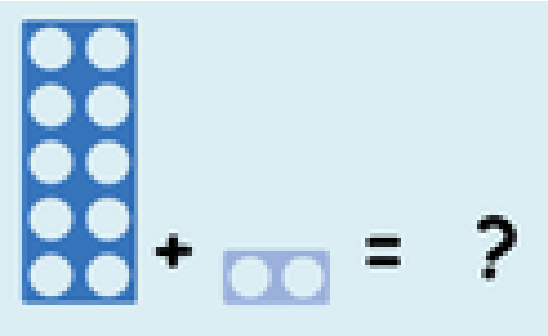


44 + 15

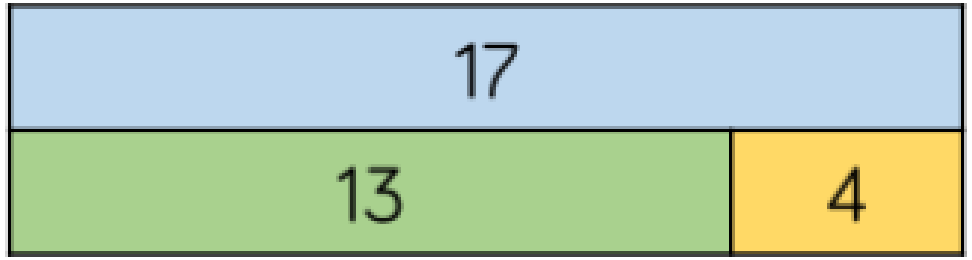


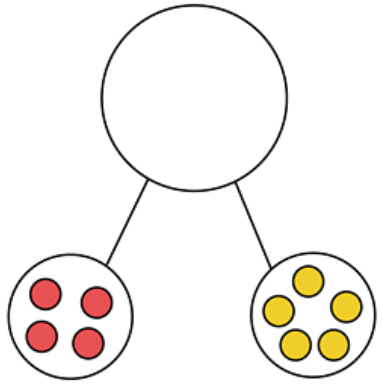
Addition using pictorial representations

- Pictures of objects
- Lines and dots
- Whole part and bar models show how two amounts create a total



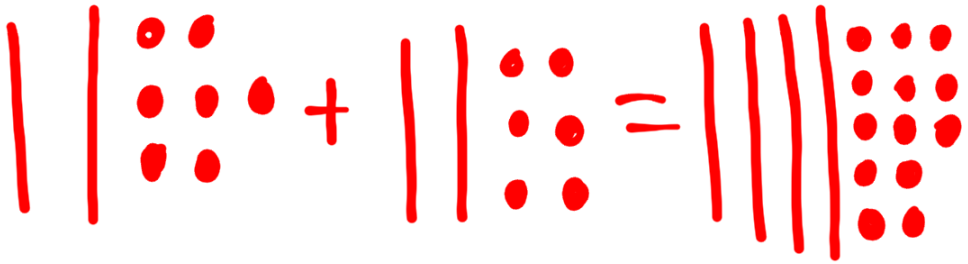
Bar models





36+23=59

27+26=53



Addition – Using place value and partitioning

- Break the number down into 10s and 1s.
- Make the equation easier.

45+23=

40+20=60

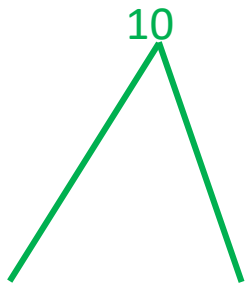
5+3=8

60+8=68

45+3=48

48+20=68

Other methods



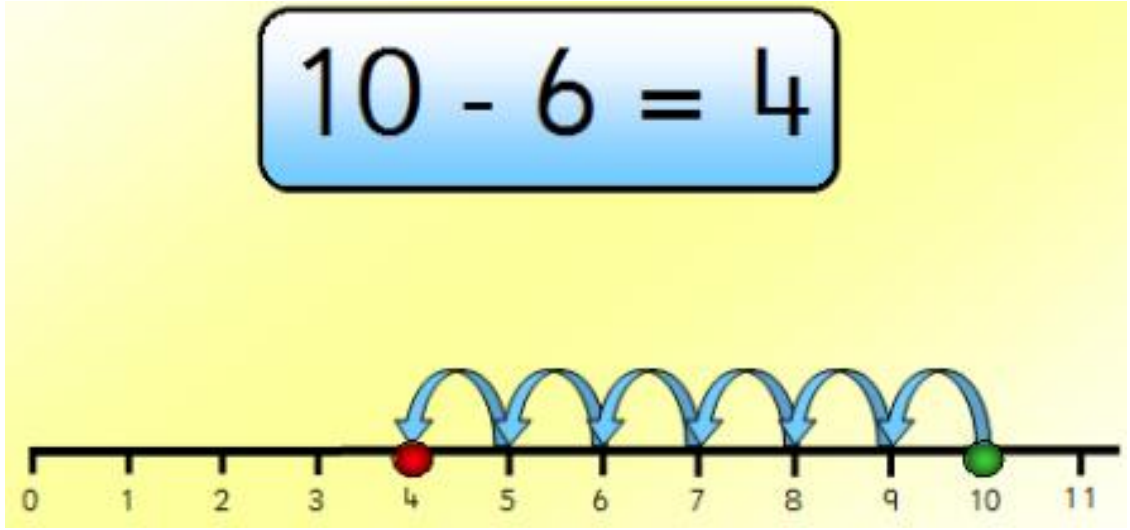
- Finding a 10 $4+3+6= 10 + 3 = 13$
- Near 10s $19+6=$

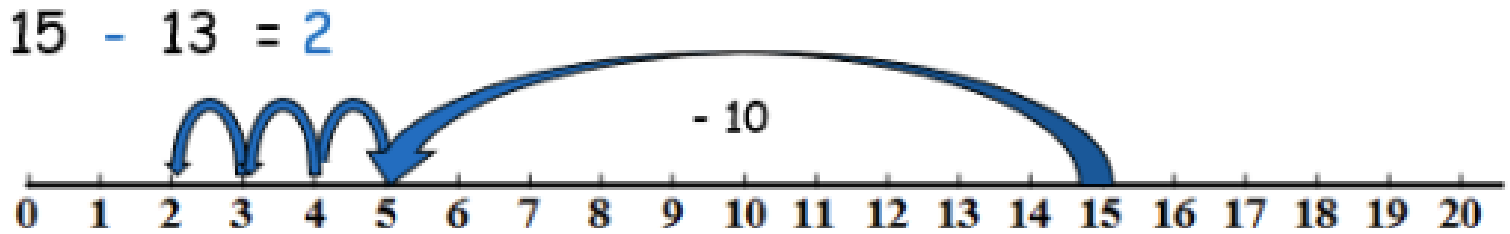
Subtraction

- Very similar to addition but backwards
- Children must understand that subtraction will decrease the value of our amount.
- Key language –subtract, minus, take away, less than, fewer

Subtraction with a number line

- Start from greatest number
- Work out how many jumps backwards you will be doing
- Do your jumps
- The answer is the number you land on.

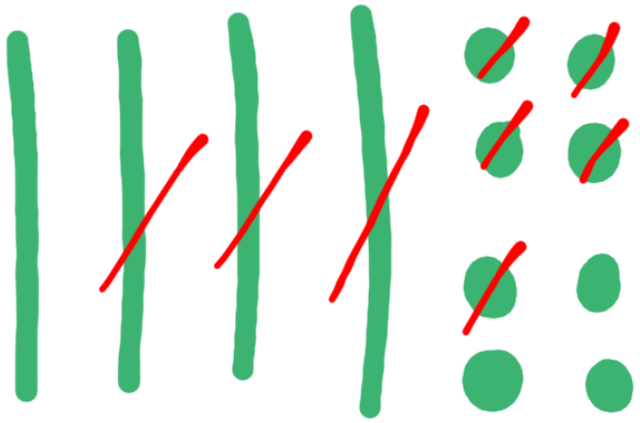




Subtraction using lines and dots

- Draw the total or first number
- Cross out how many are being taken away

48 - 35 = 13



Subtraction using place value and partitioning

- Use place value to make the equation easier.
- Take away the ones first then 10s – Or the other way around depending on which they find best.

28-14=

28-4=24

24-10=14

Subtraction with converting

Subtraction equations like the one below are the toughest to grasp. The ones are greater in the second number so children cannot draw lines and dots then cross out without a 10 into 10 1s converting.
The two methods we teach are,
1. Subtract the ones or 10s first, then the other
2. Convert a ten into 10 ones then cross out as usual

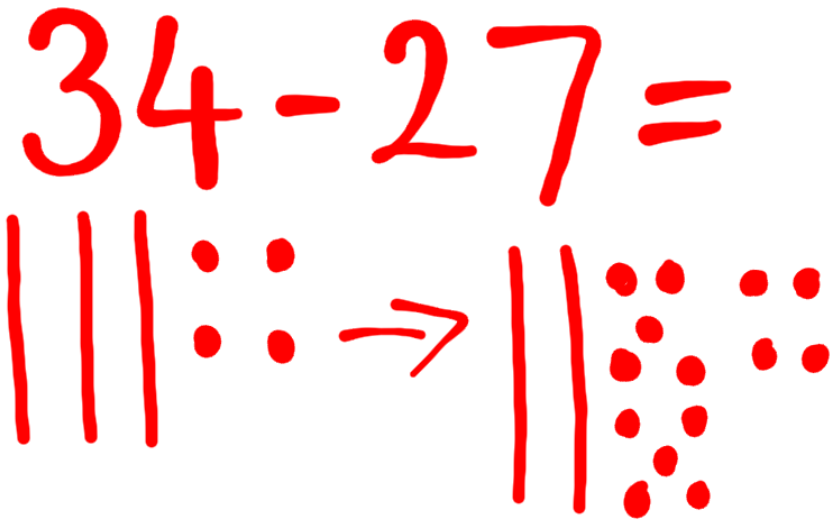
1.

34-27=

34-7=27

27-20=7

2.



Using the lines and dots method with this equation wont work because of the ones. We teach the children to interpret the equation first then decide if they need to convert/exchange a 10 into 10 1s.

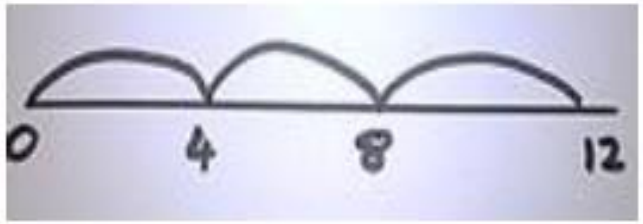
In the Summer term if the children are ready we will being to teach simple column method to prepare for Year 3.

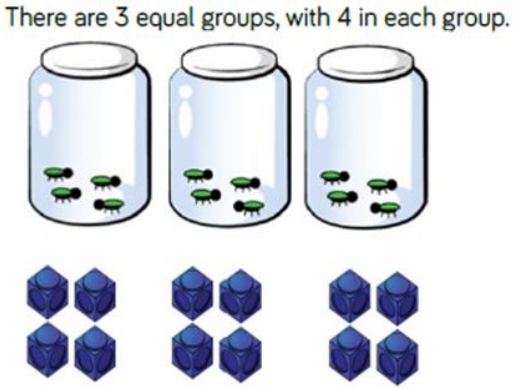
Multiplication

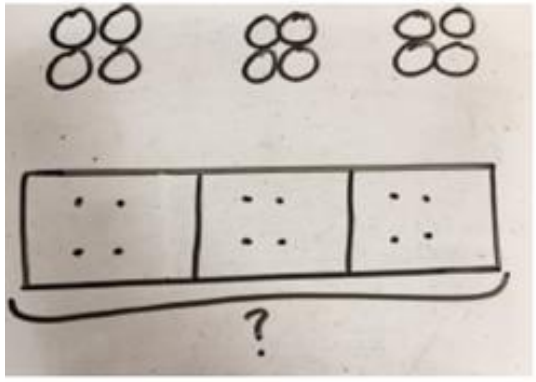
Repeated addition 4+4+4+4+4+4=24

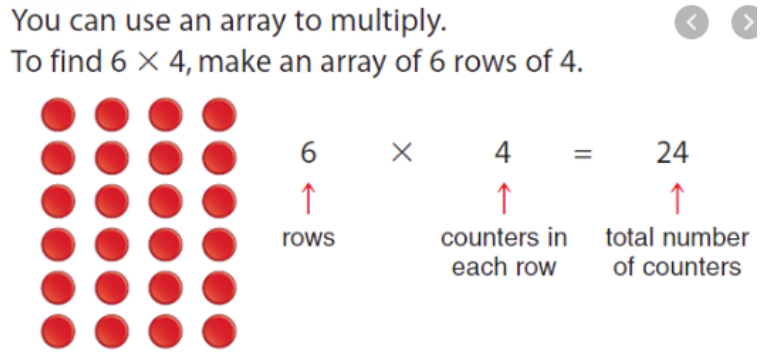
- 'Groups of' or 'lots of' the same number.
- Can be represented as an array, repeated addition or by drawing groups
- Understanding it is commutative (the numbers can be moved or swapped around)
- Counting in multiples – 3x5=15

3 × 4 = 12





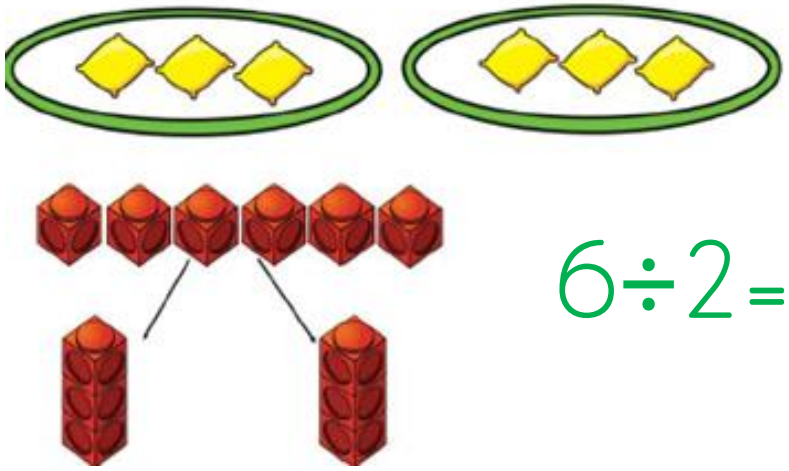




Division

- Breaking an amount into equal groups
- Sharing objects
- Circles and dots

- We share the greater amount between the smaller



$6 \div 2 = 3$

Link division to multiplication by creating an array and thinking about the number sentences that can be created.

E.g. 15÷3=5, 15÷5=3, 5x3=15, 3x5=15

Mastering Number

Mastering Number aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number.

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

By the end of year 2

Working at the expected standard

The pupil can:

- read scales* in divisions of ones, twos, fives and tens
- partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus
- add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g. 48 + 35; 72 – 17)
- recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7 + 3 = 10 then 17 + 3 = 20; if 7 – 3 = 4 then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14)
- recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary
- identify $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{4}$, of a number or shape, and know that all parts must be equal parts of the whole
- use different coins to make the same amount
- read the time on a clock to the nearest 15 minutes
- name and describe properties of 2-D and 3-D shapes, including number of sides, vertices, edges, faces and lines of symmetry.

* The scale can be in the form of a number line or a practical measuring situation.

Home Learning

- KIRF home learning
- Mathletics
- Purple Mash
- Maths challenges – On the website

https://toytheater.com/category/teacher-tools/virtual-manipulatives/

https://www.didax.com/math/virtual-manipulatives.html