Calculation Meeting

Year 2

+ − x ÷

How do we solve problems?

Addition

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



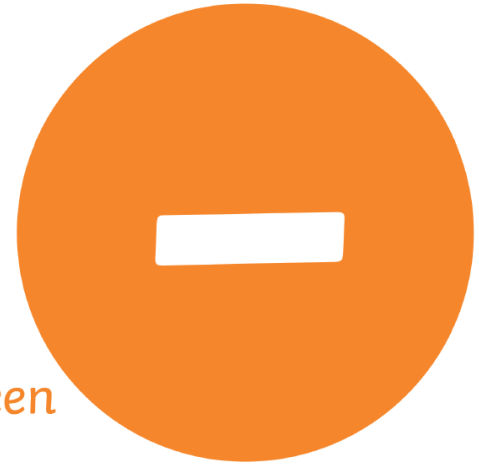
Multiplication

- 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:

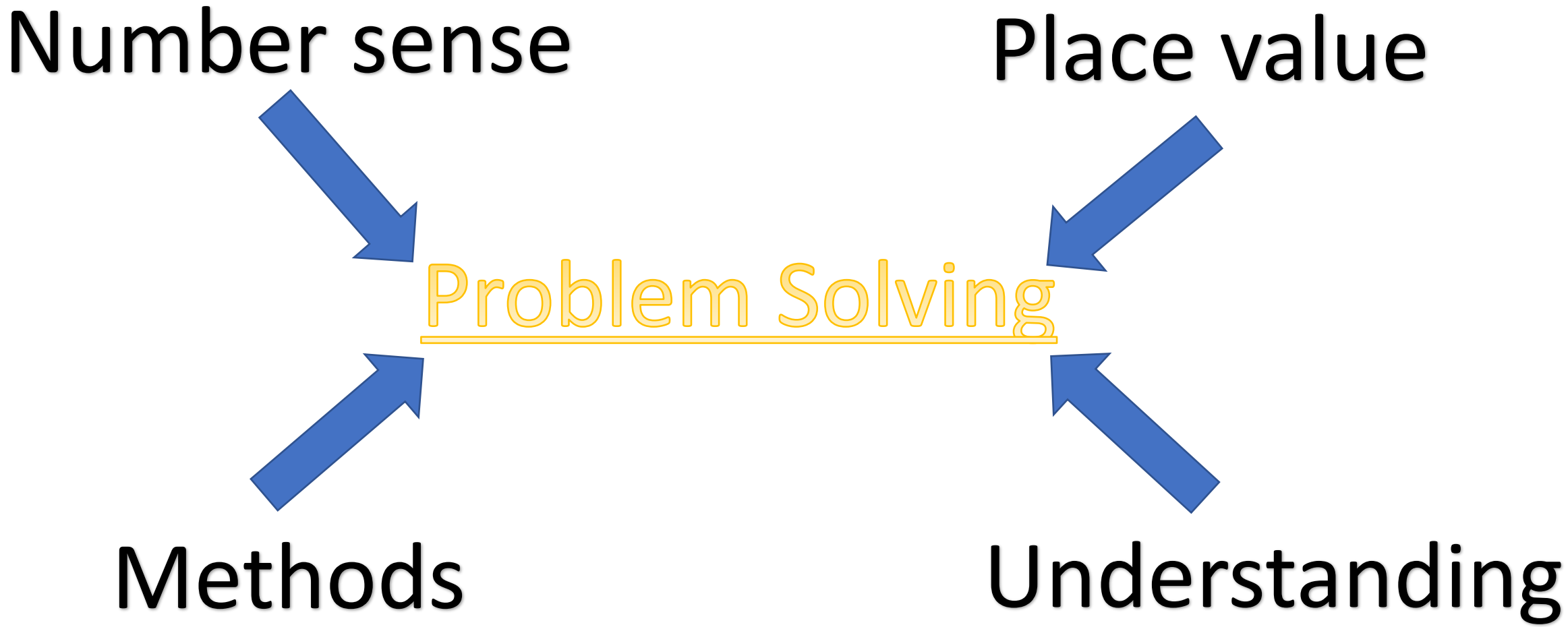
- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurement
- Properties of shapes
- Position and direction
- Statistics

Year 2 maths: end of year expectations (1 of 2) – number	
Number and place value	• Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward • Recognise the place value of each digit in a two-digit number (tens, ones) • Identify, represent and estimate numbers using different representations, including the number line • Compare and order numbers from 0 up to 100; use <, > and = signs • Read and write numbers to at least 100 in numerals and in words • Use place value and number facts to solve problems
Addition and subtraction	• Solve problems with addition and subtraction using concrete objects and pictorial representations, including numbers, quantities and measures, and applying mental and written methods • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • Add and subtract using objects, pictures and mentally: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; three one-digit numbers • Show that addition can be done in any order (commutative) and subtraction cannot • Recognise and use the inverse relationship between addition and subtraction to check calculations and solve missing number problems
Multiplication and division	• Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers • Calculate multiplication and division statements within the tables and write them using ×, ÷ and = signs • Show that multiplication can be done in any order (commutative) and division cannot • Solve problems using materials, arrays, repeated addition, mental methods and known facts, including problems in contexts
Fractions	• Recognise, find, name and write fractions ⅓, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity • Write simple fractions, e.g. ½ of 6 = 3, and recognise the equivalence of 2/4 and ½

Year 2 maths: end of year expectations (2 of 2) – measurement, geometry and statistics	
Measurement	• Choose and use standard units to estimate and measure length/height (m/cm), mass (kg/g), temperature (°C) and capacity (litres/ml) to the nearest unit, using rulers, scales, thermometers and measuring vessels • Compare and order lengths, mass, volume/capacity and record results using >, < and = • Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a value • Find different combinations of coins that equal the same amounts of money • Solve simple practical problems involving addition and subtraction of money of the same unit, including giving change • Compare and sequence intervals of time • Tell and write the time to five minutes, including quarter past/to the hour, and draw the hands on a clock face • Know the number of minutes in an hour and hours in a day
Geometry: properties of shapes	• Identify and describe properties of 2-D shapes, including number of sides and line symmetry in a vertical line • Identify and describe properties of 3-D shapes, including number of edges, vertices and faces • Identify 2-D shapes on the surface of 3-D shapes, e.g. a circle on a cylinder, a triangle on a pyramid • Compare and sort common 2-D and 3-D shapes and everyday objects
Geometry: position and direction	• Order and arrange combinations of mathematical objects in patterns and sequences • Use mathematical vocabulary to describe position, direction and movement, including straight lines and rotation as quarter, half and three-quarter turns (clockwise and anti-clockwise)
Statistics	• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables • Ask and answer simple questions by counting objects in each category and sorting categories by quantity • Ask and answer questions about totalling and comparing categorical data

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.



Number Sense

Number sense is a child's ability to understand numbers and play with them flexibly: knowing what a number means, how big it is, and how it relates to other numbers.

In a classroom you might see it when children:

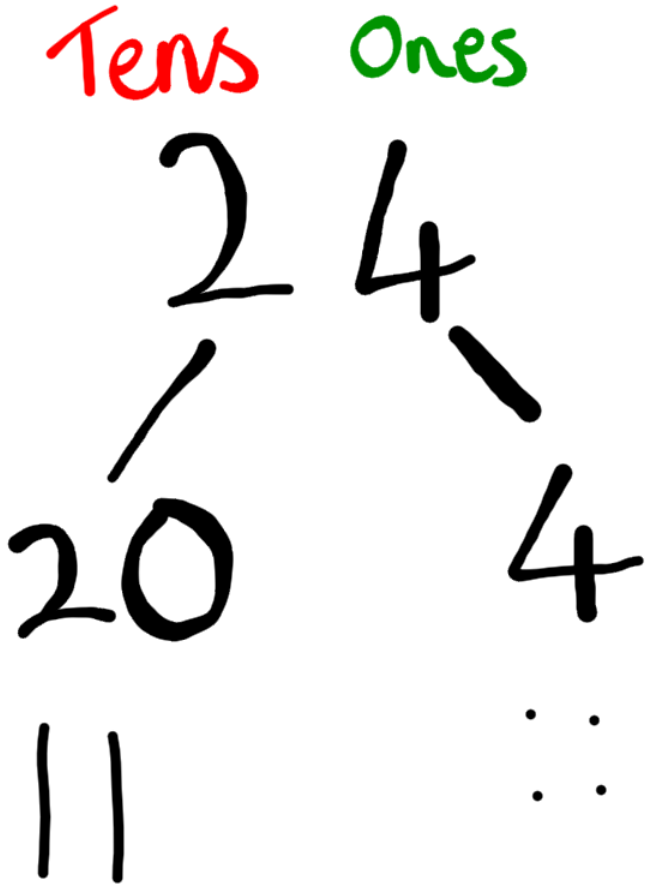
- Recognise amounts without counting (subitising)
- Know how numbers relate, for example that 7 is one more than 6, two less than 9, and close to 10.
- Break numbers apart in different ways, such as seeing 8 as 5 and 3, 4 and 4, or double 4.
- Estimate and check, for example knowing that 19 + 21 should be about 40.
- Choose sensible strategies, such as working out 9 + 6 by thinking "10 + 6, then take 1 away"

Think of it like this: A child learning phonics may be able to read a long word (because they know the sounds) but not know what it means. A child can count to 100, but still not know that 60 + 40 is the same as 70 + 30.

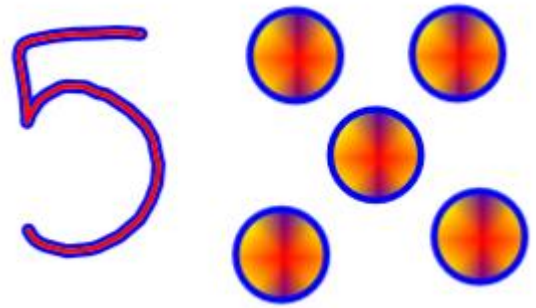
Place Value

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

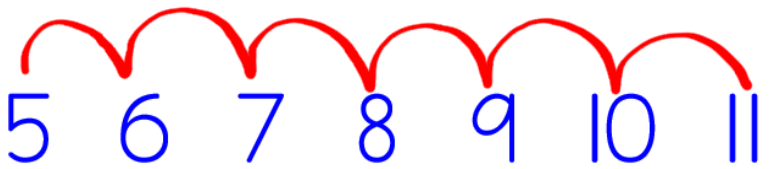
- Understanding how many ones, tens or hundreds are in a number.
- Good place value knowledge will allow children to break down equations and problems into manageable chunks.
- Important skill to understand column method

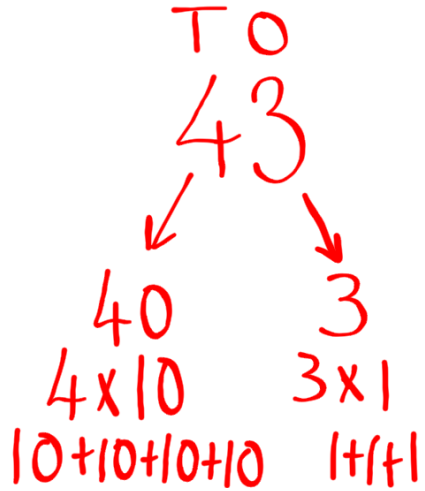


Barriers to learning
What might be getting in the way?

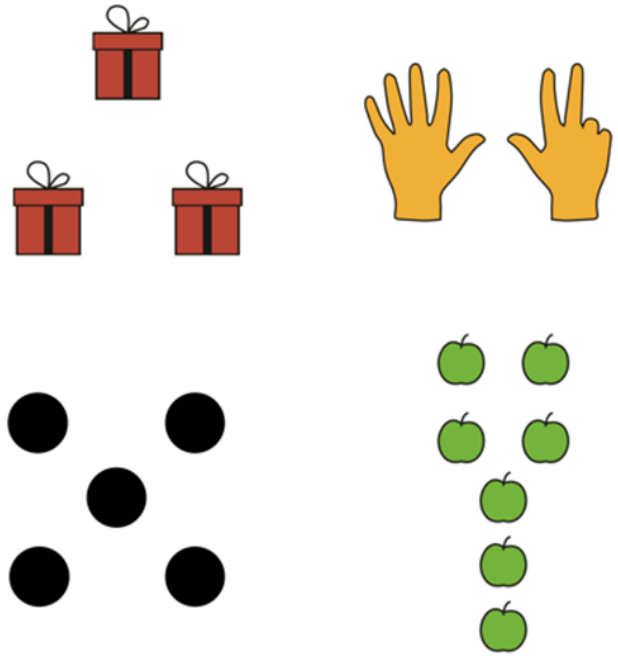


- Understanding what a number is representing
- Counting on/back from a given number
- Knowing 1 more and 1 less
- Knowing 10 more 10 less
- Understanding place value – 100s, 10s and 1s





Some things to practise



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

Concrete, pictorial and abstract







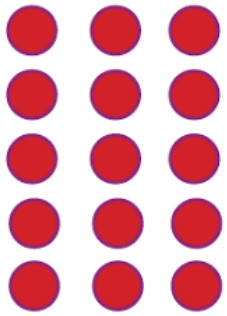


Objects/things to handle

-Cubes

-Pencils

-10s and 1s

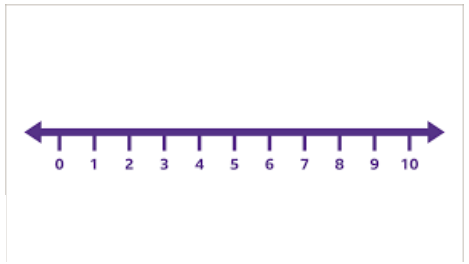


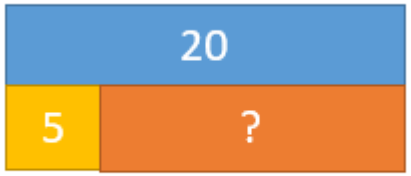
A visual representation

-Drawings

-Bar models

-Arrays





Numbers and symbols

-Equations

-Operations e.g. + -

Addition

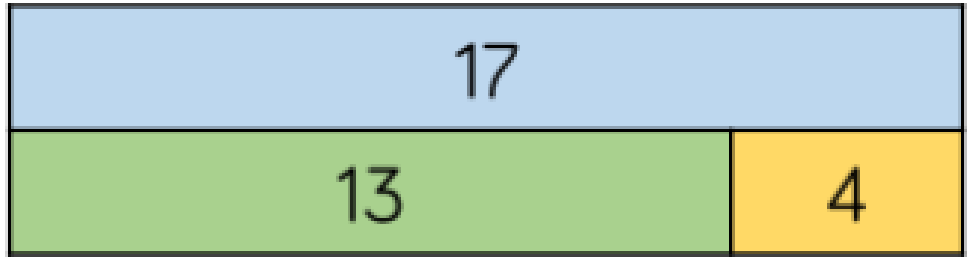


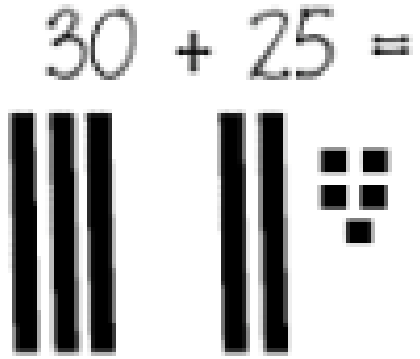
Methods we teach:

- 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

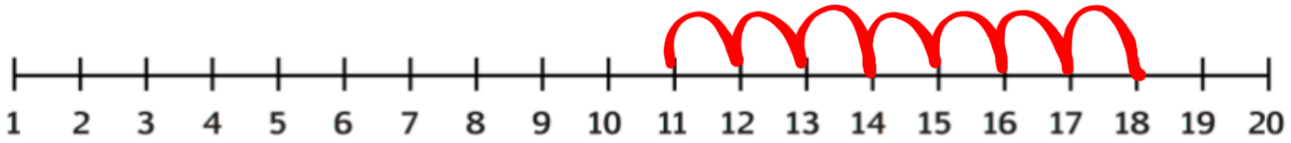
2 – Add the other amount

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

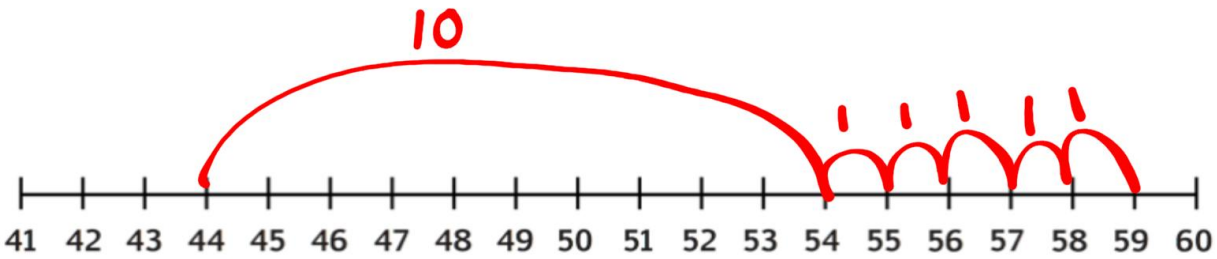
Addition – Number lines

- 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 =

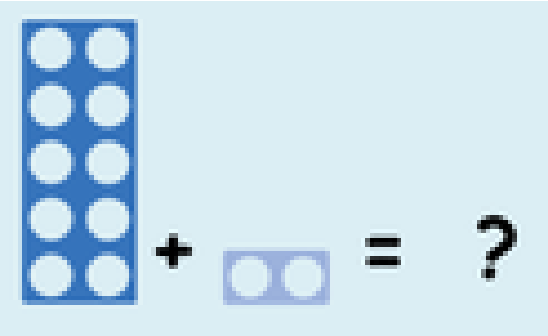


44 + 15

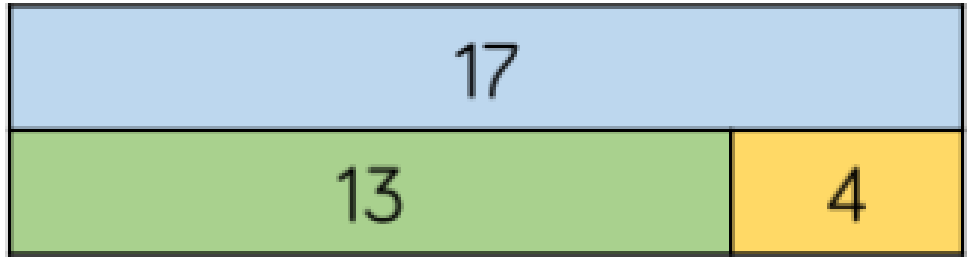


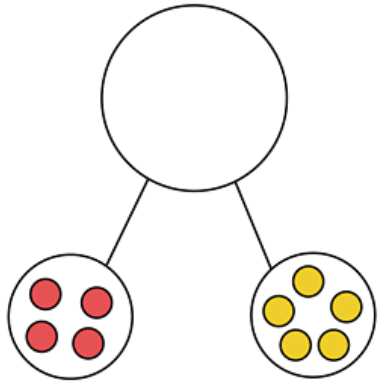
Addition using pictorial representations

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



Bar models

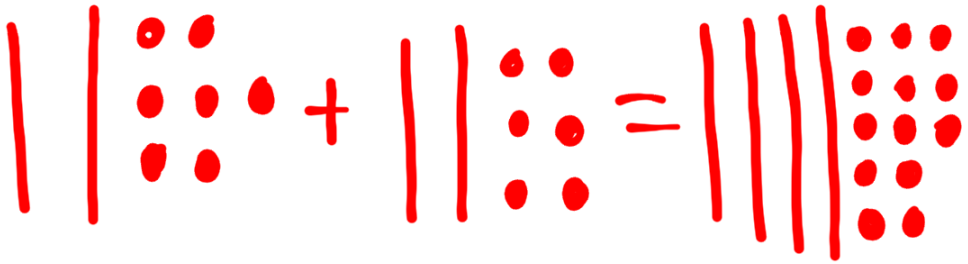




36+23=59



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

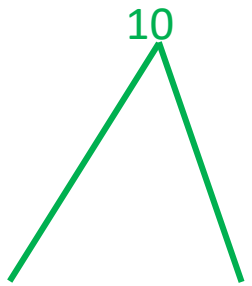
5+3=8

60+8=68

45+3=48

48+20=68

Other methods



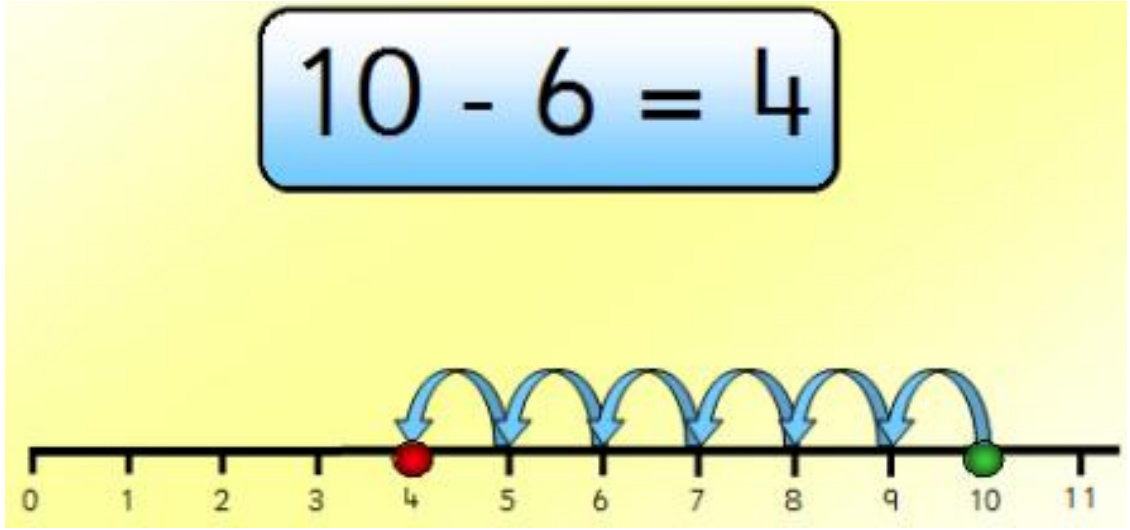
- Finding a 10 $4+3+6= 10 + 3 = 13$
- Near 10s $19+6=$

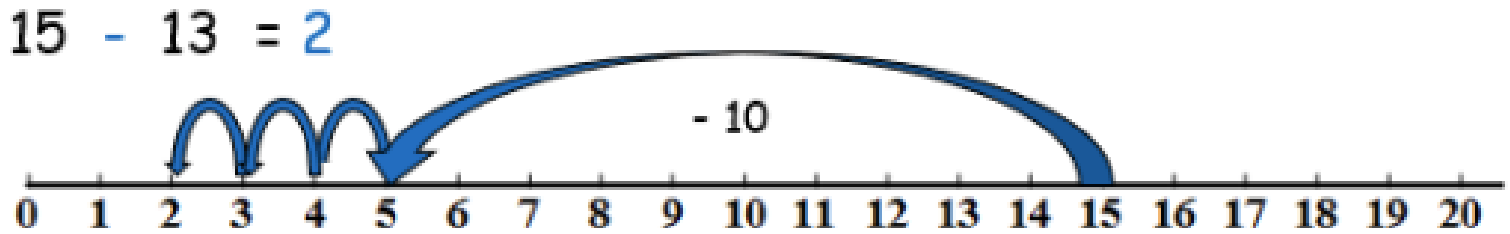
Subtraction

- 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.

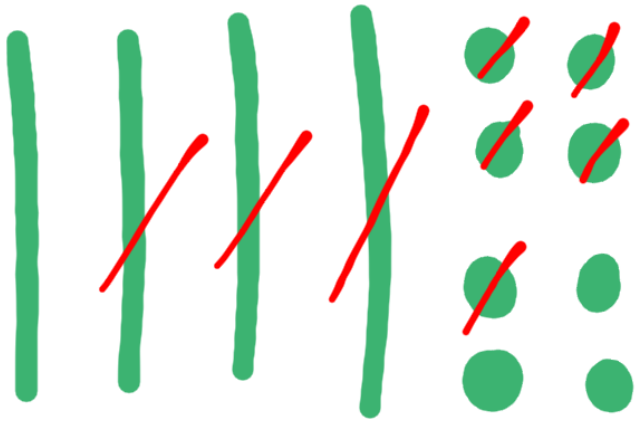




Subtraction using lines and dots

- 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

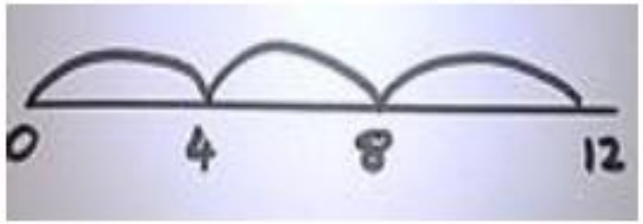
24-10=14

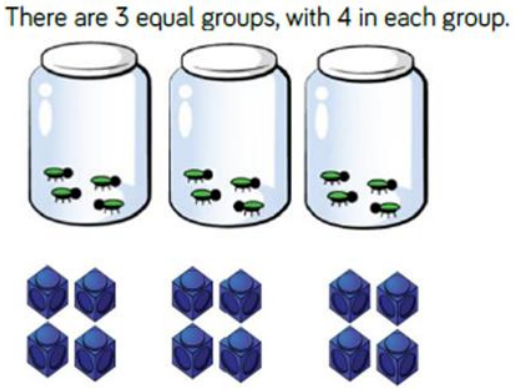
Multiplication

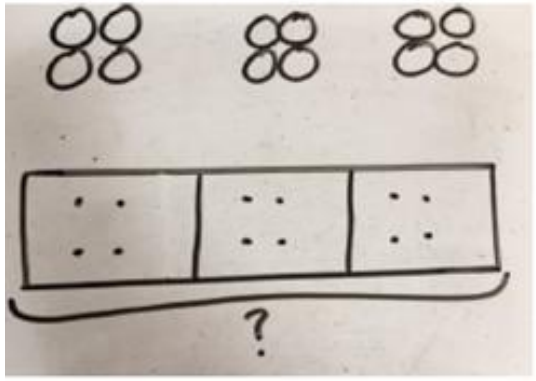
Repeated addition 4+4+4+4+4+4=24

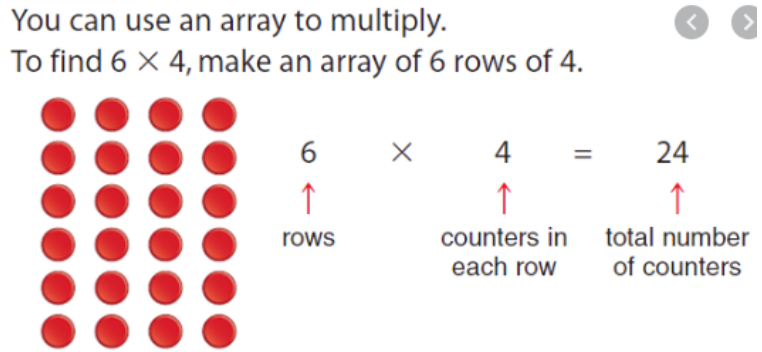
- 'Groups of' or 'lots of' the same number.
- Can be represented as an array, repeated addition or by drawing groups
- Understanding it is commutative (the numbers can be moved or swapped around)
- Counting in multiples – 3x5=15

3 × 4 = 12





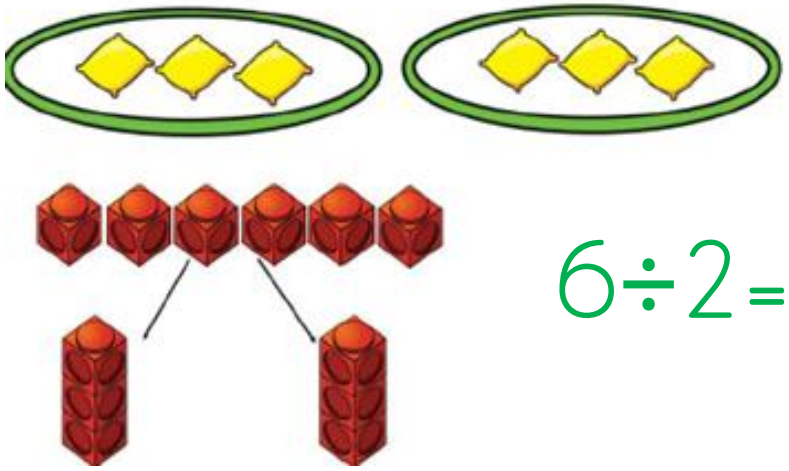




Division

- 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. $15 \div 3 = 5$, $15 \div 5 = 3$, $5 \times 3 = 15$, $3 \times 5 = 15$

White Rose – Stories for Maths



- This term, we are introducing White Rose's 'Stories for Maths' into our lessons.
- These beautifully written picture books link directly to our maths curriculum and help children explore key mathematical concepts through engaging characters and real-life situations.
- By weaving maths into storytelling, children deepen their understanding of number, shape, and pattern in a meaningful and memorable way.
- It also supports their speaking, listening, and reasoning skills, helping them to explain their thinking confidently while enjoying the magic of a good story!

https://whiteroseeducation.com/parent-pupil-resources/maths/free-downloads



Useful resources to access at home:

- KIRFS (Key Instant Recall Facts)- sent home half-termly
- Mathletics
- Purple Mash

DIGITAL RESOURCES (Manipulatives):

https://polypad.amplify.com/ - Polypad is free to use and requires no sign-up!

https://thirdspacelearning.com/blog/concrete-resources-cpa-explained/ - This website has some great examples of doing concrete maths at home!

