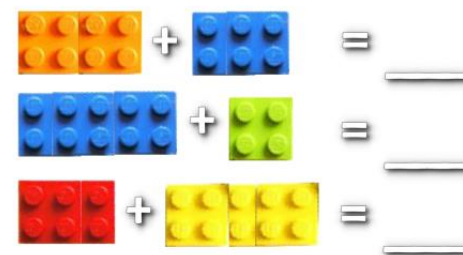
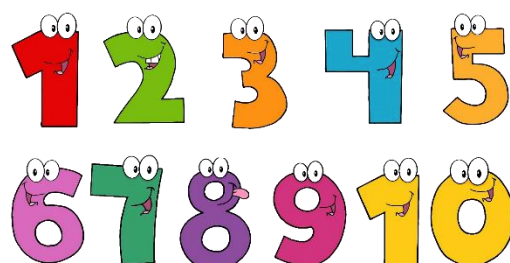


# Maths methods we use in school

## Key Stage One

It's really important that children at this age enjoy counting! Counting up and counting down from different numbers. This helps them to 'count on' when they are adding later on in Key Stage 1.



It's also important that the children can build up a picture in their mind of numbers 'fitting together' – using their fingers is great! As they move through key stage 1 they start to learn their number bonds (numbers that add together to make 10 e.g.  $3 + 7 = 10$ ). That's why at school we use lots of equipment and objects to help the children picture the numbers in their head.

It can be very tempting to show the children the 'quick way' of writing down calculations in the standard column method but this can lead to confusion later on. Using practical resources and objects really helps their understanding of adding, subtracting and later on multiplying and dividing.

**Tip for at home learning:** Use whatever you have around the house to help the children with their calculations e.g. Lego, toys, sticks, or draw pictures!

Below are some of the methods we use at school, we always start with the 'Concrete' method before moving on to the 'Pictorial' or 'Abstract' methods:

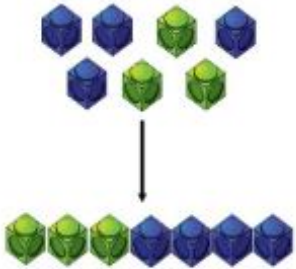
# Adding

(We also use the words: parts and wholes, plus, add, altogether, more, total, sum, 'is equal to', 'is the same as'.)

**Year 1 focus** (the bottom row would be supported with an adult in class)

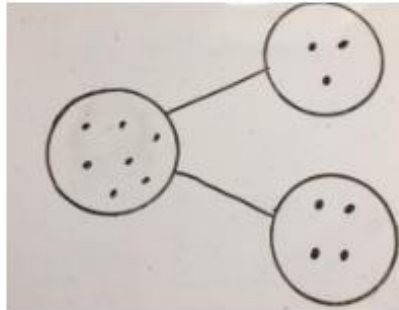
## Concrete

Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears, cars).



## Pictorial

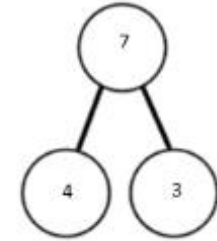
Children to represent the cubes using dots or crosses. They could put each part on a part whole model too.



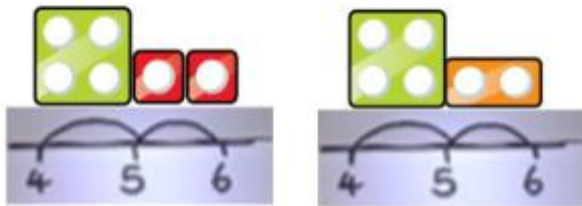
## Abstract

$$4 + 3 = 7$$

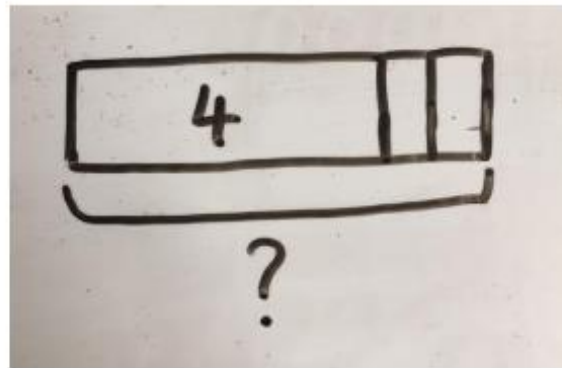
Four is a part, 3 is a part and the whole is seven.



Counting on using number lines using cubes or Numicon.



A bar model which encourages the children to count on, rather than count all.



The abstract number line:

What is 2 more than 4?  
What is the sum of 2 and 4?  
What is the total of 4 and 2?  
 $4 + 2$

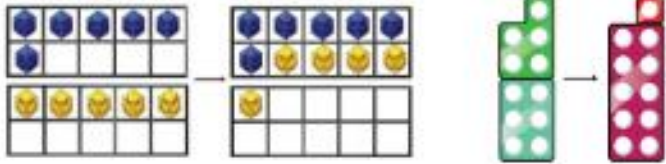


# Adding

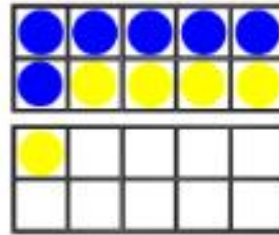
Year 2 focus (the bottom row is a method that some year 2s may move on to in the Summer Term)

Regrouping to make 10; using ten frames and counters/cubes or using Numicon.

$6 + 5$



Children to draw the ten frame and counters/cubes.



Children to develop an understanding of equality e.g.

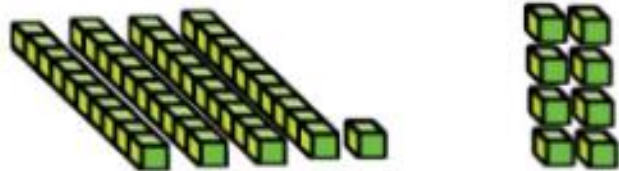
$6 + \square = 11$

$6 + 5 = 5 + \square$

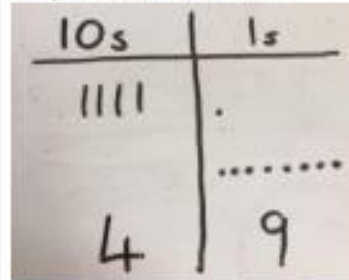
$6 + 5 = \square + 4$

TO + O using base 10. Continue to develop understanding of partitioning and place value.

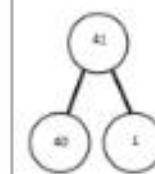
$41 + 8$



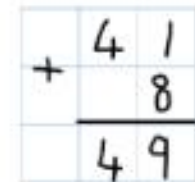
Children to represent the base 10 e.g. lines for tens and dot/crosses for ones.



$41 + 8$

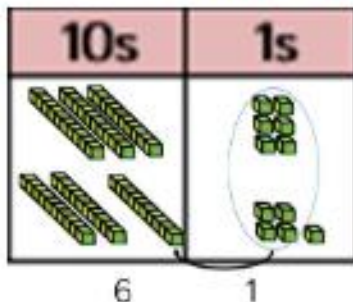


$1 + 8 = 9$   
 $40 + 9 = 49$

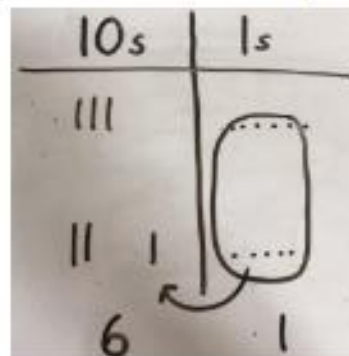


TO + TO using base 10. Continue to develop understanding of partitioning and place value.

$36 + 25$



Children to represent the base 10 in a place value chart.



# Subtraction

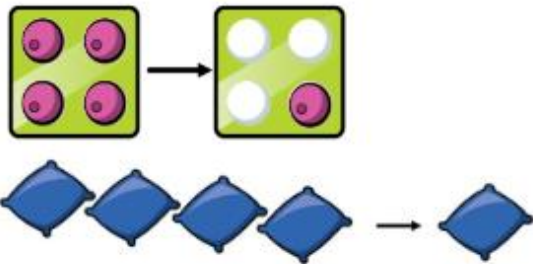
(We also use the words: take away, less than, the difference, subtract, minus, fewer, decrease.)

## Year 1 focus

### Concrete

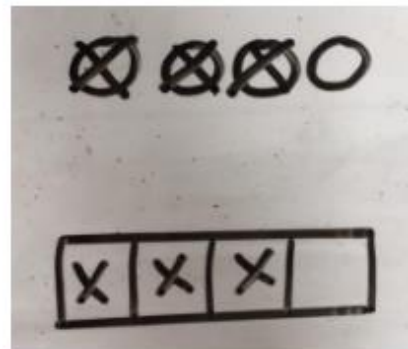
Physically taking away and removing objects from a whole (ten frames, Numicon, cubes and other items such as beanbags could be used).

$$4 - 3 = 1$$



### Pictorial

Children to draw the concrete resources they are using and cross out the correct amount. The bar model can also be used.

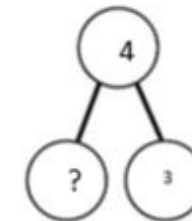


### Abstract

$$4 - 3 =$$

$$\square = 4 - 3$$

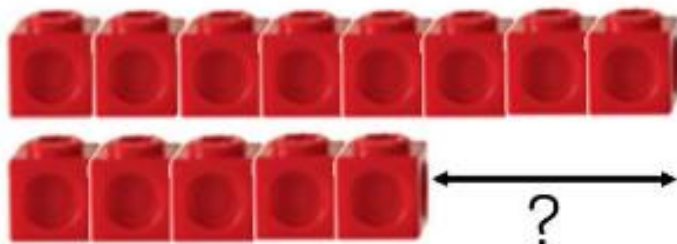
4	
3	?



### More concrete methods:

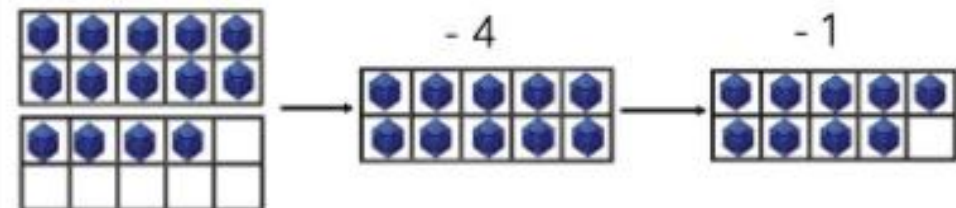
Finding the difference (using cubes, Numicon or Cuisenaire rods, other objects can also be used).

Calculate the difference between 8 and 5.



Making 10 using ten frames.

$$14 - 5$$

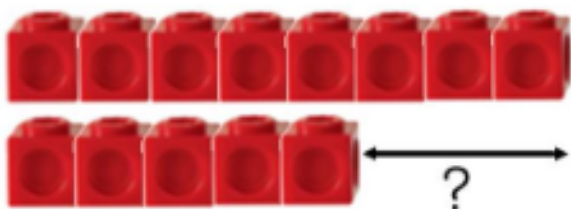


# Subtraction

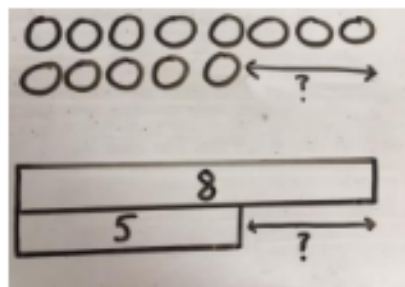
Year 2 focus (the final column written method is taught in the Summer Term)

Finding the difference (using cubes, Numicon or Cuisenaire rods, other objects can also be used).

Calculate the difference between 8 and 5.

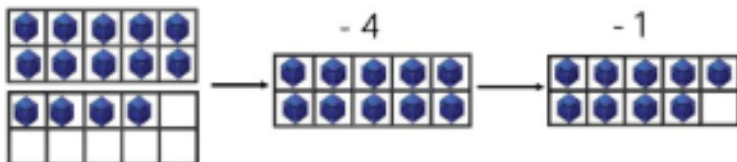


Children to draw the cubes/other concrete objects which they have used or use the bar model to illustrate what they need to calculate.

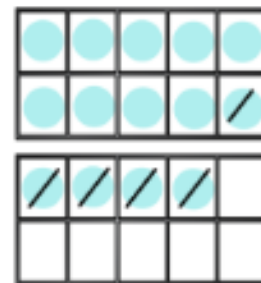


Making 10 using ten frames.

14 - 5

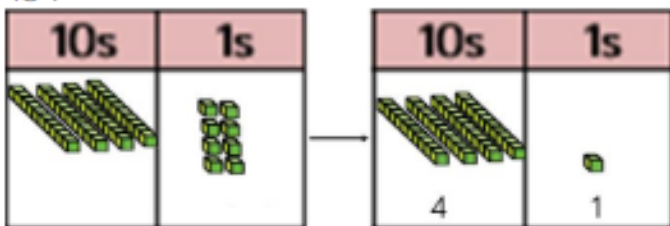


Children to present the ten frame pictorially and discuss what they did to make 10.

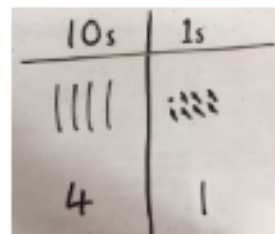


Column method using base 10.

48 - 7



Children to represent the base 10 pictorially.



Column method or children could count back 7.

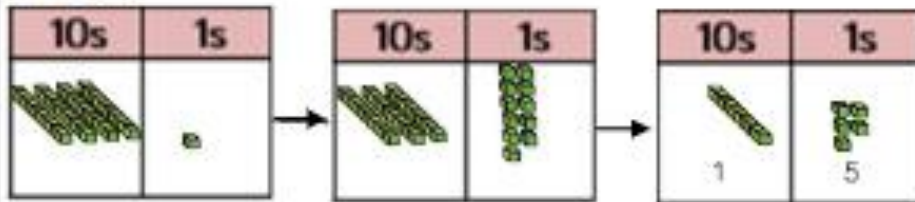
	4	8
-		7
	4	1

# Subtraction

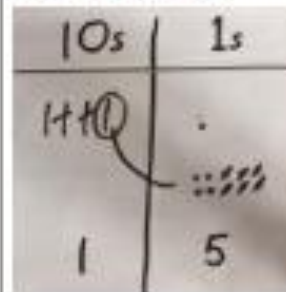
Year 2 focus (these methods would be taught to some year 2 pupils in the Summer Term)

Column method using base 10 and having to exchange.

41 - 26



Represent the base 10 pictorially, remembering to show the exchange.



# Multiplication

(We also use the words: double, times, multiplied by, groups of, lots of.)

Year 2 focus

Year 1 focus

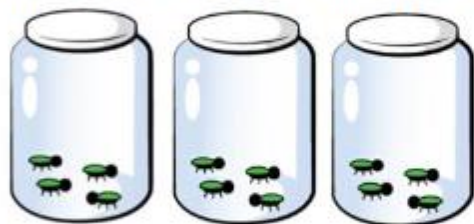
## Concrete

Repeated grouping/repeated addition

$$3 \times 4$$

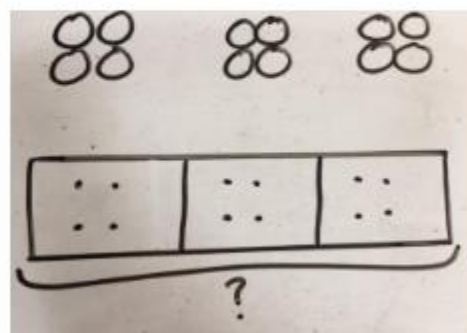
$$4 + 4 + 4$$

There are 3 equal groups, with 4 in each group.



## Pictorial

Children to represent the practical resources in a picture and use a bar model.



## Abstract

$$3 \times 4 = 12$$

$$4 + 4 + 4 = 12$$

Use arrays to illustrate commutativity counters and other objects can also be used.

$$2 \times 5 = 5 \times 2$$

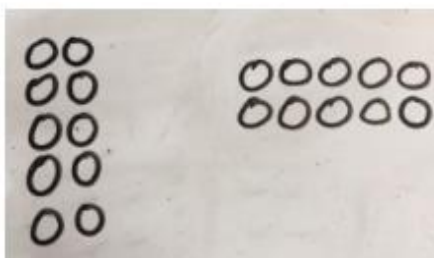


2 lots of 5



5 lots of 2

Children to represent the arrays pictorially.



Children to be able to use an array to write a range of calculations e.g.

$$10 = 2 \times 5$$

$$5 \times 2 = 10$$

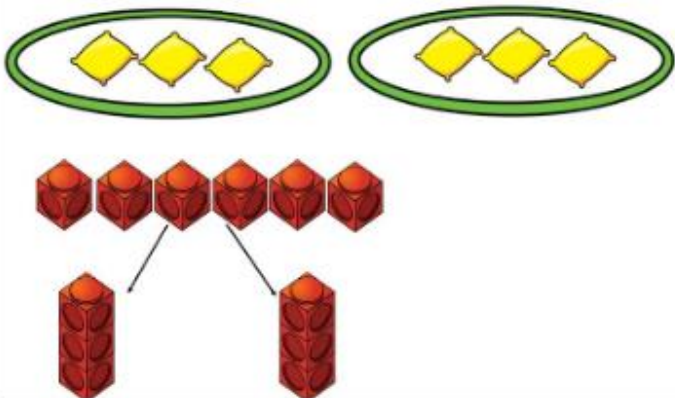
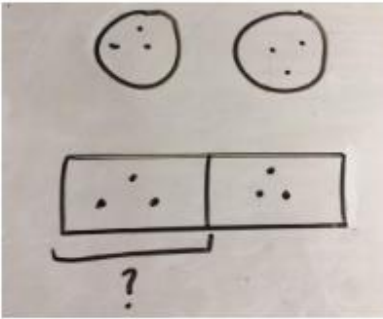
$$2 + 2 + 2 + 2 + 2 = 10$$

$$10 = 5 + 5$$

# Division

(We also use the words: share, group, divide, divided by, half.)

All used by: Year 1 & Year 2

Concrete	Pictorial	Abstract		
<p>Sharing using a range of objects. <math>6 \div 2</math></p> 	<p>Represent the sharing pictorially.</p> 	<p><math>6 \div 2 = 3</math></p> <table border="1" data-bbox="1556 518 1993 590"><tr><td>3</td><td>3</td></tr></table> <p>Children should also be encouraged to use their 2 times tables facts.</p>	3	3
3	3			

