



February
2023

Calculation methods

Year 2 Parent Workshop



Which of these words would you use to describe mathematics?

easy

boring

challenging

hard

important

Maths is...

uncomfortable

scary

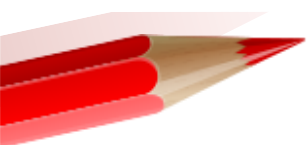
useful

exciting

Be careful
what you say
- your views
about maths
will impact
on your
child's views.

Maths is everywhere around us!



- 
- What time is it?
 - When do we need to leave home?
 - How long does it take us to walk to school?
 - How much is that coffee?

Helping children to see this makes it a little less scary and foreign.

Written Calculations

We need to first develop a sense of number



- There must be a progression which culminates in one method.
- Individual steps within this progression scaffold your children's understanding and should not be rushed through.
- Practical equipment, models and images are crucial in supporting your children's understanding.



Progression in maths

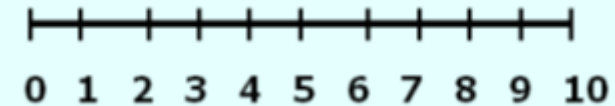


Counting of objects and mental counting.

Early stages of calculation using jottings

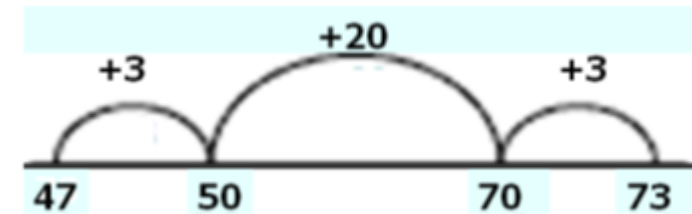
Please remember that each child is an individual and all children develop their mathematical understanding at a different pace.

Work with **structured number lines**



Work with **larger numbers, unstructured number lines** and informal **jottings**.

e.g. $47 + 26$



Progression in maths

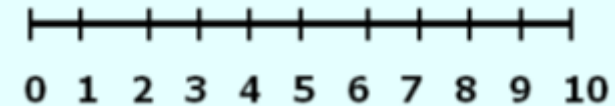


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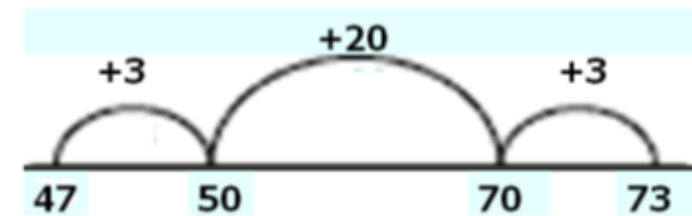
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Work with **structured number lines**



Work with **larger numbers, unstructured number lines** and informal **jottings**.

e.g. $47 + 26$



Addition (+)

add

more

plus

altogether

more than

total

sum of

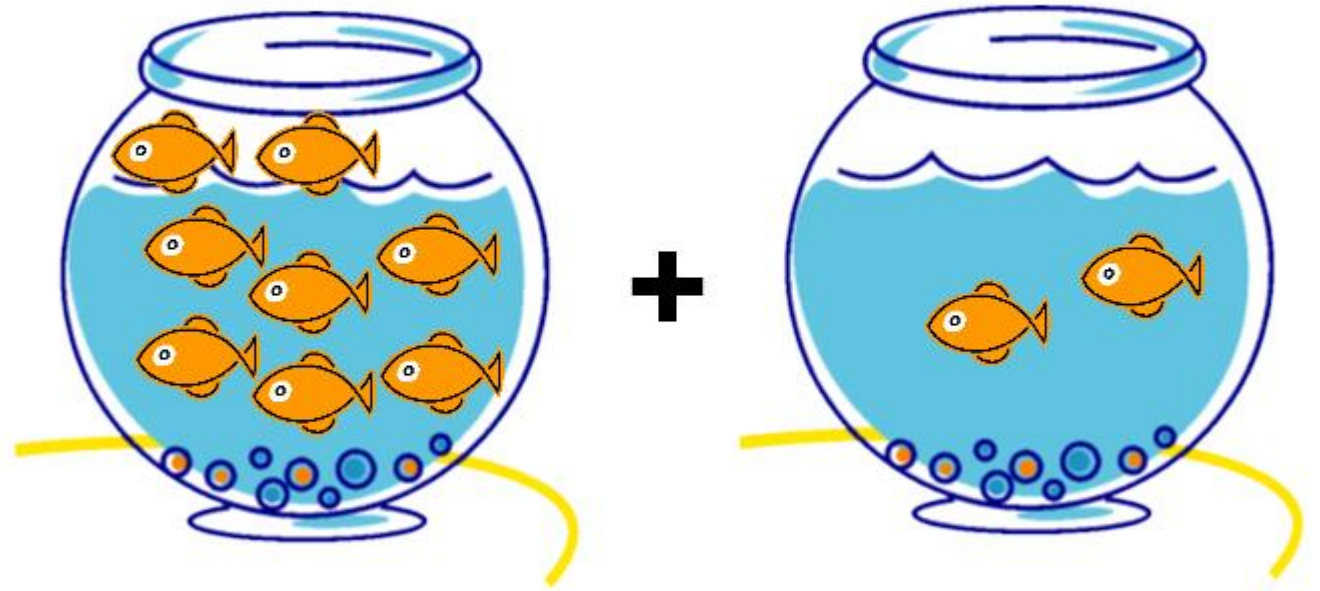
increase



Progression in Addition

$$8 + 2 = 10$$

Addition

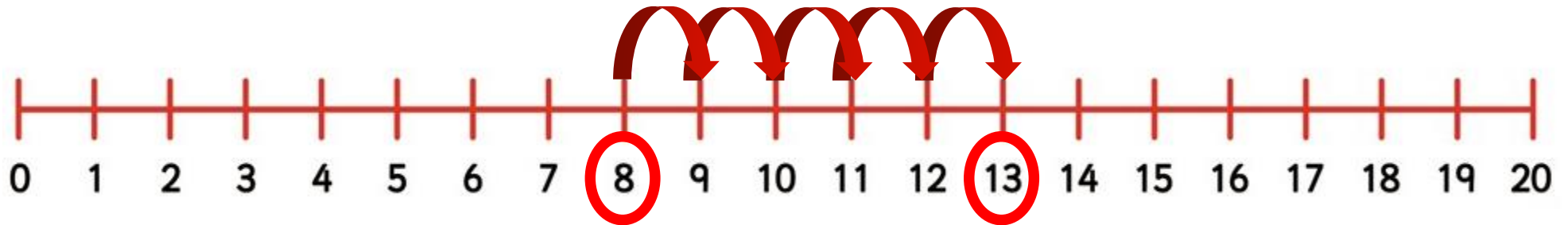


When counting make sure
your child points to or
touches the objects.

Don't count any twice!

Children then begin to use number lines to support their own calculations, counting on in ones.

$$8 + 5 =$$



More efficient to count on from the larger number (less to work out).
Addition can be done in any order.

Addition

Commutative

Make sure the children do not miss out any numbers as they go along the number line.

Partitioning

$$54 + 21$$

Arrow cards

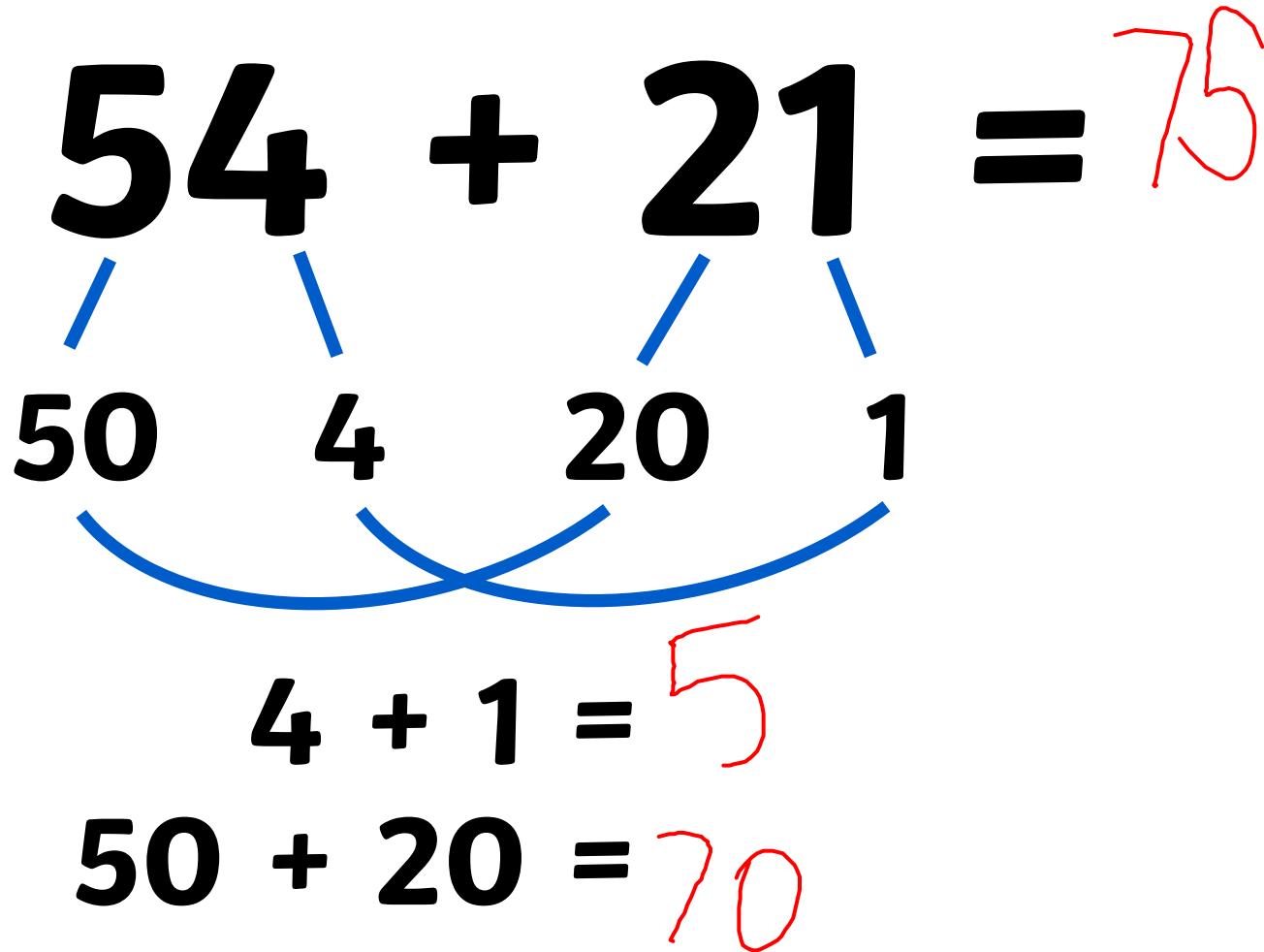
 $+$  $=$ 75

 $+$  $=$ 5

 $+$  $=$ 70

Addition

Partitioning



The diagram illustrates the partitioning of the numbers 54 and 21 into their tens and ones components. 54 is split into 50 and 4, while 21 is split into 20 and 1. Blue lines connect the original numbers to their respective parts. A blue arc connects the 4 and 1, indicating they are added together to form 5. Another blue arc connects the 50 and 20, indicating they are added together to form 70. The final result of the addition is 75, written in red.

$$54 + 21 = 75$$

50 4 20 1

$$4 + 1 = 5$$
$$50 + 20 = 70$$

Have a go!

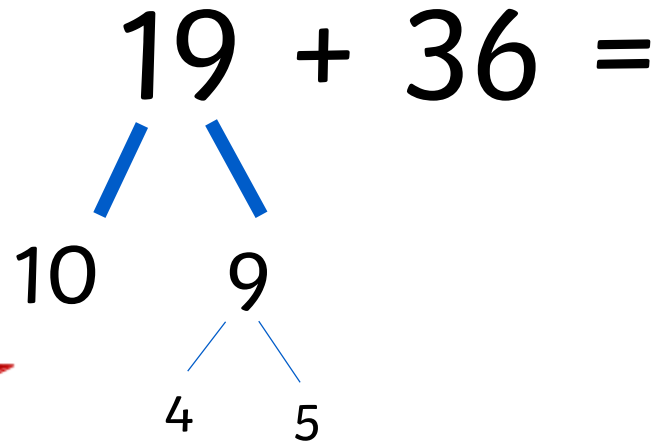
$$34 + 25 =$$

$$46 + 38 =$$

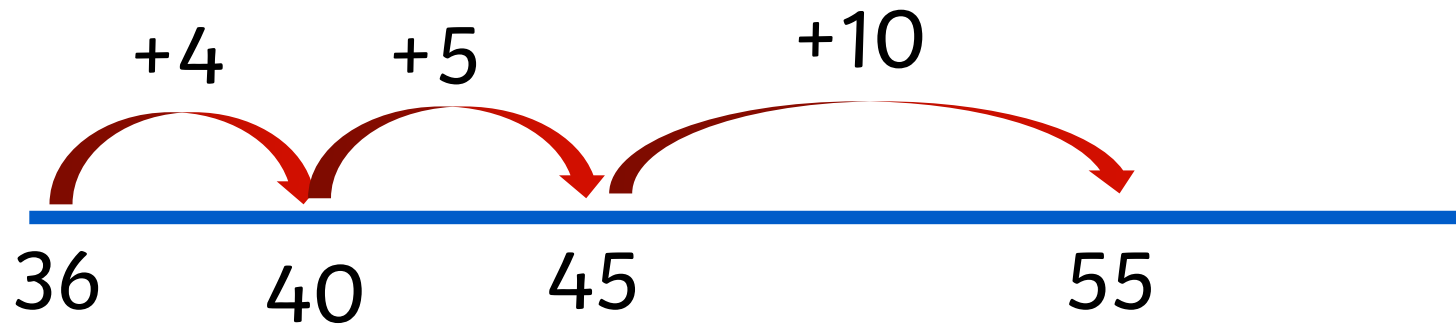
Addition

Number Lines

Using number knowledge to help (eg. bonds)

$$19 + 36 =$$


A bonding diagram for the number 19. The number 19 is at the top, with two blue lines branching down to the numbers 10 and 9. From the number 9, two more blue lines branch down to the numbers 4 and 5. To the left of the diagram is a red pencil.



Have a go!

$$76 + 13 =$$

$$29 + 14 =$$

Addition

Subtraction (-)

take away

minus

fewer than

less than

subtract

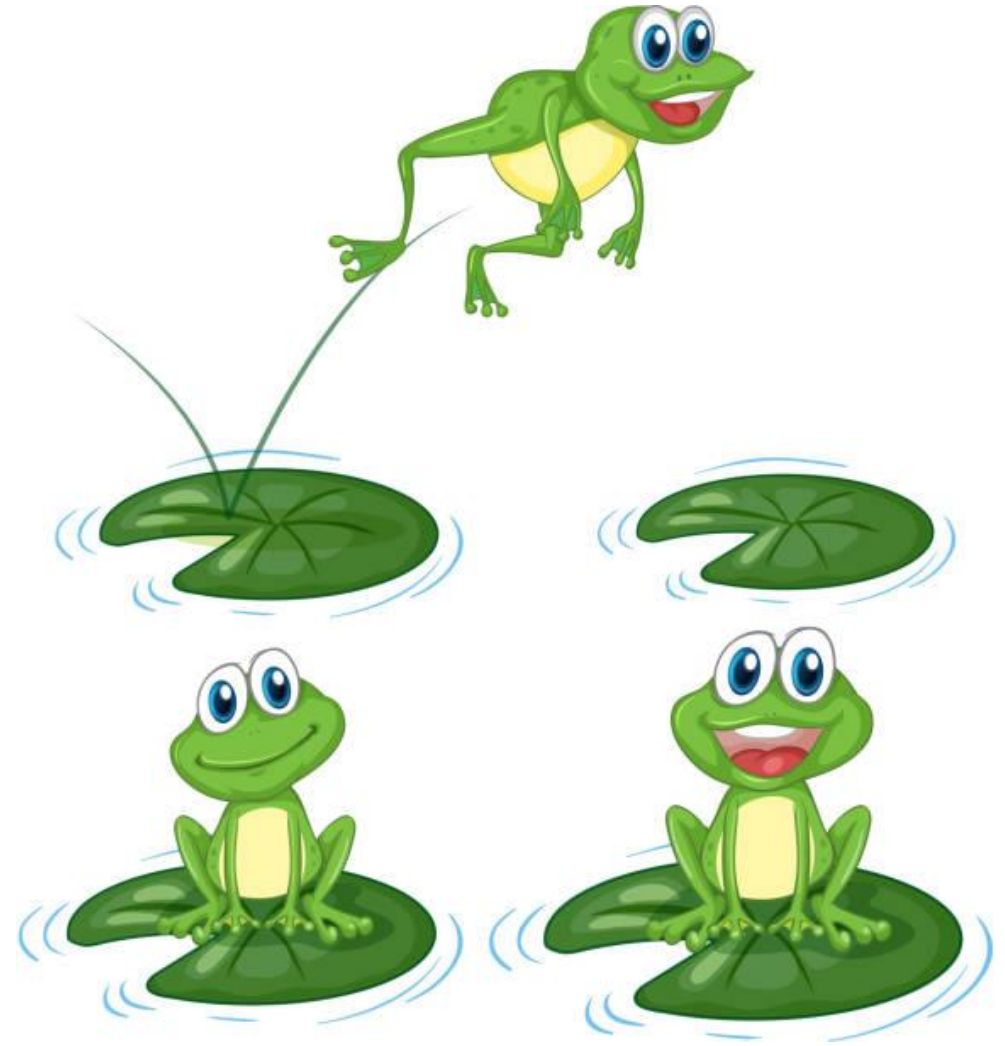
difference

decrease

How much more is ...?

Progression in Subtraction

Counting back - taking away
There were four frogs. Two
jumped into the pond.
How many were left?



Subtraction



Progression in Subtraction

$$36 - 12 =$$

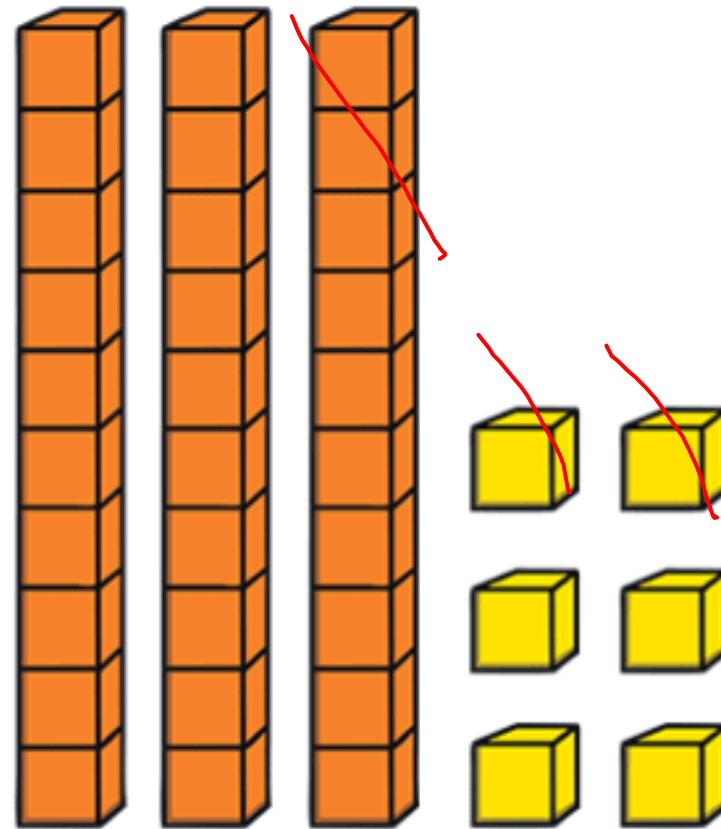


Subtraction



Base 10

A visual representation



Progression in Subtraction

Base 10

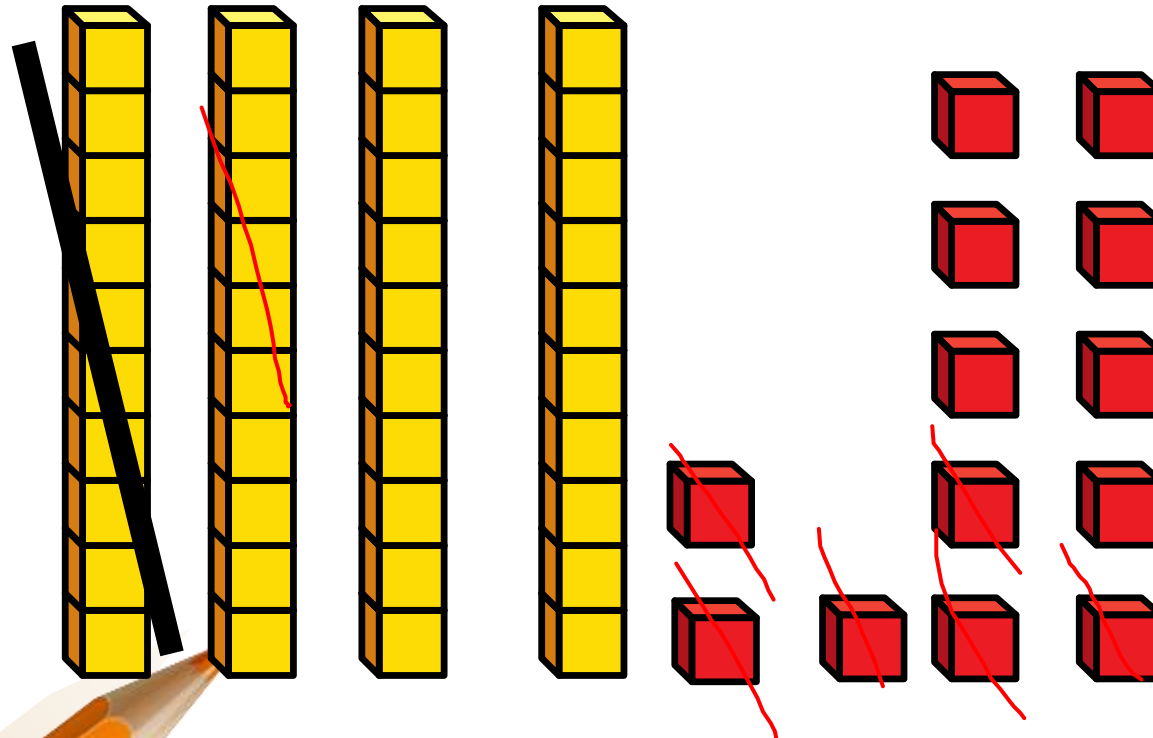
A visual representation

$$43 - 16 =$$

Diagram showing the decomposition of 16 into 10 and 6. A blue line connects the 1 in 16 to the 0 in 10. A red line connects the 6 in 16 to the 6 in 6.

Exchange

Subtraction



Have a go!

$$57 - 22 =$$

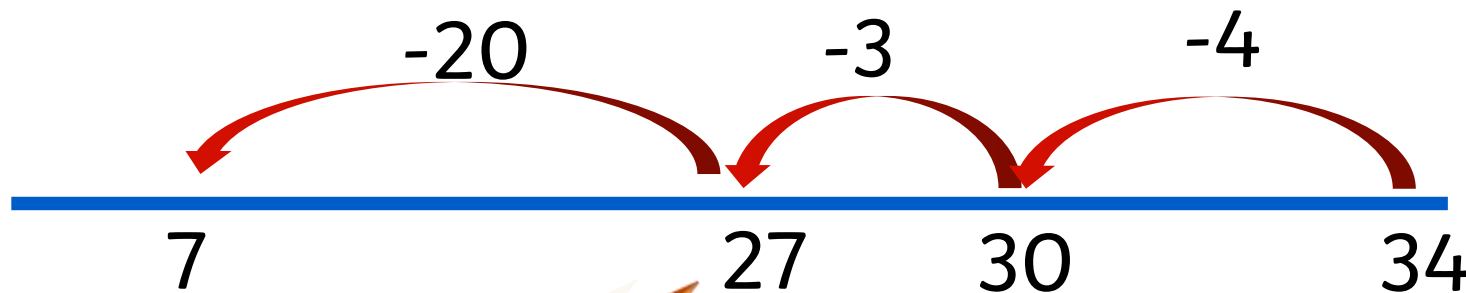
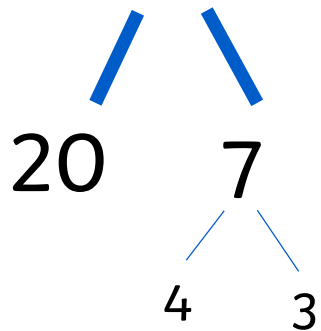
$$51 - 26 =$$

Using number knowledge to help (eg. bonds)

Progression in Subtraction

Number Lines

$$34 - 27 =$$



Have a go!

$$57 - 22 =$$

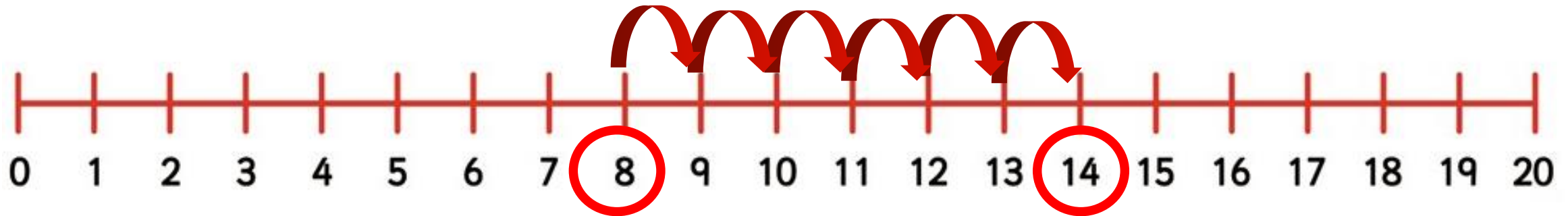
$$51 - 26 =$$

Subtraction

Progression in Subtraction

Finding the difference

If my friend is 14 and his sister is 8, how much older is my friend?



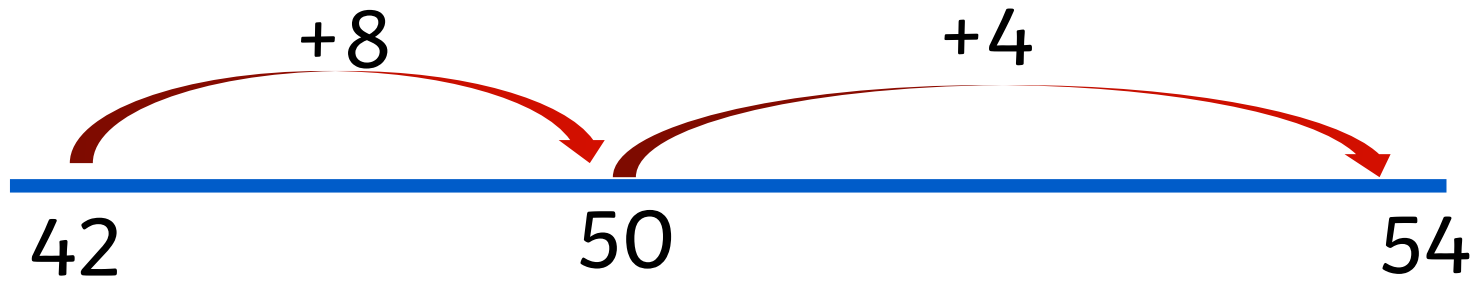
Subtraction

$$14 - 8 = 6$$

Progression in Subtraction

Difference on Number Lines

$$54 - 42 =$$



Subtraction



Multiplication (x)



lots of times
double groups of
product multiply
multiple of repeated addition

Progression in Multiplication

**We look at
multiplication as
'groups of'**

$$3 \times 5 =$$



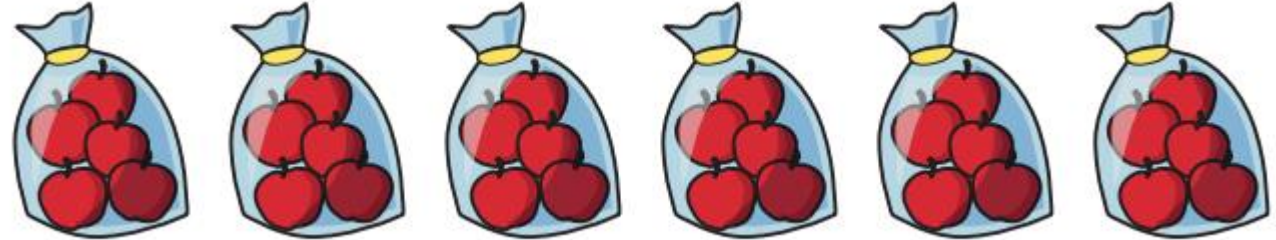
Multiplication



Progression in Multiplication

We look at
**multiplication as
'groups of'**

$$6 \times 5 =$$



Multiplication

Progression in Multiplication

An orderly arrangement, in rows, columns.
A great visual to show how multiplication is repeated addition.

Arrays

Children should be able to model a multiplication calculation using an array.

$$6 \times 2$$



$$= 12$$

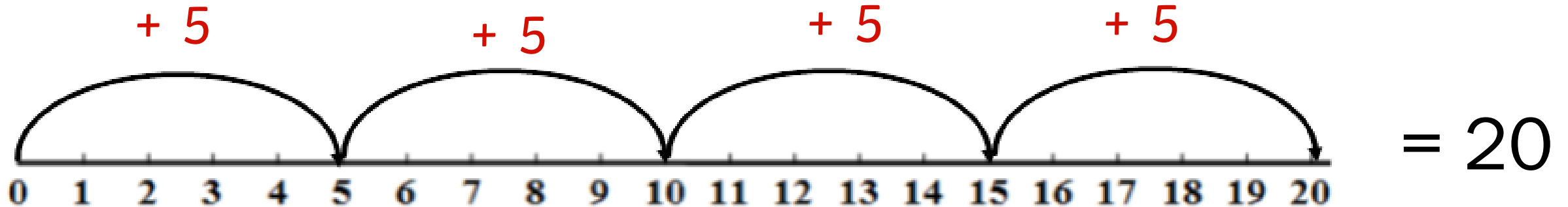
Multiplication

Progression in Multiplication

Repeated Addition

Repeated addition can be shown easily on a number line:

$$4 \times 5 = 5 + 5 + 5 + 5 \text{ (4 lots of 5)}$$



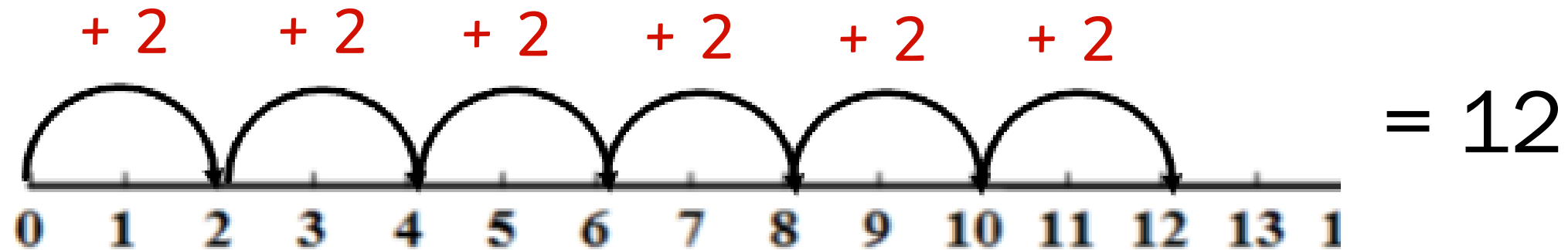
Multiplication

Progression in Multiplication

Repeated Addition

Repeated addition can be shown easily on a number line:

$$6 \times 2 = 2 + 2 + 2 + 2 + 2 + 2$$



Multiplication

Division (\div)



share

shared between

divide

divisible by

equal groups

halve

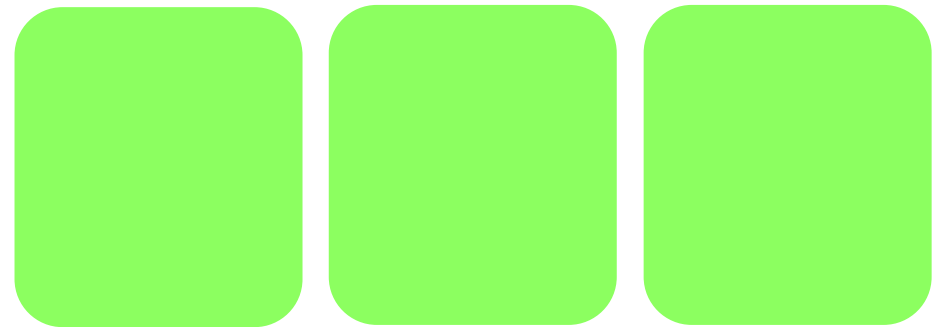
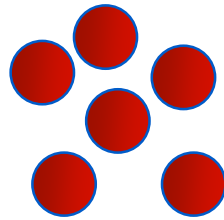
remainder

Progression in Division

Divide by sharing a set of objects

Children will understand equal groups and share items out in play and problem solving.

$$6 \div 3 = 2$$

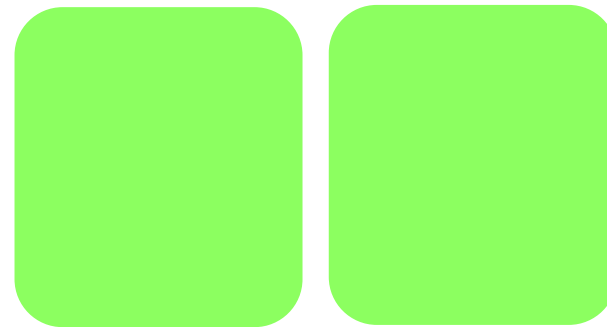


Progression in Division

Divide by sharing a set of objects

Children will understand equal groups and share items out in play and problem solving.

$$9 \div 2 = 4 \text{ 1 left over}$$



Division

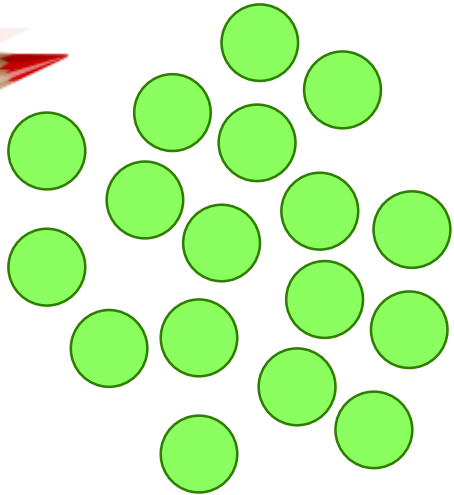


Equal groups

Have a go!

Share 17 grapes between these 4 people so that they have the same amount each.

How many do they each receive?



Division

$$17 \div 4 = 4 \text{ 1 left over}$$

Times Tables

Knowing the times tables by heart helps with fluency when multiplying and dividing.

In Year 2, we focus on 2 times tables first, thinking about doubling and then halving numbers. Children will recognise that even numbers can be shared evenly, while odd numbers cannot (in whole numbers).



$$16 \div 2 = 8$$



$$17 \div 2 = 8$$

1 left over

Relationships

Have a go!

$7 \times 5 = 35$

Commutative Property	Repeated Addition
$3 \times 5 = 15$	$3 + 3 + 3 + 3 + 3 = 15$
Groups of:	An Array
	
3 groups of 5	

~~$3 \times 5 = 15$~~
 5×3

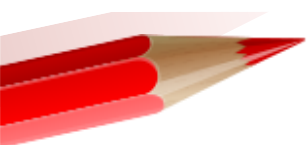


How can you help?


- Look for and talk about numbers in the environment
- Play games
- Out and About - Shopping
- Counting on/back
- Number bonds
- Doubles/halves
- Times tables and inverse



How can you help?



Talk about
how you
do maths



Be positive

Give praise and
encouragement

Ask your
child to
explain



Make sure maths is fun!