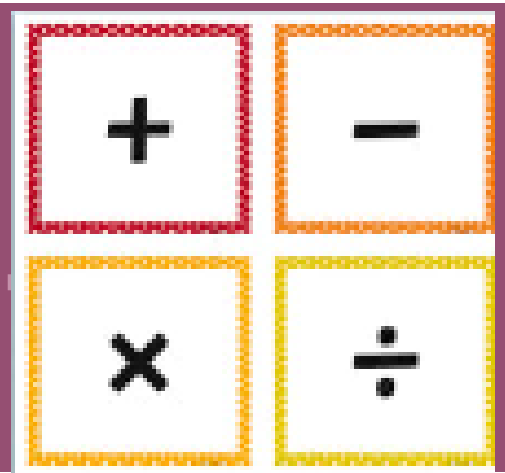
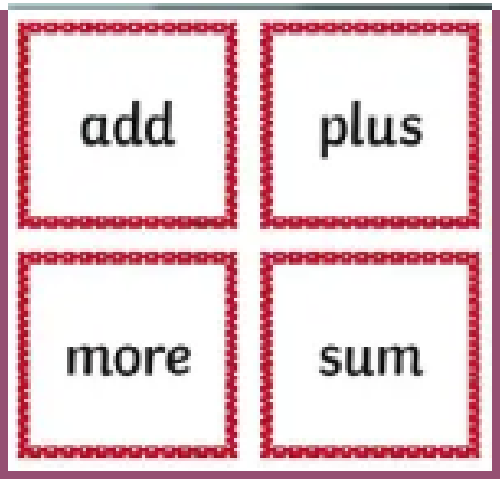
IN THIS WORKSHOP WE AIM TO:

- ENCOURAGE PARTNERSHIP
- DEMONSTRATE SKILLS
- SHARE TOOLS
- OFFER TOOLS FOR USE AT HOME





Year 2 expectations

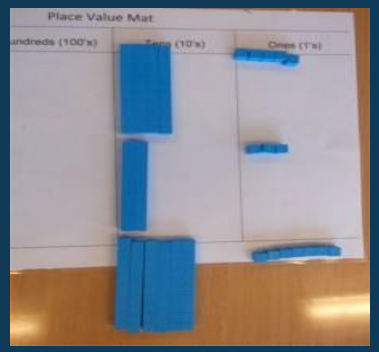
- To begin to calculate mentally and explain how they found the answer
- To look for links within their maths, drawing on all their knowledge

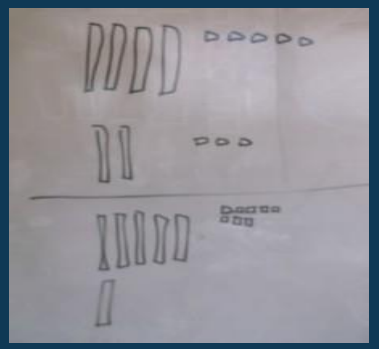
  e.g. doubles, number bonds, repeated addition, partitioning numbers into tens and ones

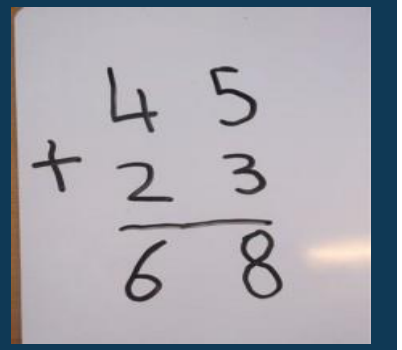
- To decide the most efficient strategy to solve a reasoning (word) problem and show

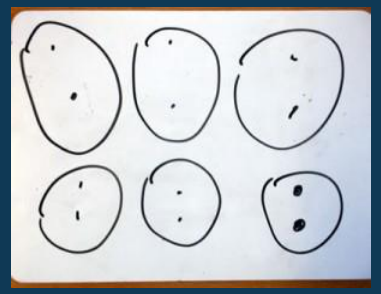
  workings to support their answers

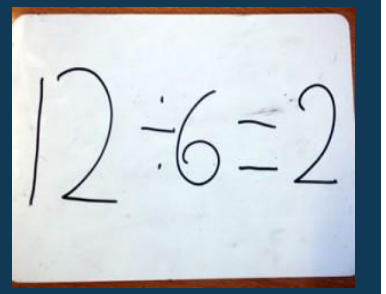
Concrete → Pictorial → Abstract

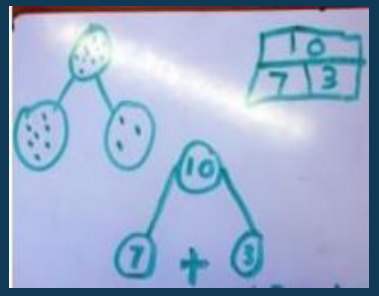


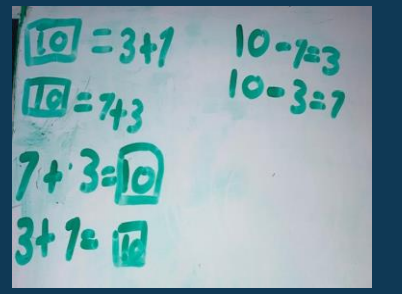












Our approach to teaching

CONCRETE, PICTORIAL, ABSTRACT

1. Using **concrete** resources such as counters to explain simple addition

2. Using **pictorial** representations such as drawings of counters

3. Using **abstract** representations such as number sentences

PROBLEM SOLVING AND REASONING

Children will use this approach to help explain the process they used to answer word problems.

Variation

To understand calculations are not always recorded in the same way

To use their wider number knowledge to solve problems

e.g knowledge of number bonds and doubles

Looking out for patterns is important.

5 X 4 = 20

4 X 5 = 20

20 = 4 x 5

20 ÷ 5 = 4

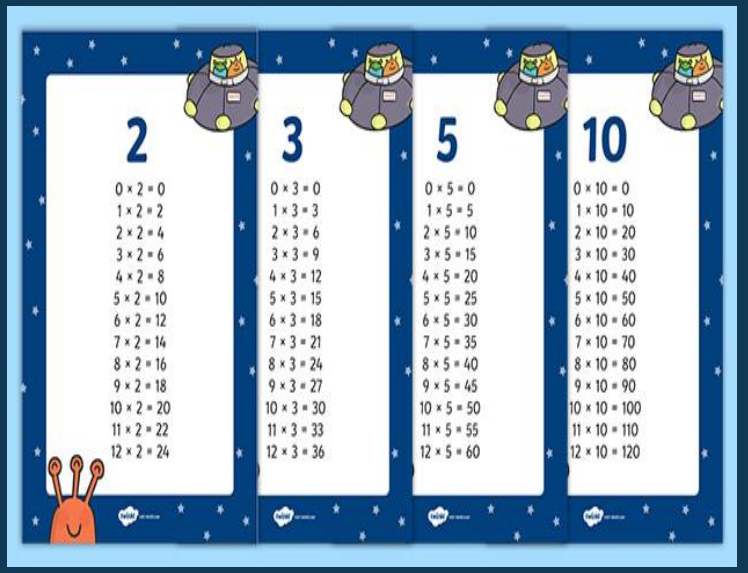
Fluency

Children learn to count in 2s, 3s, 5s and 10s

Learning number bonds (not only to 10)

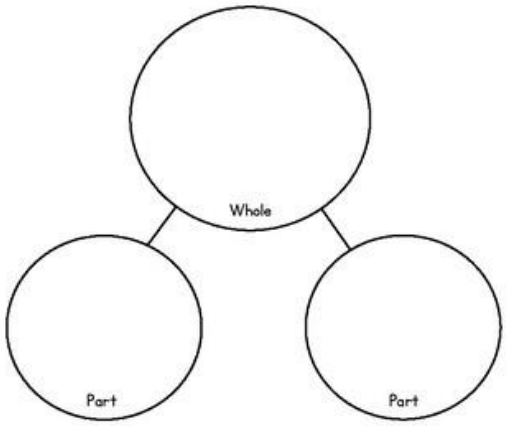
Moving up, down, forwards and backwards

on a 100 square



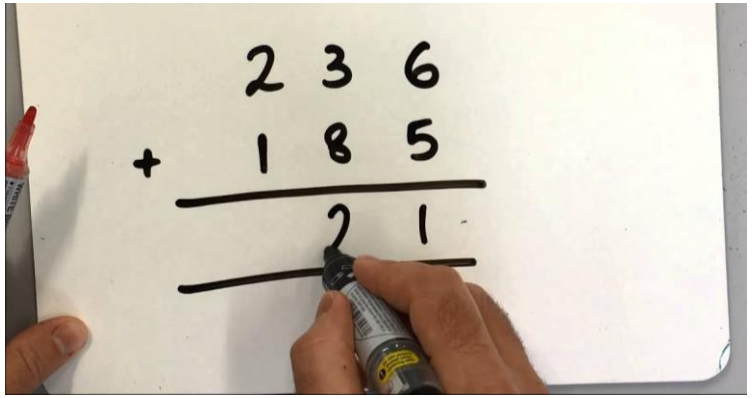
Supporting resources

Part-whole model



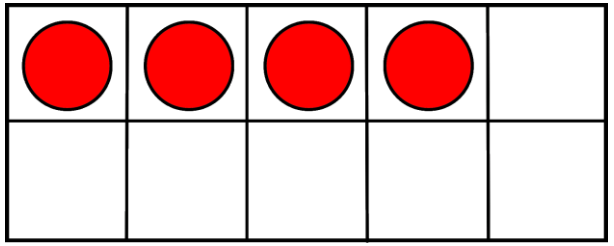
Number line

Column method



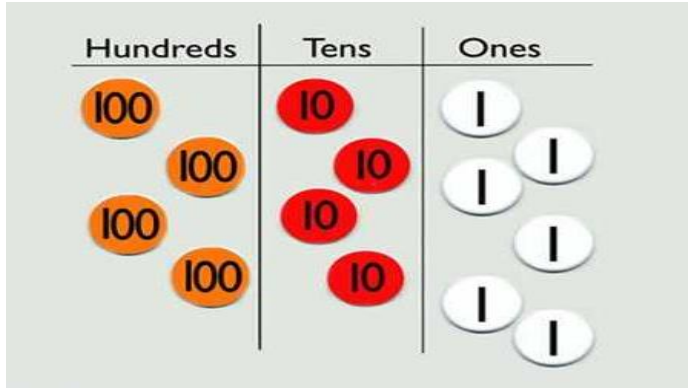
100 square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

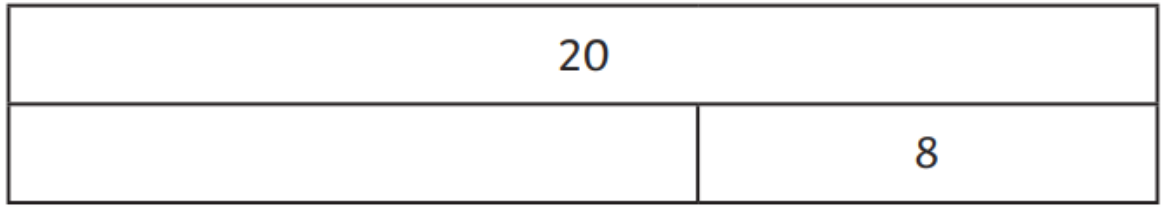


Ten frame

Place value grid



Bar model



Teaching addition

Addition

greater than

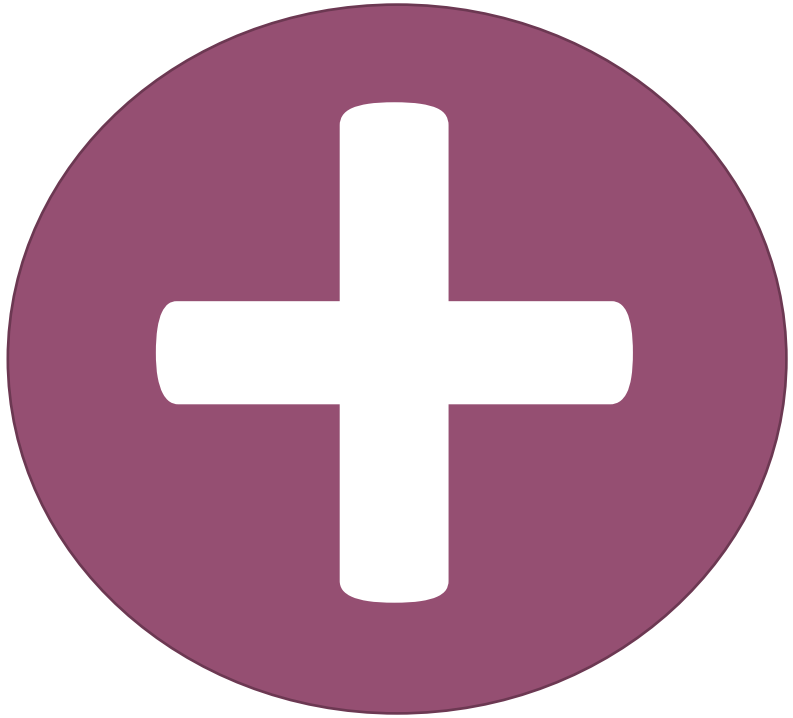
>

counting on

larger

sum

plus



make

total

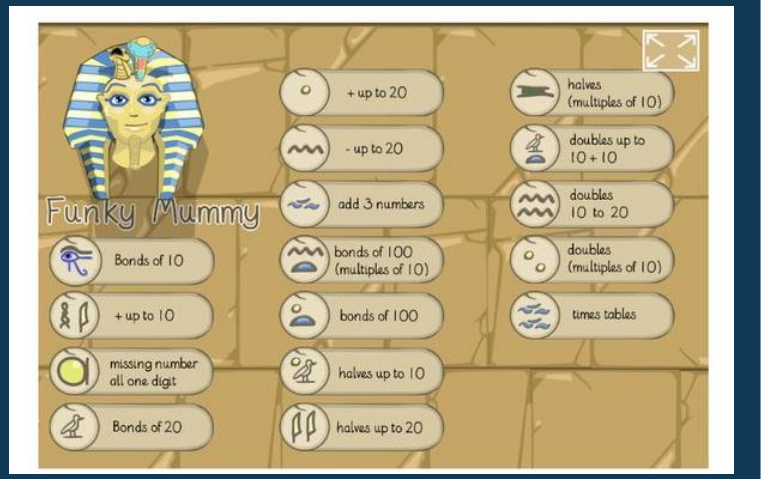
add

altogether

repeated addition

CBeebies
Number blocks

Topmarks.co.uk
Funky Mummy

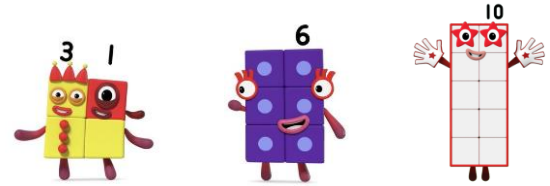


Children will continue to relate addition through recognising pairs of numbers (numberbonds) and the relationship between them.

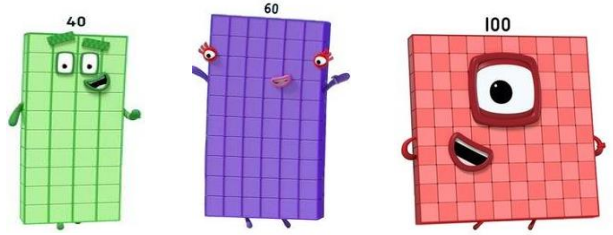
For example:

4 + 6 = 10

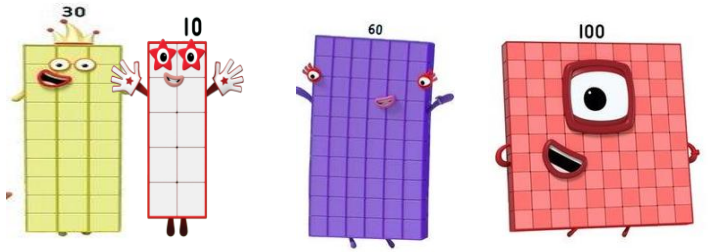
3 + 1 + 6 = 10

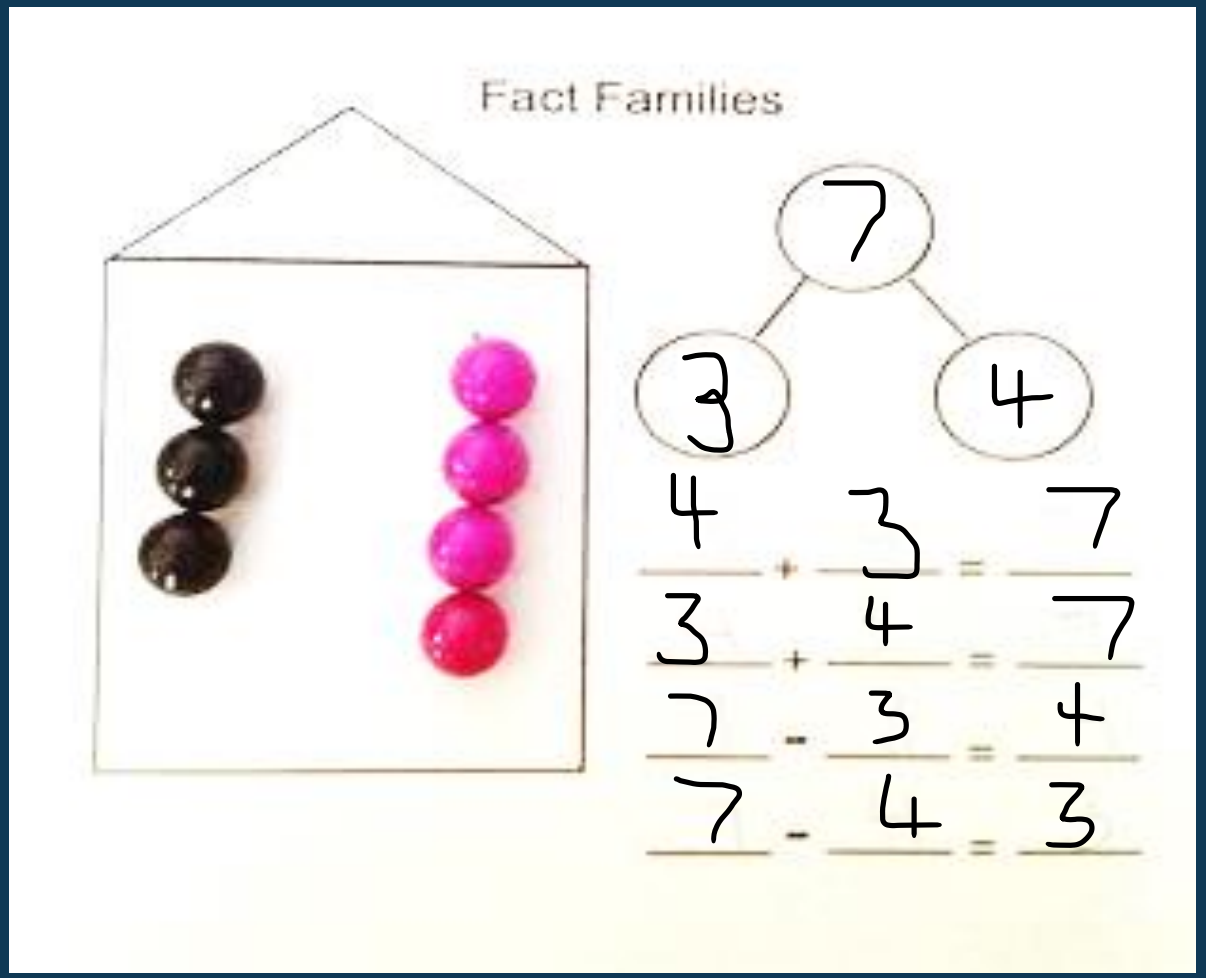


40 + 60 = 100



30 + 10 + 60 = 100





They will also continue to relate addition and subtraction facts. **For example** if we know:

3 + 4 = 7

then we know it can also be written as

4 + 3 = 7

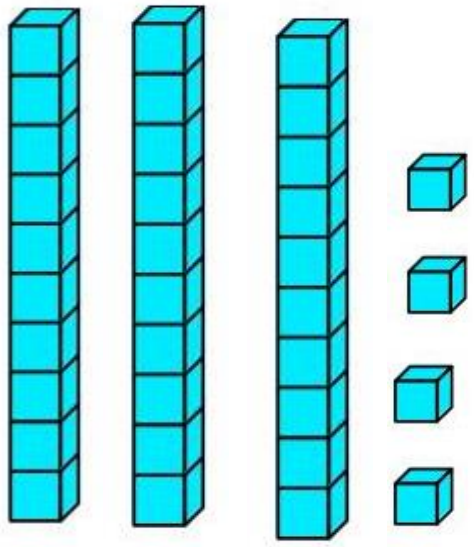
We can then begin to understand the inverse calculation as

7 - 3 = 4 or 7 – 4 = 3

Children will continue to use concrete resources to support their understanding of addition and representation of 10s and 1s.

They will then move on to represent 10s and 1s pictorially, like this:

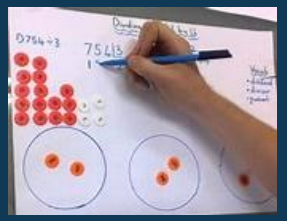
For example



Dienes

Numicon

Multilink



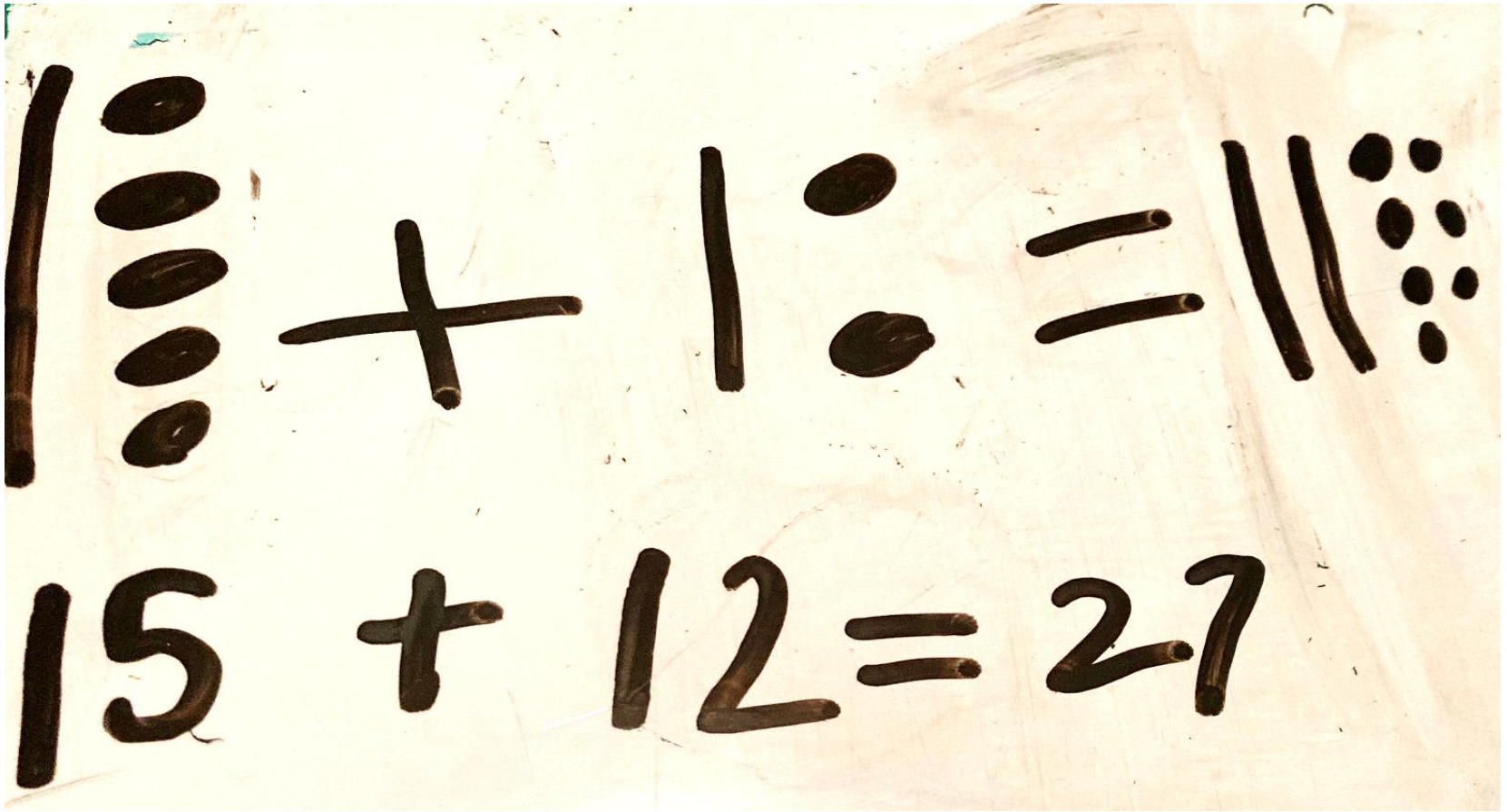
Counters

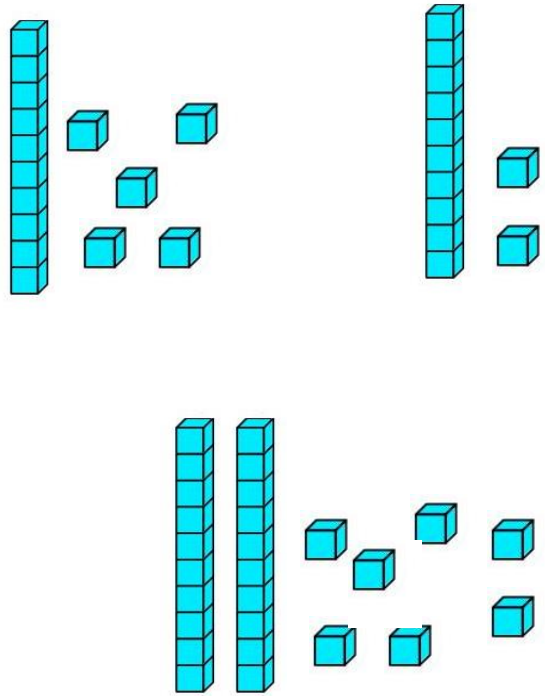
Bead string

RekenRek

Example

We would use this pictorial representation to show the addition sum and combine the 10s and 1s:

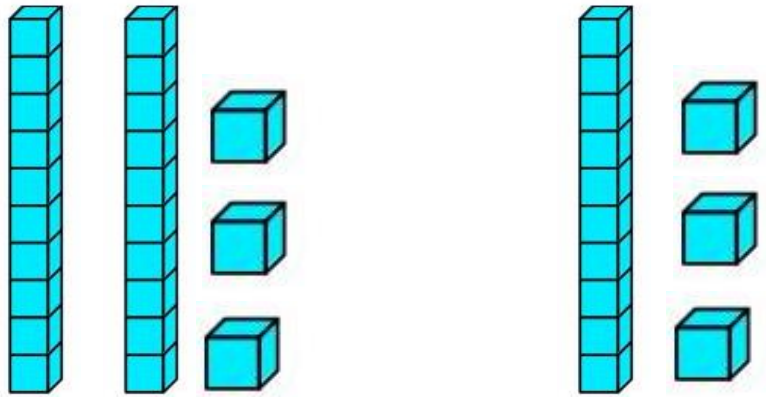




Example

- Work out the answer to this sum using your dienes
- Then record it as a pictorial on your whiteboard

$$23 + 13 = \square$$

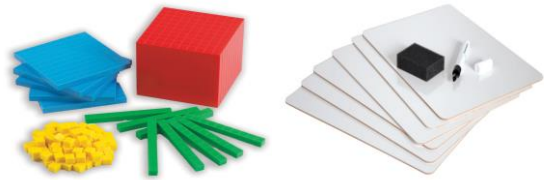


Your turn

$14 + 25 =$ ☐

$27 + 32 =$ ☐

$31 + 9 =$ ☐



Teaching subtraction

Subtraction

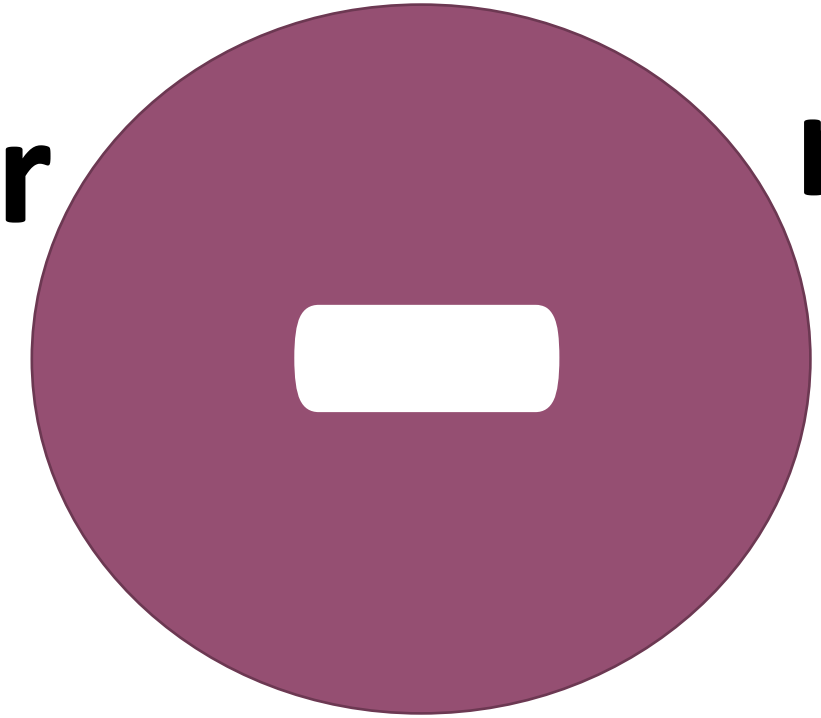
take away

difference

smaller

make

leave



subtract

less than

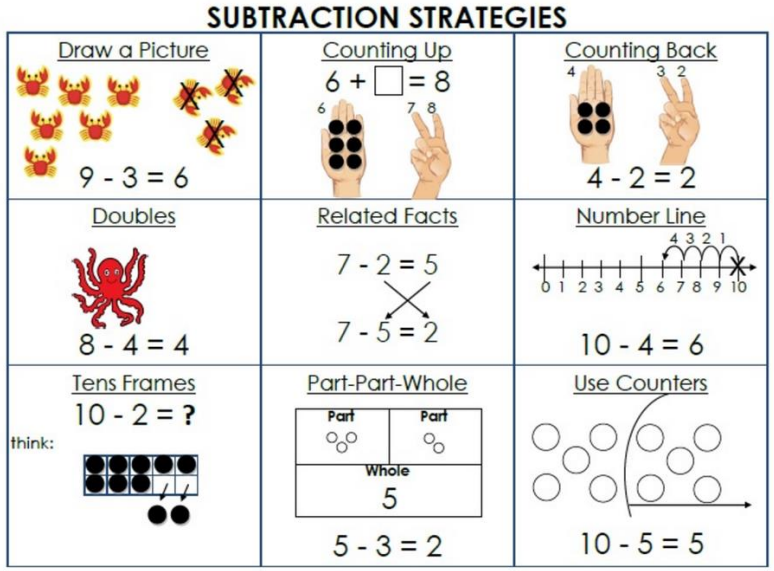
<

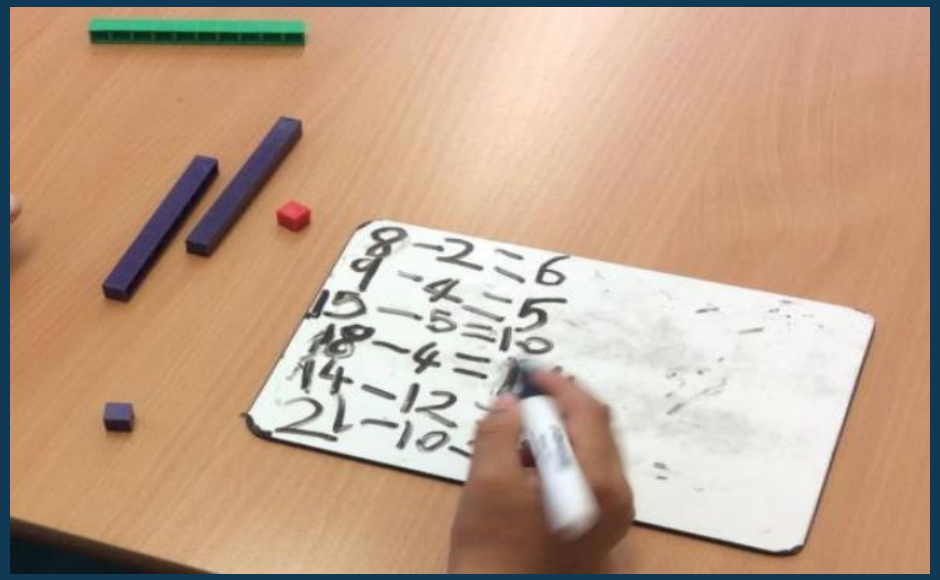
fewer

minus

difference between

Basic Subtraction Strategies:



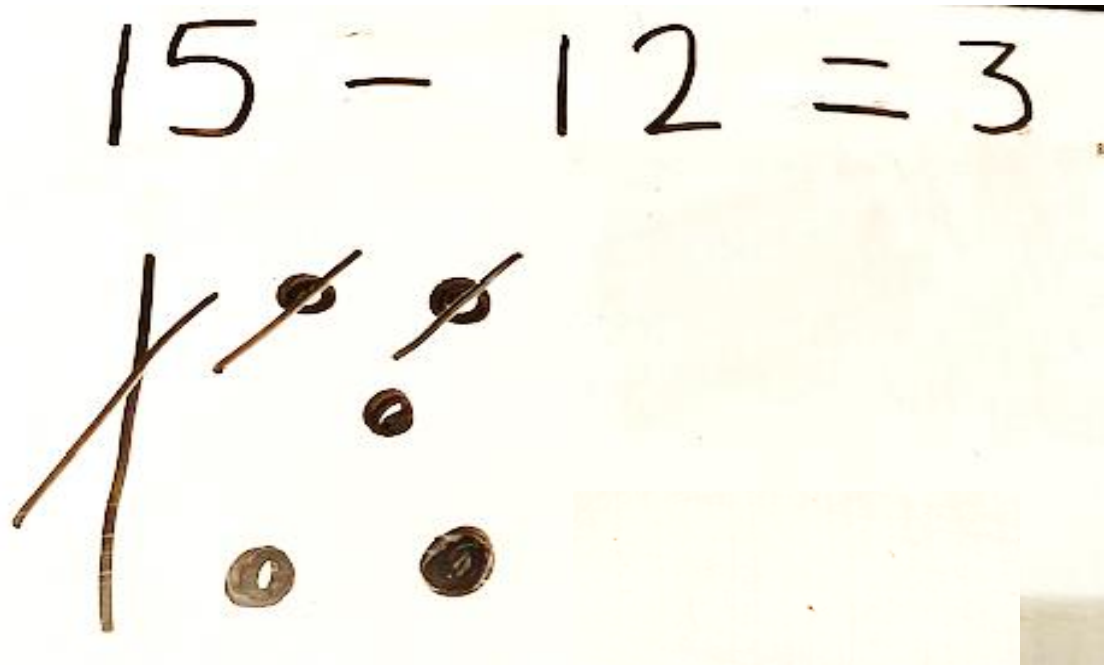


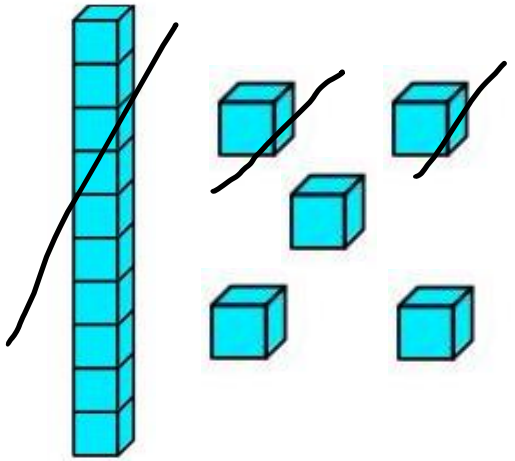
- To continue to use – and = symbols to record calculations
- Continue to relate subtraction facts. **For example** if we know:
- **5 + 1 = 6** then we know the inverse can be **6 - 1 = 5**
- To understand that unlike addition, subtraction can't be done in any order. To know that the smaller number is taken away from the larger number

Example

In subtraction we would use this representation to show the subtraction sum and take away the 10s and 1s:

15 - 12 = 3

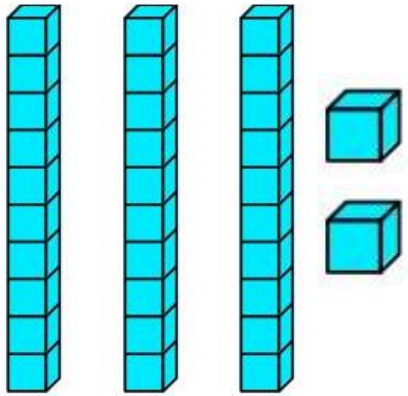


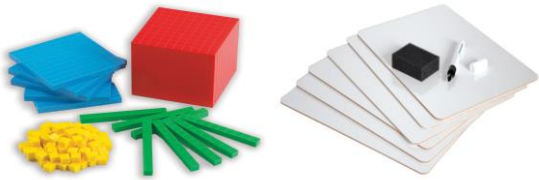


Example

- Work out the answer to this sum using your dienes
- Then record it as a pictorial on your whiteboard

$$32 - 11 = \square$$





Your turn

$19 - 8 =$ ☐

$17 - 12 =$ ☐

$25 - 11 =$ ☐

Can you teach your adult how to work this out using **column method** on your whiteboard?

Teaching multiplication

Multiplication

times

repeated addition

multiply

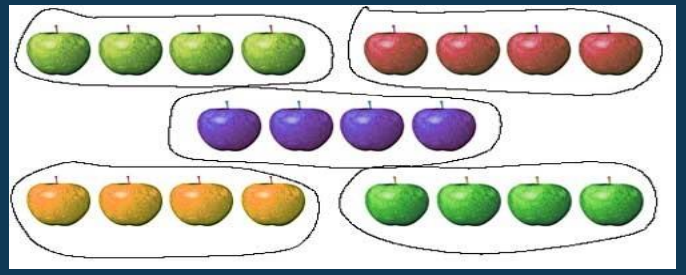
Lots of

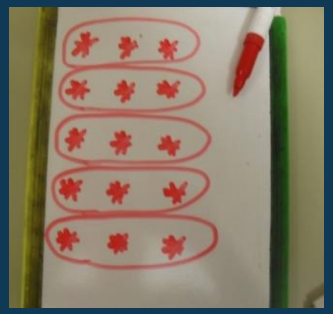
groups of

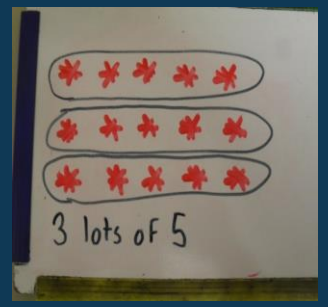
product

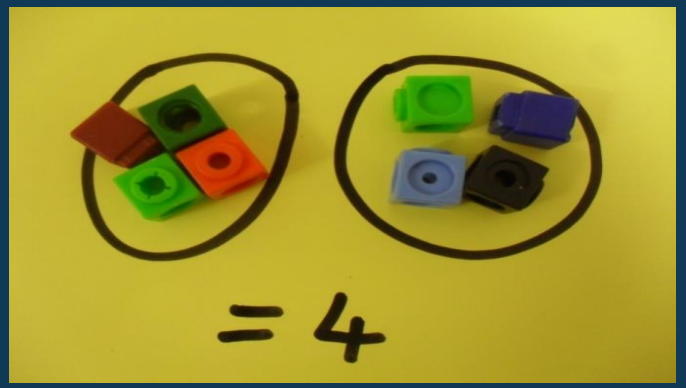
array

multiple of









- To build upon knowledge of repeated addition from Year 1

  eg. 4 + 4 + 4 + 4 + 4 = 20 5 groups of 4 5 x 4

- To use arrays to group objects and record as repeated addition using resources and pictorially

- To understand that multiplication can be recorded in any order. **For example**:

  - **5 x 3 = 15** is equal to **3 x 5 = 15**

- To understand the relationship between multiplication and division facts. **For example** if we know:

  - **2 x 4 = 8** then the inverse can be shown as **8 ÷ 2 = 4**

Children can use concrete or pictorial strategies to help answer reasoning (word) problems that require them to multiply.

Example

Charlie has 5 cookies in each jar. He has 3 jars in the kitchen.

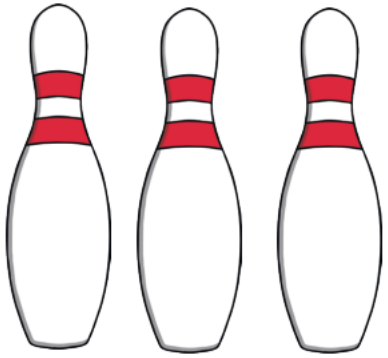
How many cookies does Charlie have altogether?

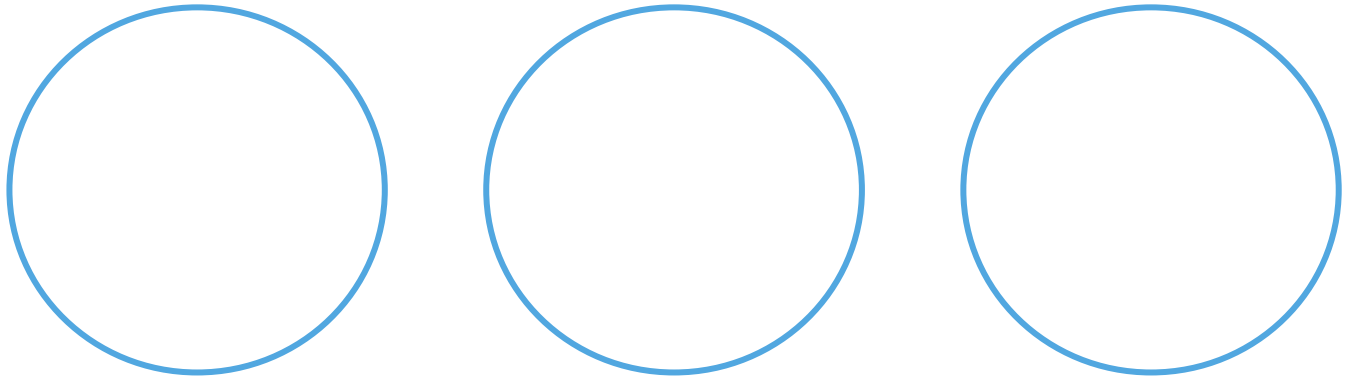
Example

- Work out the answer to this word problem using the cubes to help you.
- Then record as a pictorial drawing on your whiteboard.

I go bowling and knock down all 5 pins. I do this 3 times in a row.

How many pins do I knock down in total?





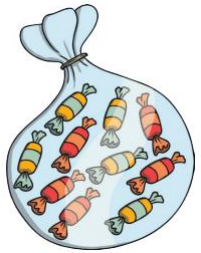
Your turn

Kai is having a birthday party.

Party hats come in packets of 5.

He buys 3 packets.

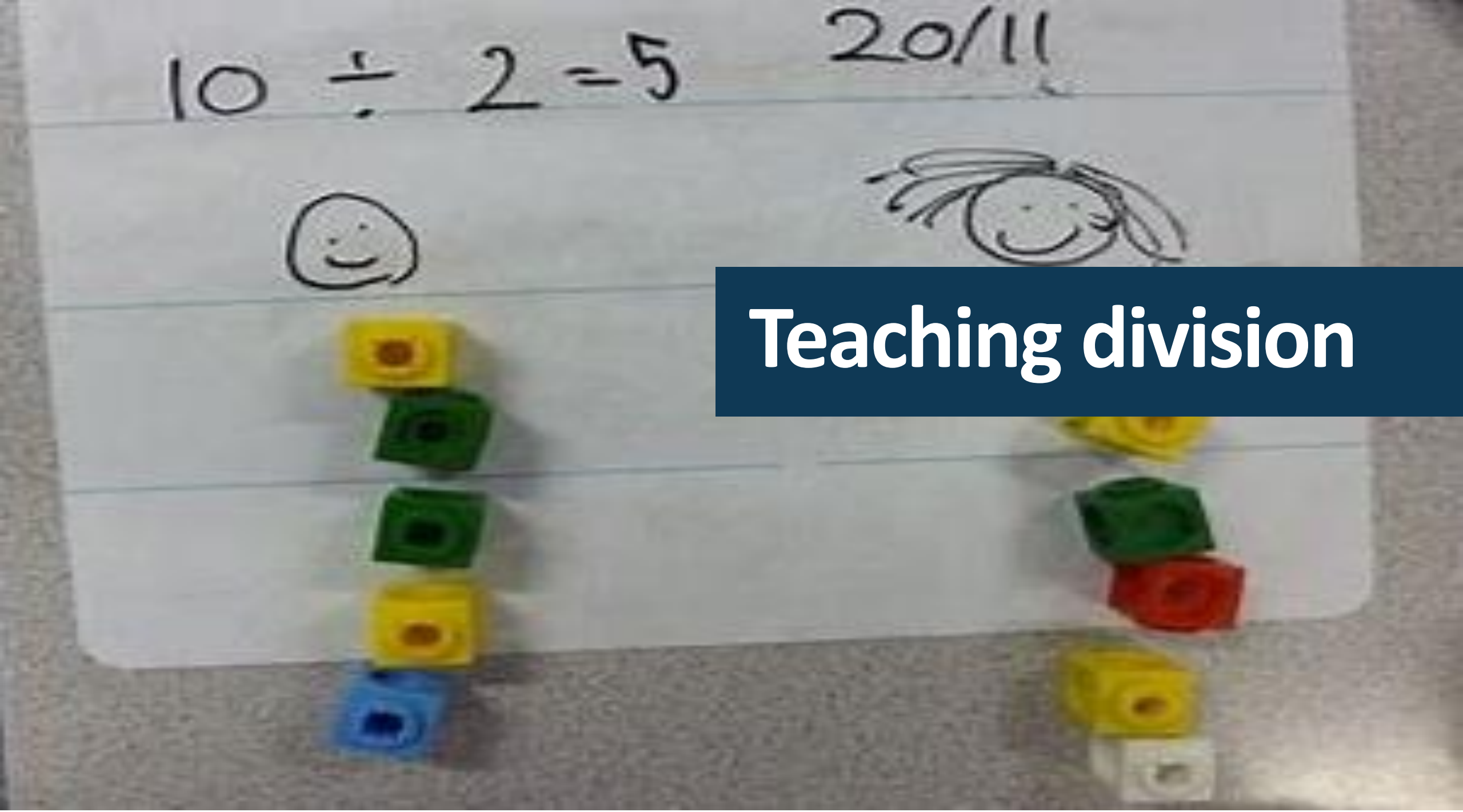
How many party hats does he have?



There are 2 sweets in a packet.

Flo buys 4 packets and Oscar buys 3.

How many sweets do they have altogether?



Teaching division

Division

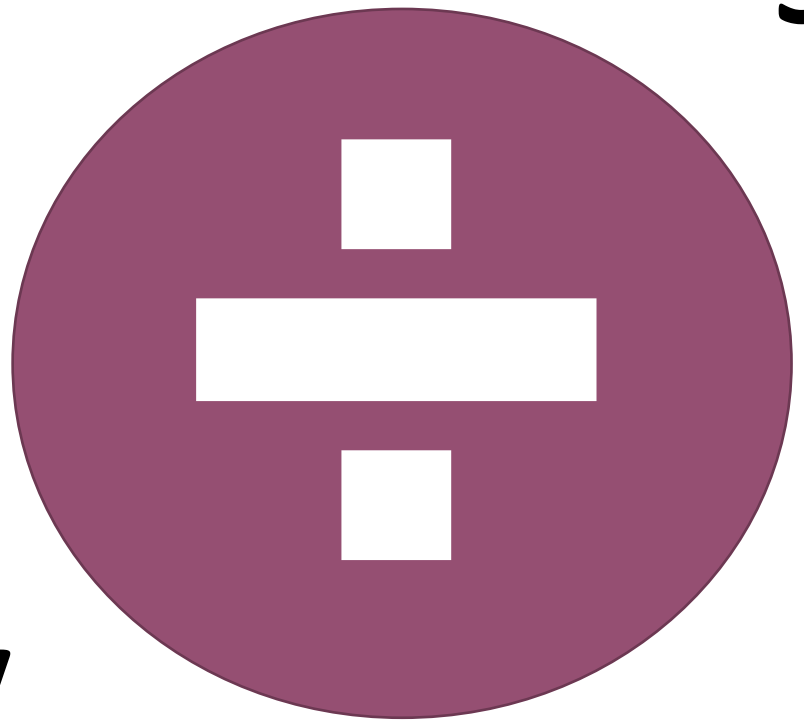
divide by

share into

groups of

array

sharing

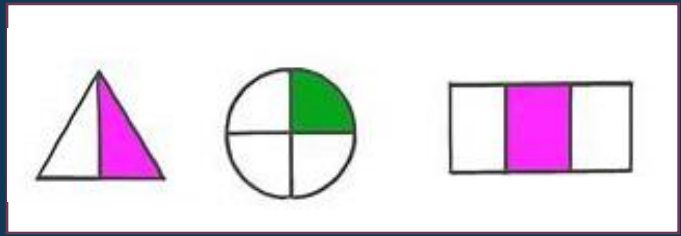


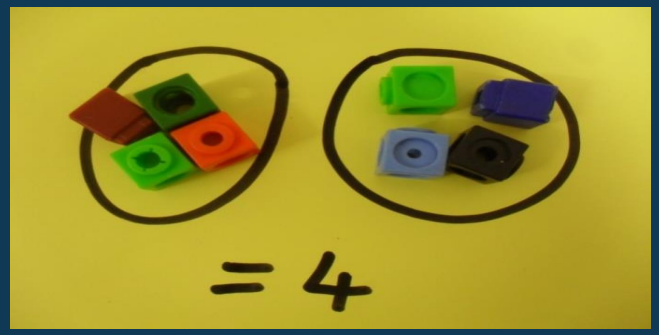
share equally

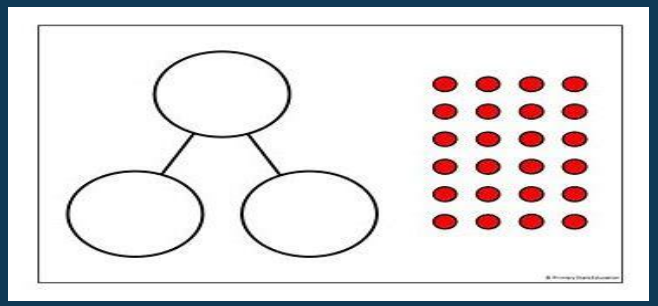
group

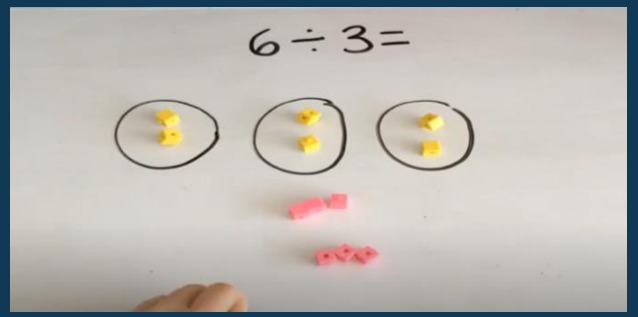
divide into

equal groups of









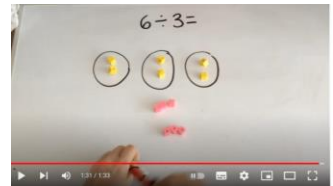
In Year 2, children begin to divide **numbers** and **shapes** into halves, quarters and thirds.

We continue to teach division as sharing or grouping equally through practical activities and pictorially.

Eg. 8 ÷ 2 = 4 **8 shared equally into 2 groups**

- Begin to use ÷ and = signs to record calculations.
- To understand the relationship between division and multiplication facts. **For example** if we know:

8 ÷ 2 = 4 then the inverse can be shown as **2 x 4 = 8**



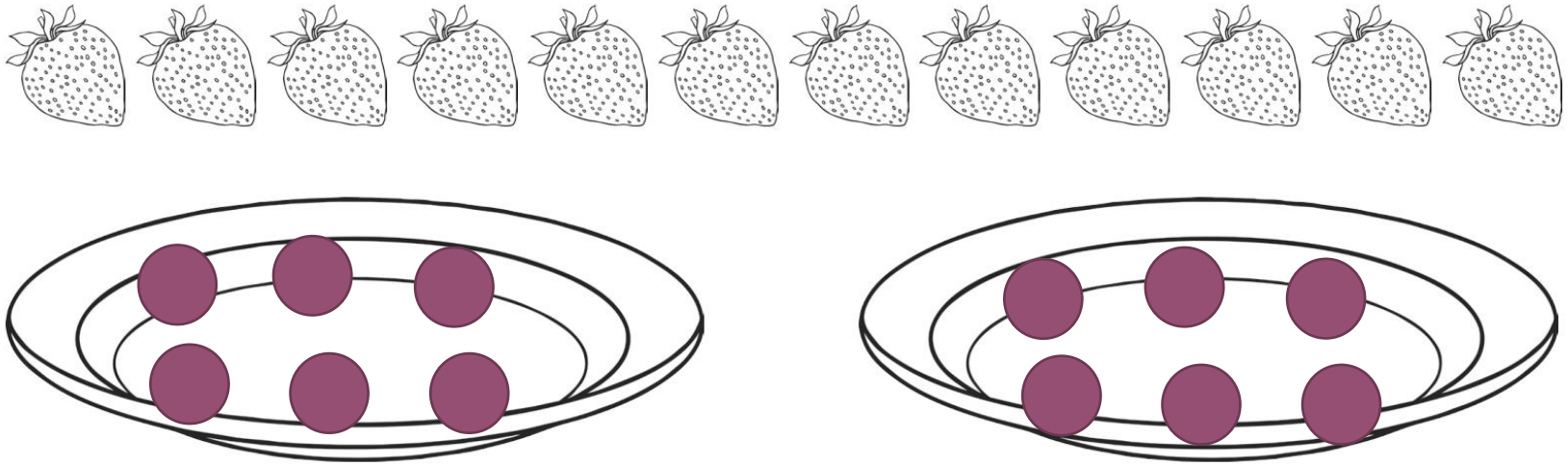
Children can use concrete or pictorial strategies to help answer reasoning (word) problems that require them to divide.

Example

Eva is having a picnic with her friend.

She would like to share twelve strawberries equally between them.

How many strawberries will they each get?



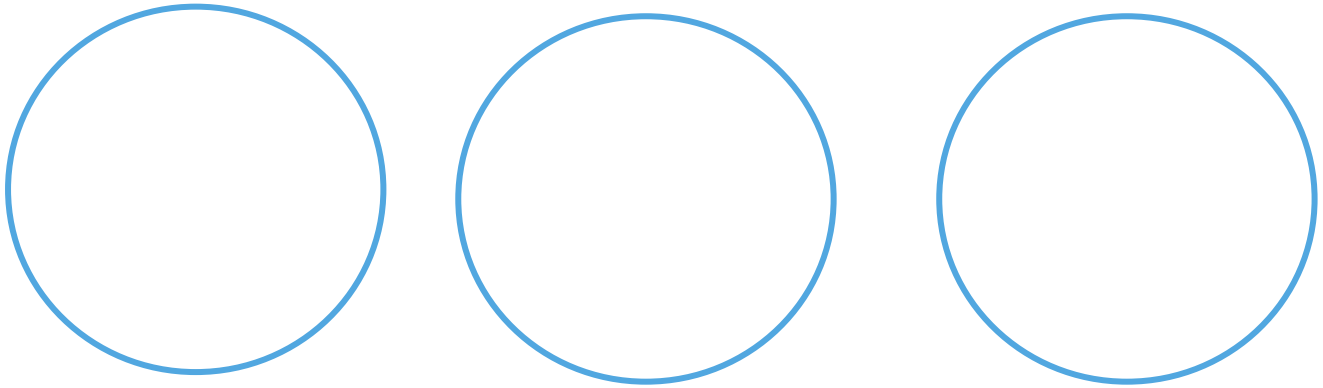
12 ÷ 2 = 6

Example

- Work out the answer to this word problem using the cubes to help you.
- Then record as a pictorial drawing on your whiteboard.

There are 9 eggs divided equally into 3 nests.

How many eggs will be in each nest?



Now try these

Anita is having a birthday party.

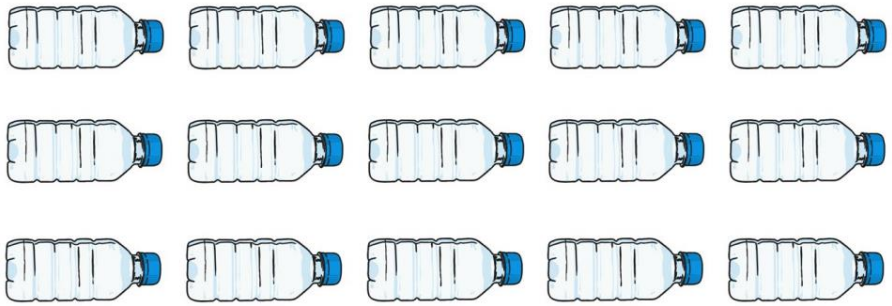
She has 15 sweets. She has 5 friends coming to her party.

How many sweets will be in each party bag?

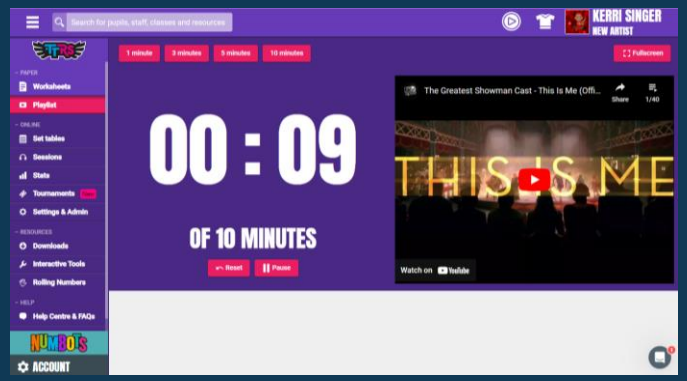
Michelle buys 15 bottles of water.

She shares them equally between her three children.

How many bottles will they each get?



Times Tables Rockstars



- 3 x weekly sheet practise in class
- Opportunities to access online in school
- Regular assessment – data so far is positive
- Class trophy each week to encourage team work

Well done