Burlington
Infant & Nursery School
INSPIRATION, RESILIENCE, EXCELLENCE

Aims of this session:

- Understand ks1 maths curriculum/content
- Addition and Subtraction
- Multiplication and division

Maths Curriculum

- Develop fluency

<u>Number fluency</u> - knowing and recalling facts.

<u>Procedural fluency</u> - knowing which method is needed when solving calculations and the ability to apply knowledge to solving problems and different contexts.

- Encourage mathematical reasoning: e.g.,the children are asked to describe, explain, justify and prove their ideas and solutions.

- Children develop their problem solving skills in a variety of contexts and learn to apply their knowledge with increasing accuracy.

Number: number and place value

Year 1

- Count to and across 100, forwards and backwards, from any given number
- Count in multiples of twos, fives and tens
- Identify one more and one less
- Identify and represent numbers using objects and visual representations
- Use the following language: 'equal to', 'more than', 'less than', 'most' and 'least'

Year 2

- Count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backwards
- Recognise the place value of each digit in a two-digit number
- Compare and order numbers from 0 to 100, using <, > and = signs
- Use place value and number facts to solve problems

Number: addition and subtraction

Addition and subtraction

Year 1

- Read and write number sentences
- Represent and use number bonds and subtraction facts within 20
- Add and subtract one-digit and two-digit numbers to 20, including zero
- Solve one-step problems that involve addition and subtraction, using objects and pictorial representations

Year 2

- Use concrete objects and pictorial representations
- Recall and use addition and subtraction facts to 20, and use related facts up to 100

Add and subtract numbers using concrete objects, pictorial representations and mentally, including:

- a two-digit number and ones
- a two-digit number and tens
- two two-digit numbers
- adding three one-digit numbers

Number: multiplication and division

Year 1

- Solve one-step problems involving multiplication and division by calculating the answer using concrete objects, pictorial representations and arrays

Year 2

- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the x, ÷ and = signs
- Solve problems involving multiplication and division, using arrays, repeated addition, mental methods, and multiplication and division facts

Number: fractions

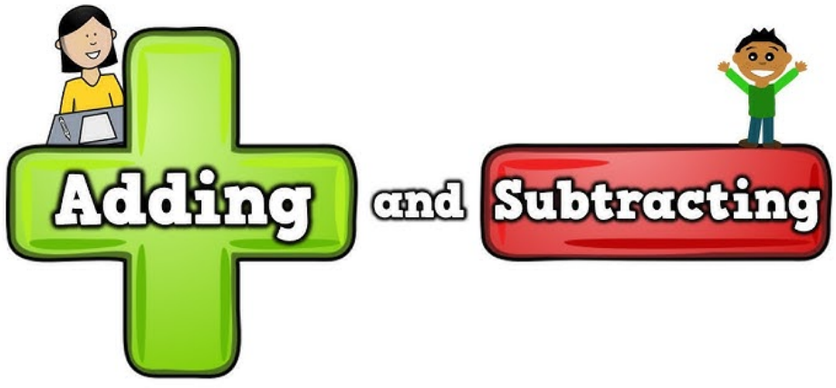
Year 1

- Recognise, find and name a half as one of two equal parts of an object, shape or quantity
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

Year 2

- Recognise, find, name and write fractions 1/3, 1/4, 1/2 and 3/4 of a length, shape, set of objects or quantity
- Write simple fractions and recognise the equivalence of 2/4 and 1/2

Addition and Subtraction



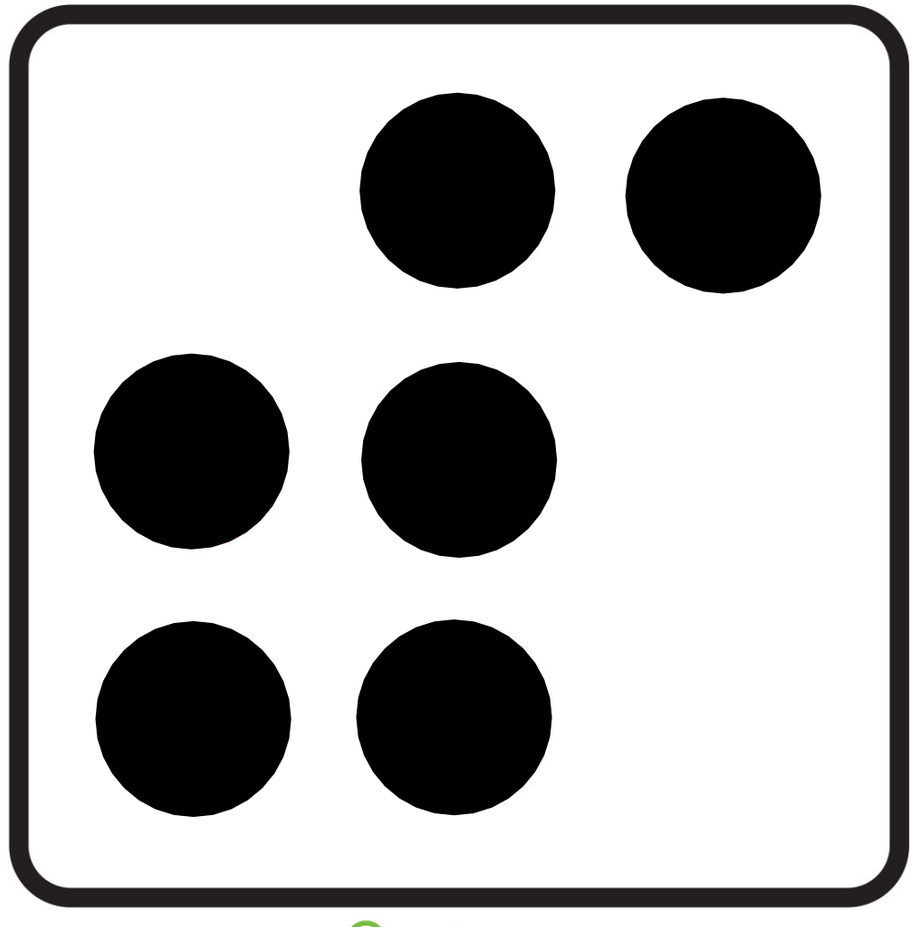
Subitising

Subitising is when you realise how many there are without counting. This is where you are able to recognise a number by grouping in into small sets.

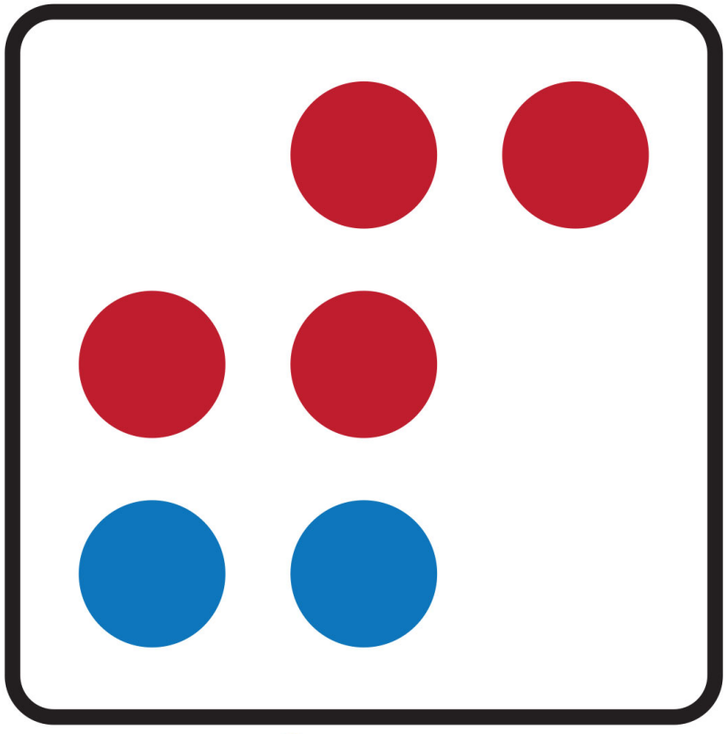
For example, if you are s lack dots, it's likely that you will automatically group these into 2 groups of 3, and then know that there are 6 in total without actually counting each one.

What number can you see?

How did you know automatically?



teachstarter

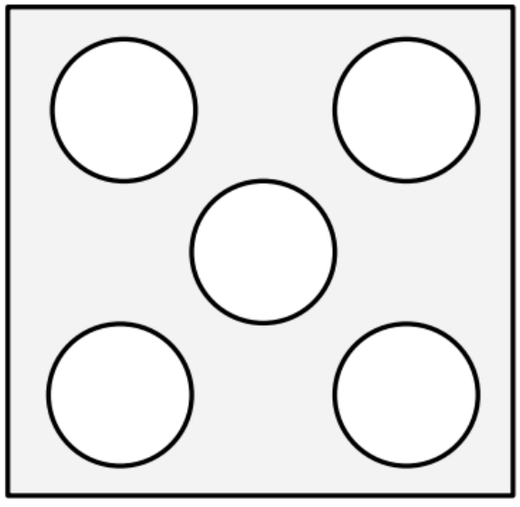


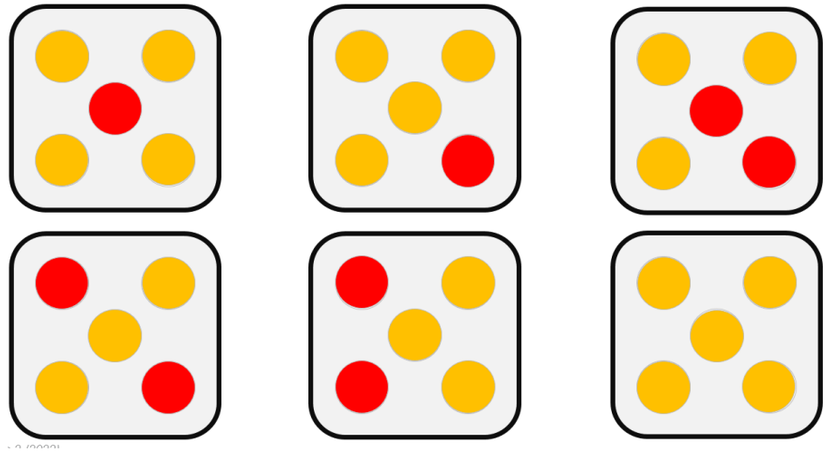
Stem sentences are used to develop understanding.

6 is made of 4 and 2
4 and 2 make 6

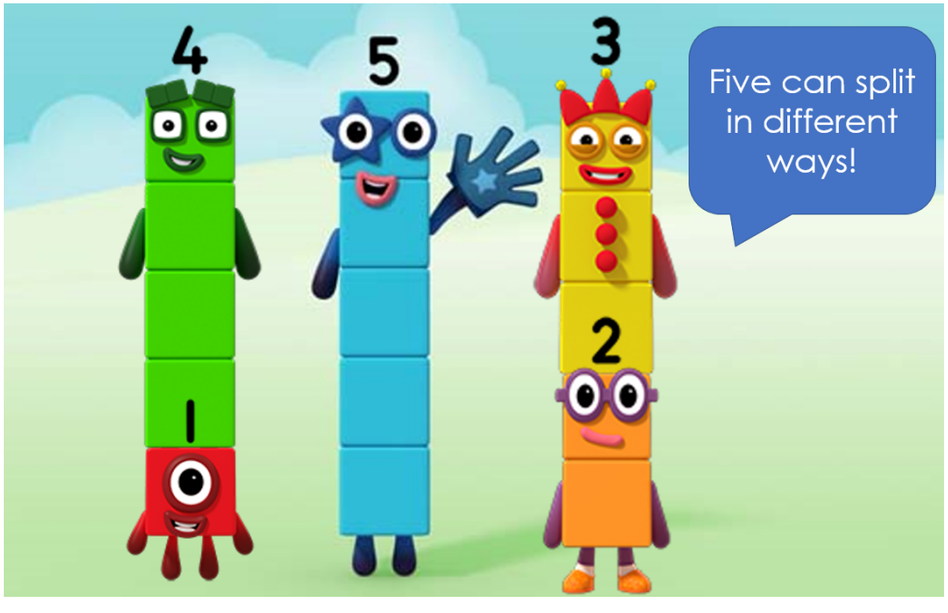
3 needs 3 to make 6

We also explore representing numbers in different ways?





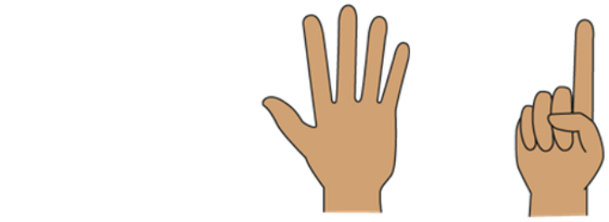
5 dice pattern

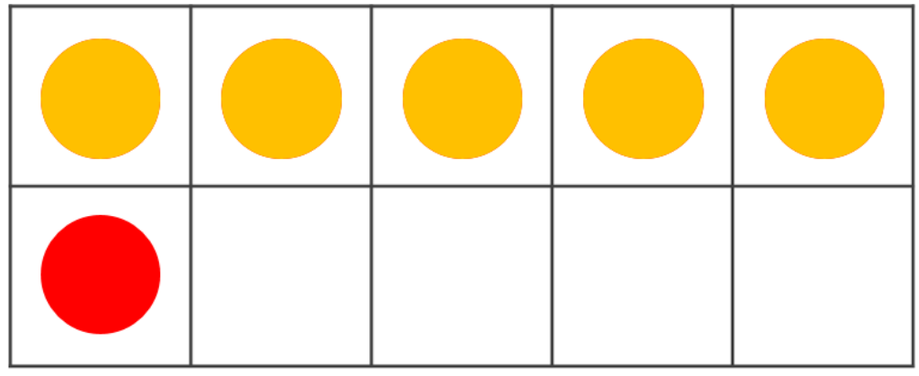


blocks

Frames

e.g., tens frame

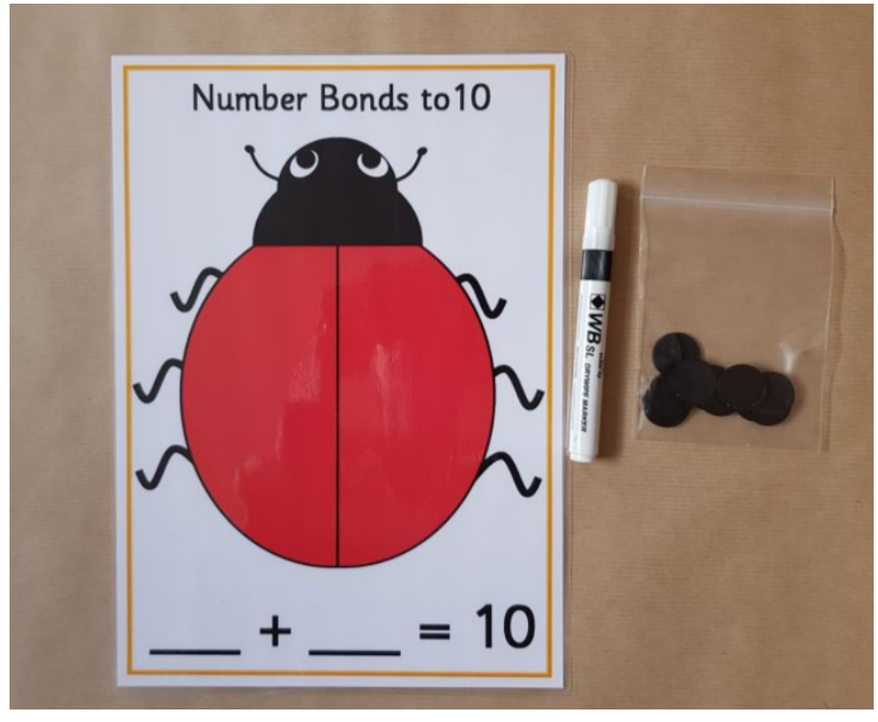




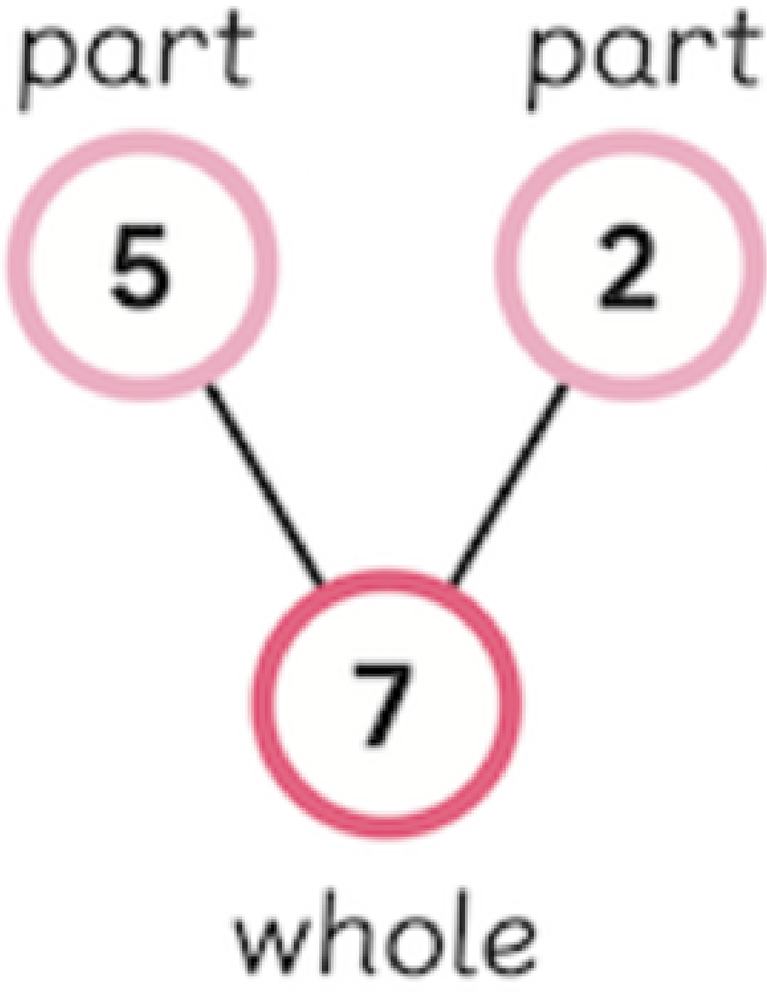
5 needs _____ to make _____ .

Rekenrek

Practical representations



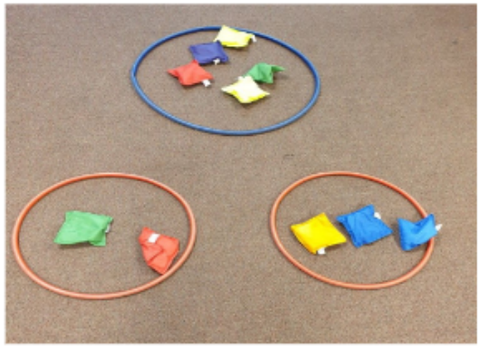
Whole part part model

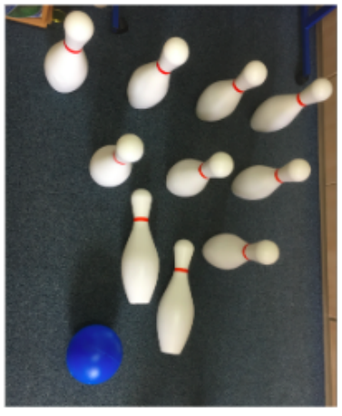


_____ is a part

_____ is a part

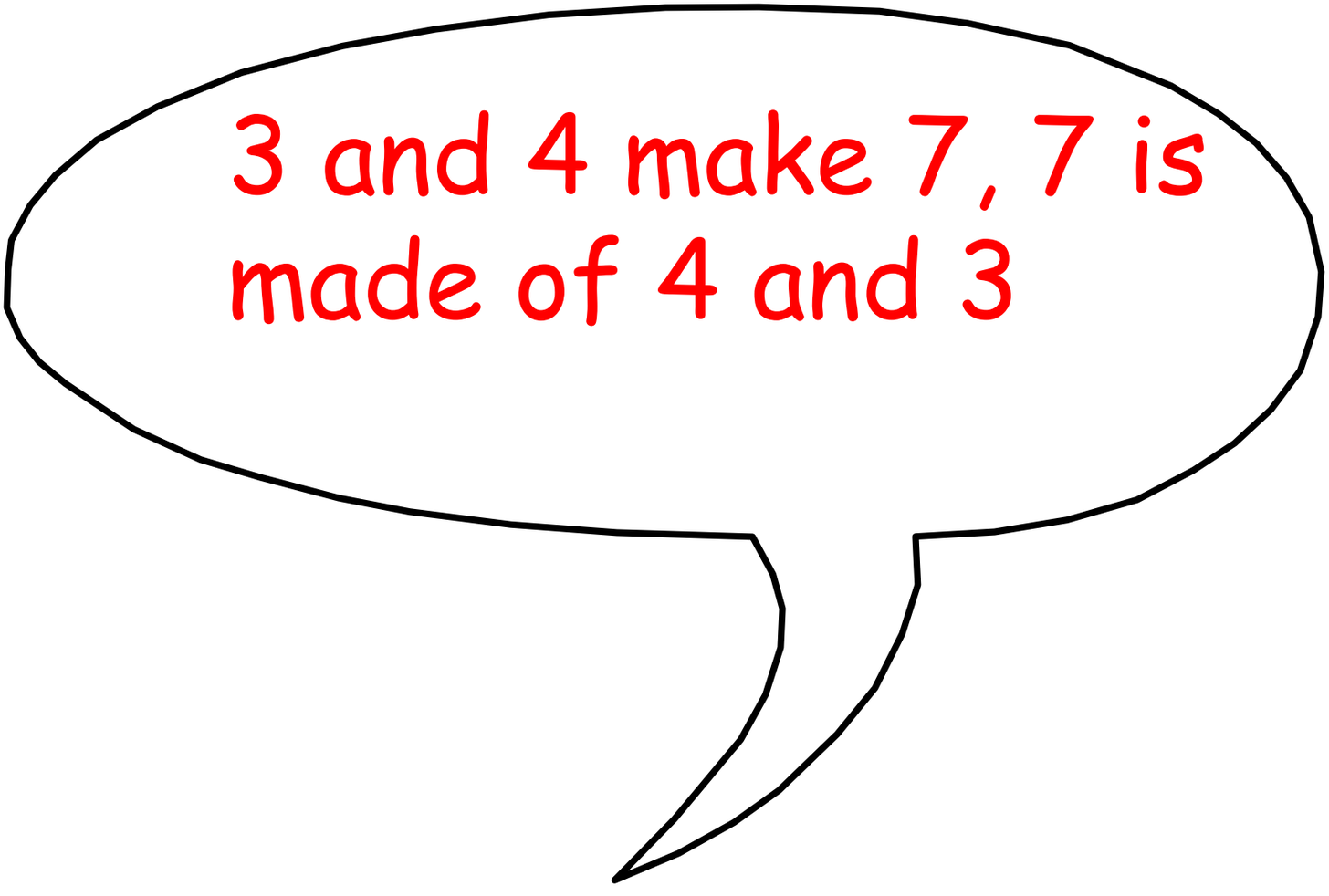
The whole is _____





Some school activities could be used in the home.

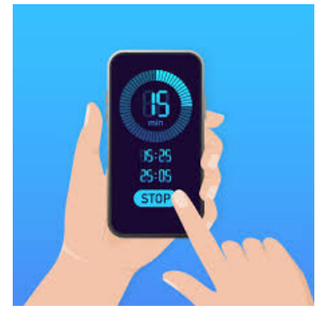
addition is commutative



Practical things to do at home:

Get creative (see previous slide)

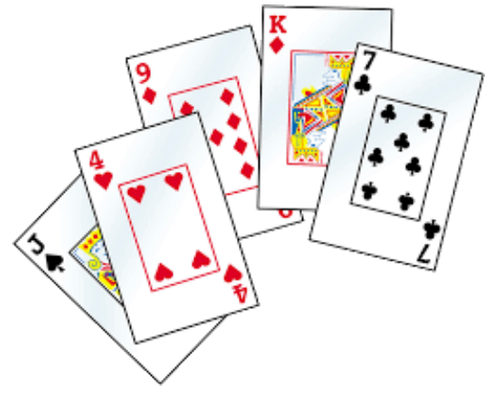
Use a timer: How many number bonds to 8 can you think of?



Use a pack of cards:

-find pairs of cards up to a given total.

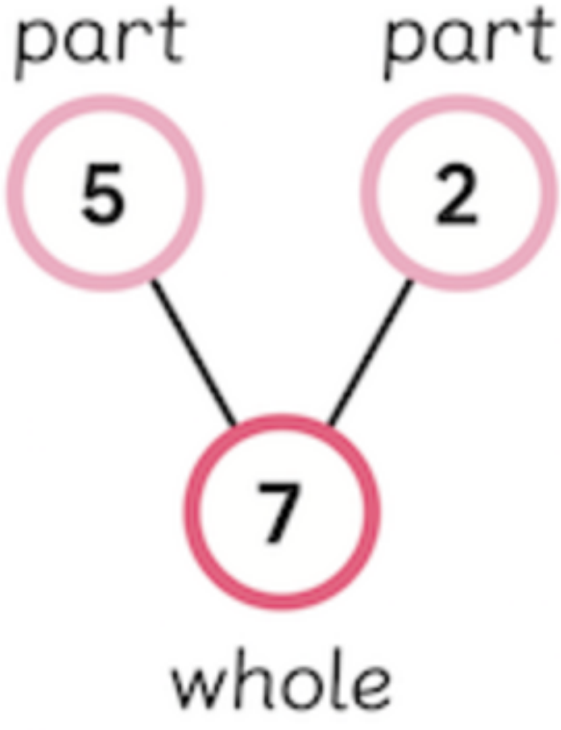
- play number bond snap.



-Use money: I have 10p coins.

How many am I hiding?

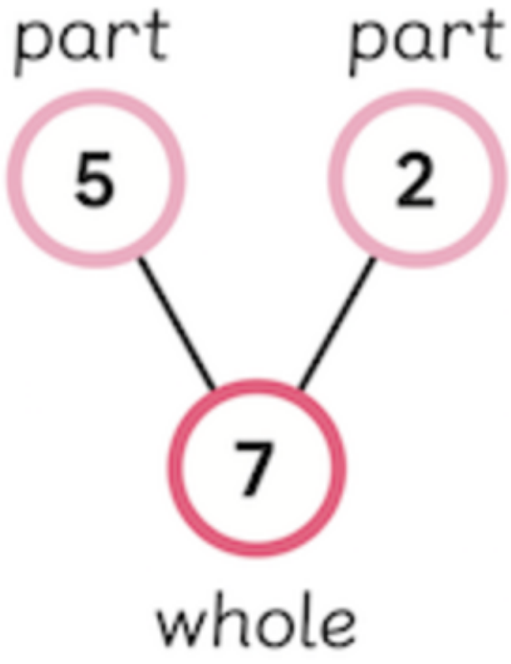
Fact families



5 - 2 = 3

so

3 + 2 = 5



$7 - 2 = 5$

$5 + 2 = 7$

$7 - 5 = 2$

$2 + 5 = 7$

$2 = 7 - 5$

$5 = 7 - 2$

$7 = 5 + 2$

$7 = 2 + 5$

Number bonds to 20

$13 + 4 = __$

$3 + 4 = 7$

$13 + 4 = 17$

$18 - 4 = __$

$8 - 4 = 4$

$18 - 4 = 14$

$30 + 40 = 70$

$60 - 20 = 40$

Developing number bond strategies

$8 + 6 =$

$8 + 2 + 4 = 14$

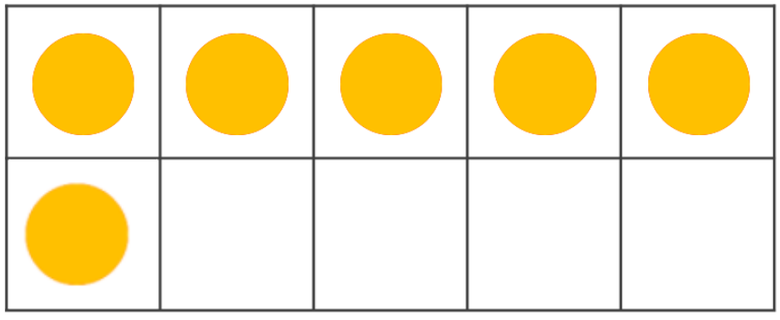
$13 - 6 =$

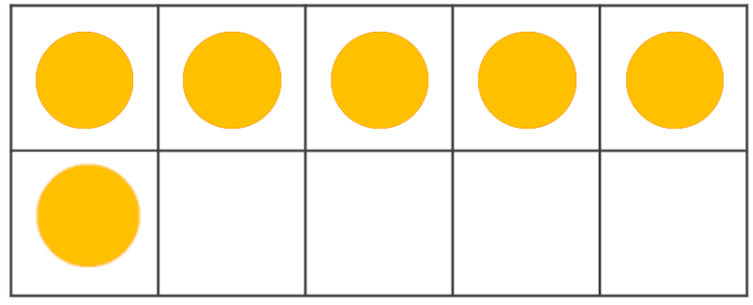
$13 - 3 - 3 = 7$

$45 + 36 =$

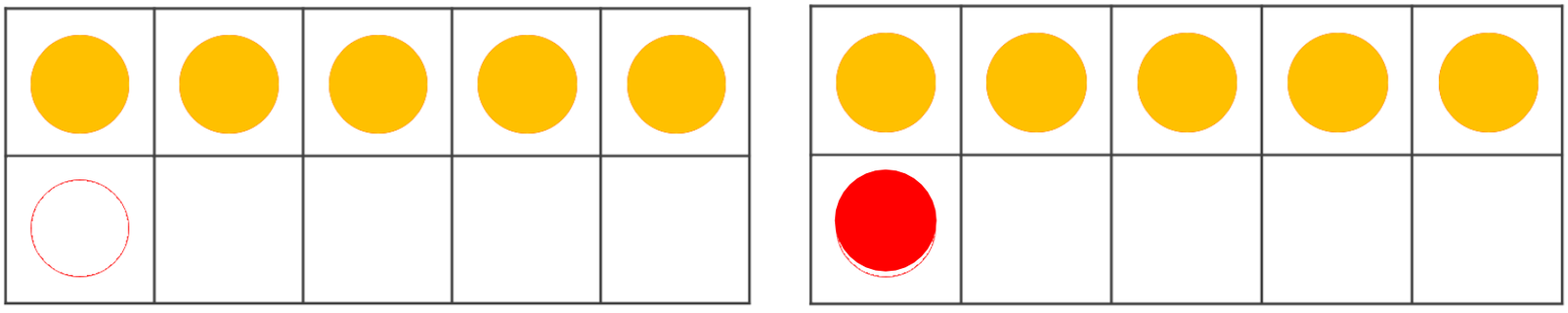
$92 - 24 =$

Doubles





Near doubles

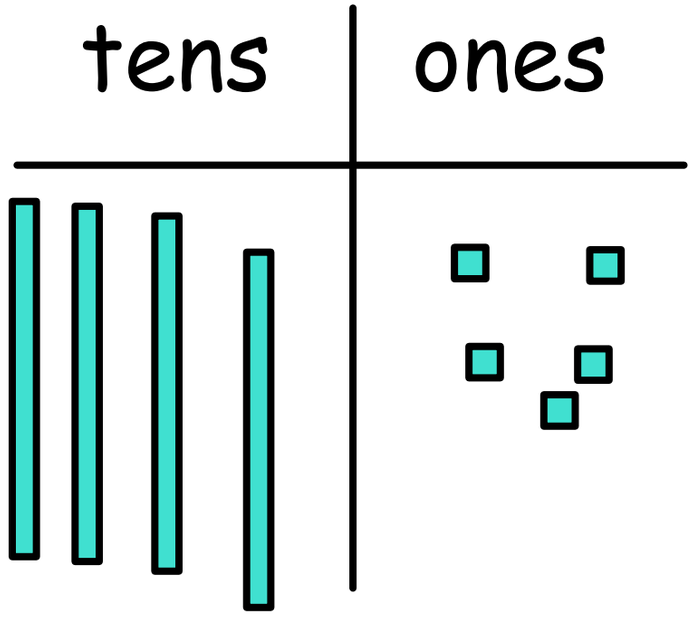


5 + 6 is equal to 5 doubled (10) plus 1 (11)

Tens and Ones

Partition: **45 = 40 + 5**

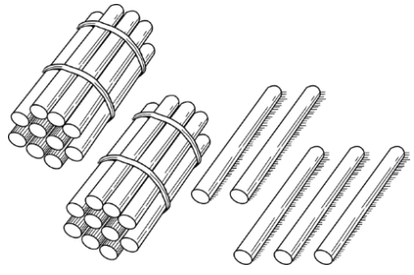
Place value:
(digit)



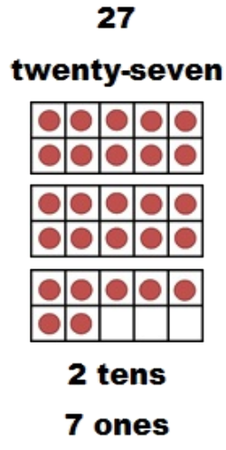
45 has 4 tens and 5 ones

We use a variety of resources and spend time exploring tens and ones in a number.

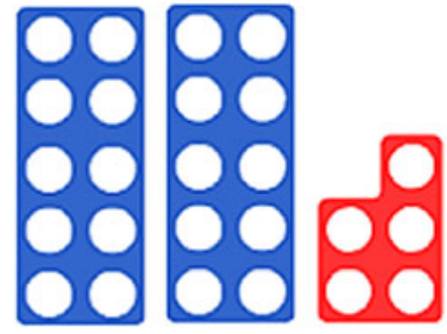
bundles of straws



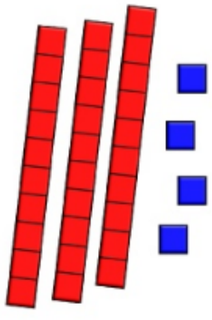
tens frames



Numicon

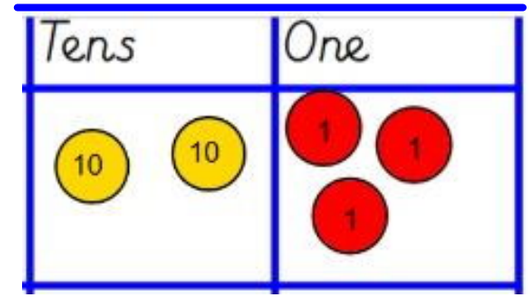


Dienes



money

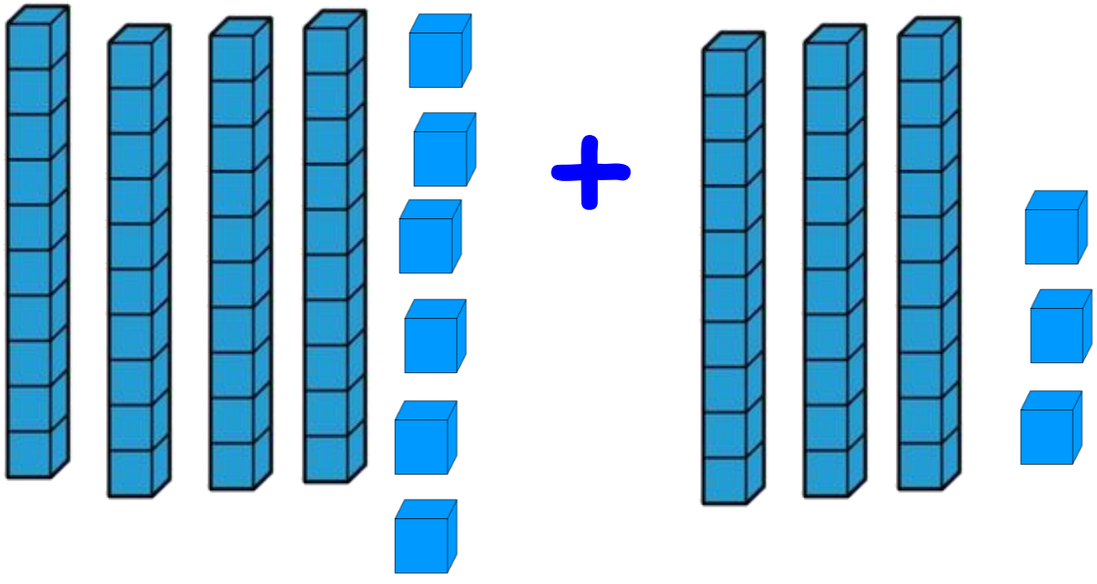
place value counters



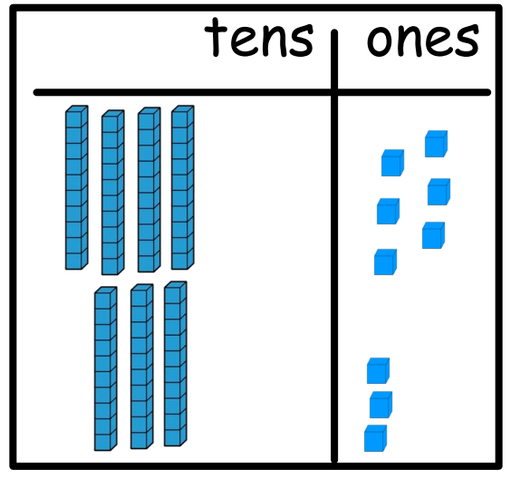
Deines - Addition

(Different resources can be used to represent tens and ones)

46 + 33 =

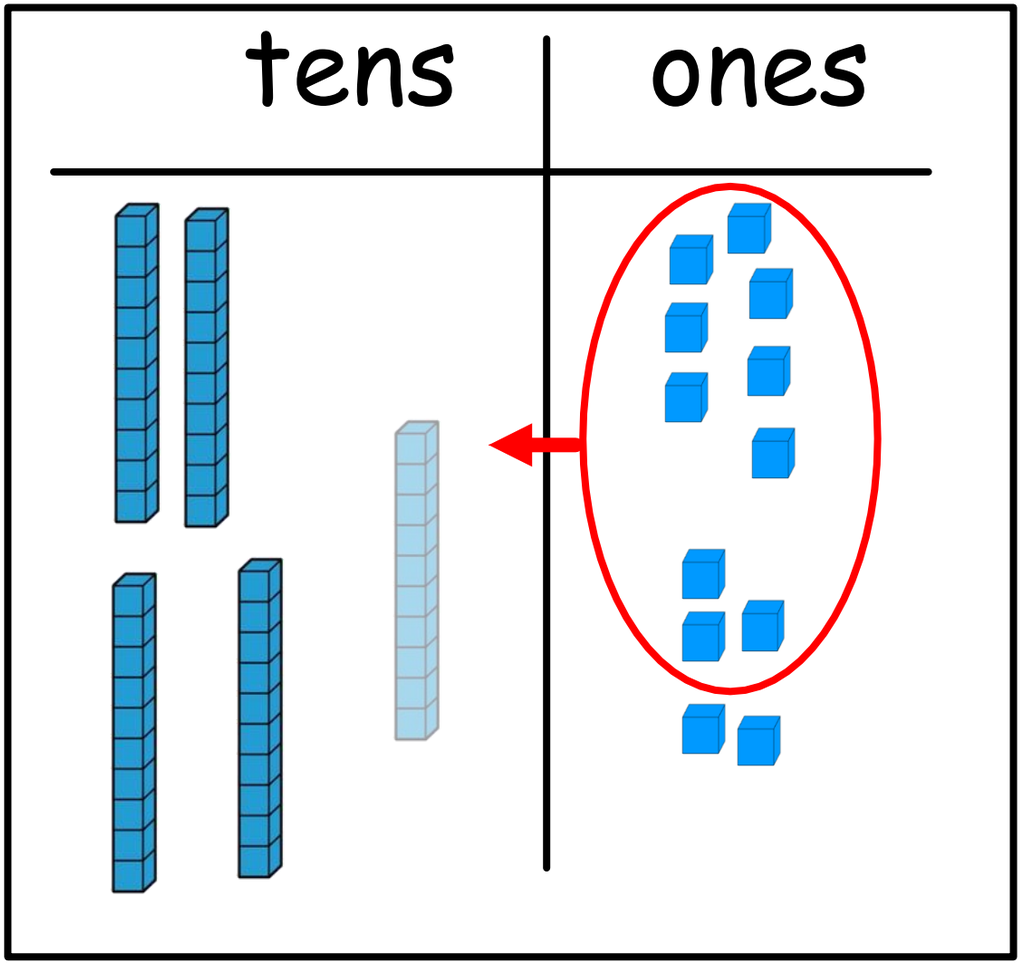


Prepare for column addition



Deines - Addition/regrouping

27 + 25 =

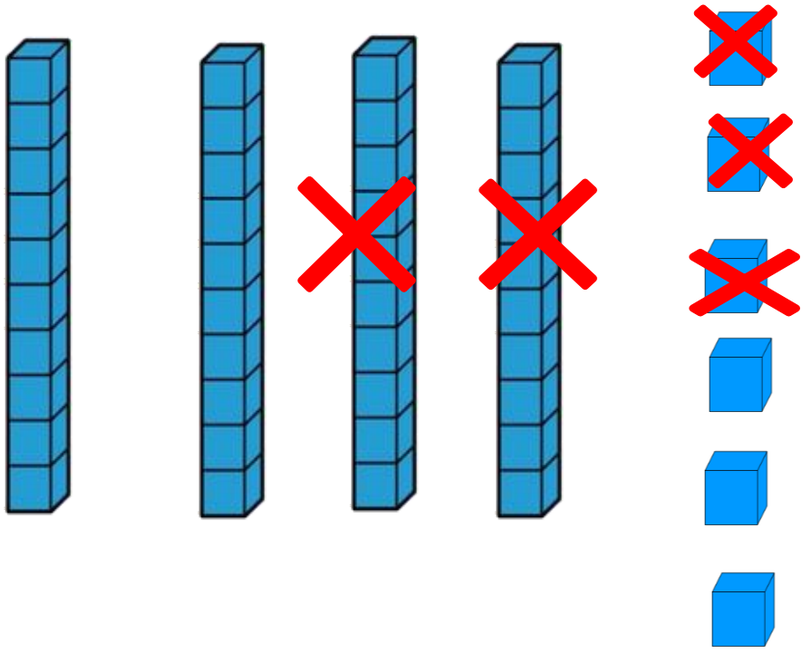


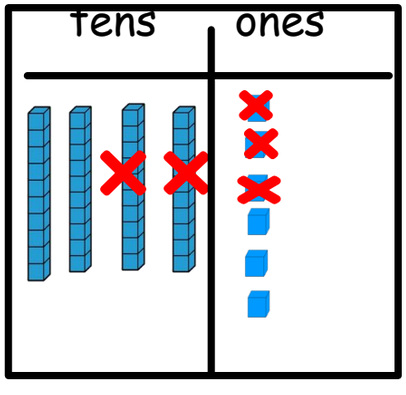
Children learn that when there are more than 10 ones they have to regroup 10 ones into a tens.

Children learn to represent this using pictures.

Deines - Subtraction

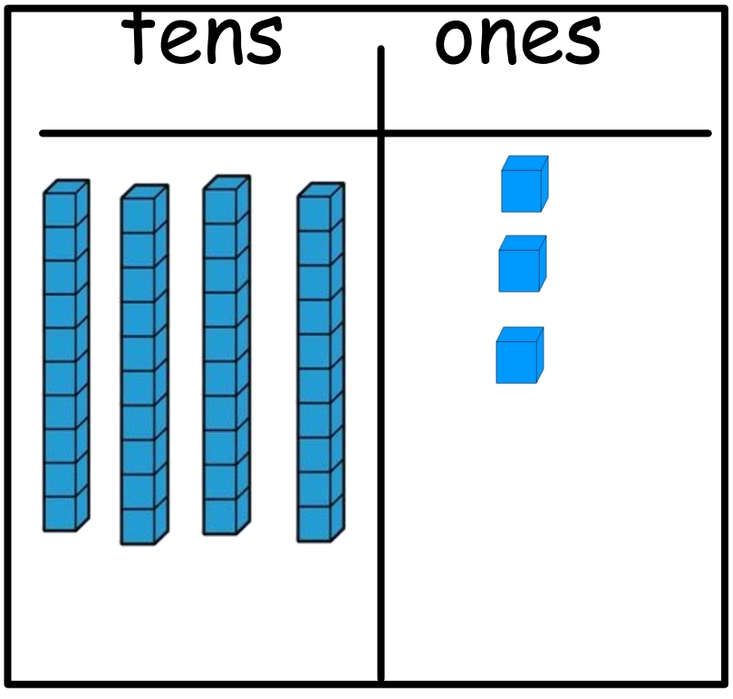
46 - 23 =





Deines - exchanging

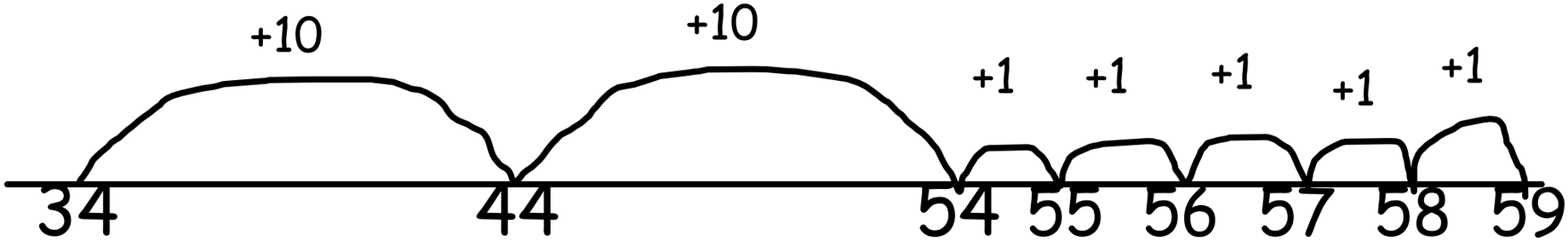
43 - 26 =



Empty number line

34 + 25 =

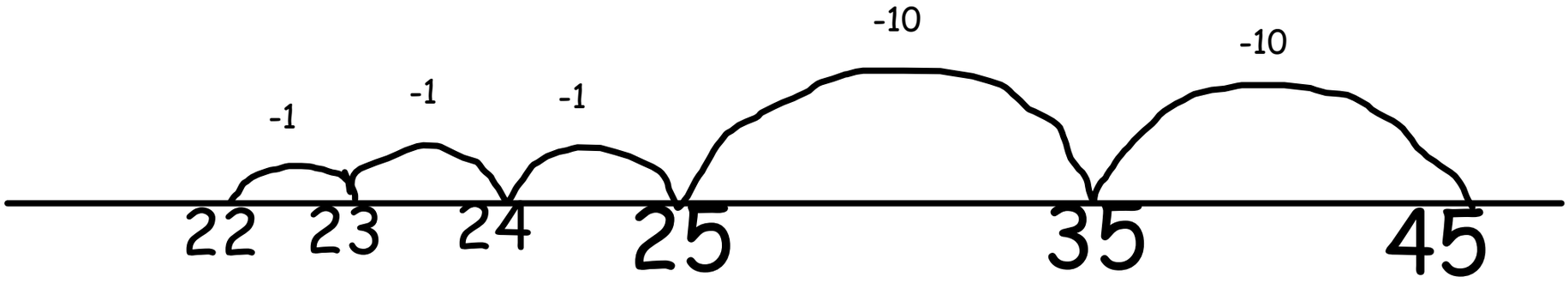
20 5



Empty number line

45 - 23 =

20 3

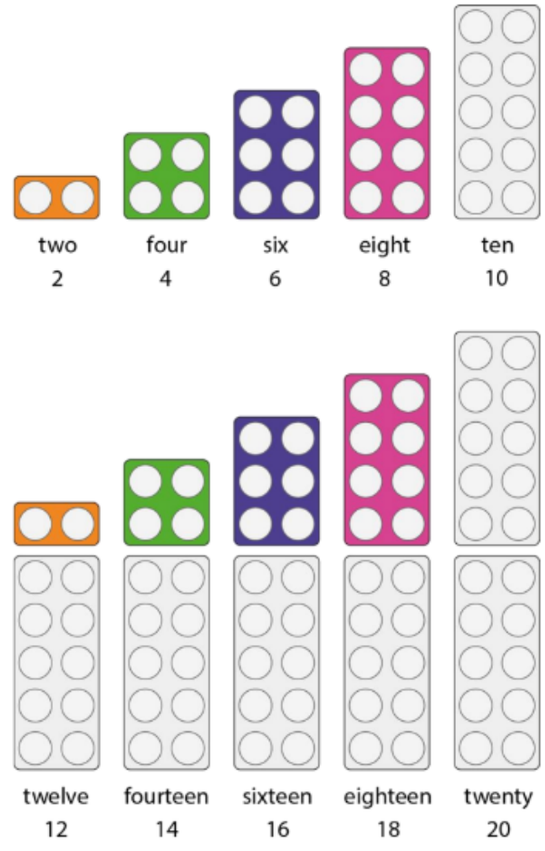


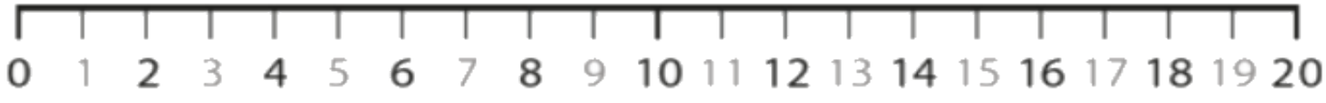
Aim - efficient methods

Multiplication and Division

Skip Counting

Different representations are used to deepen understanding.



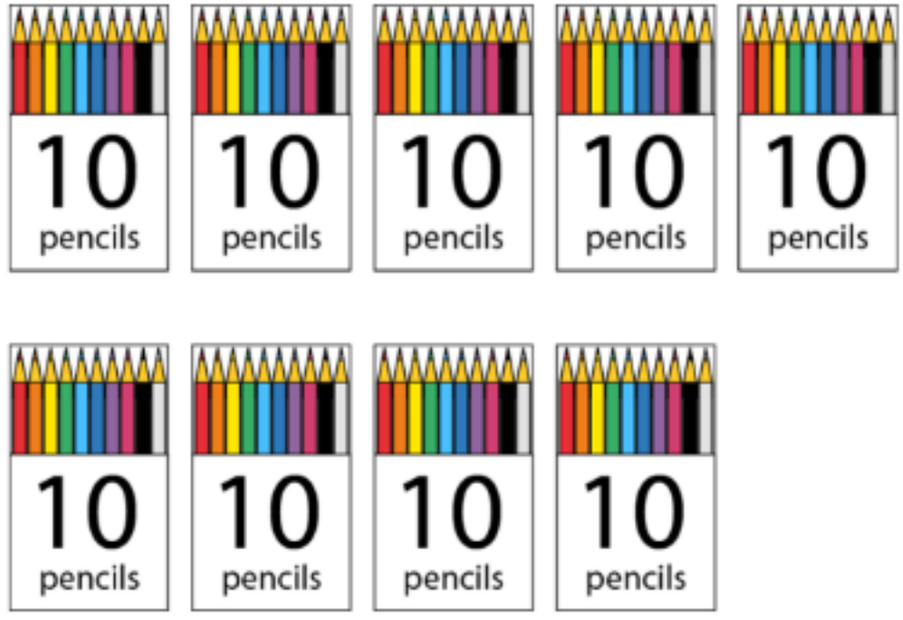


Gattegno chart:

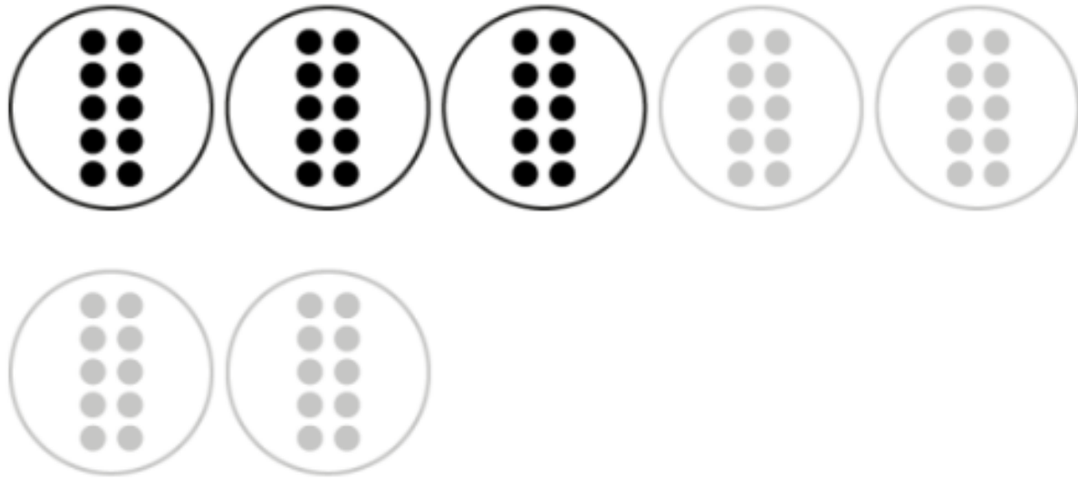
1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

Skip counting is linked to real life contexts (problem solving)

'How many pencils are there? Count in groups of ten.'



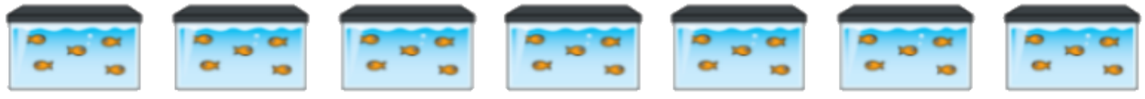
Children count in different ways. This develops understanding and has clear links to future division and multiplication learning.



- *'Three groups of ten, four groups of ten, five groups of ten...'*
- *'Three tens, four tens, five tens...'*
- *'Thirty, forty, fifty…'*

Linking skip counting to repeated addition and then ultimately multiplication

How many fish are there?



There are ___ fish in each tank.

There are ___ tanks.

There are ___ fish altogether.

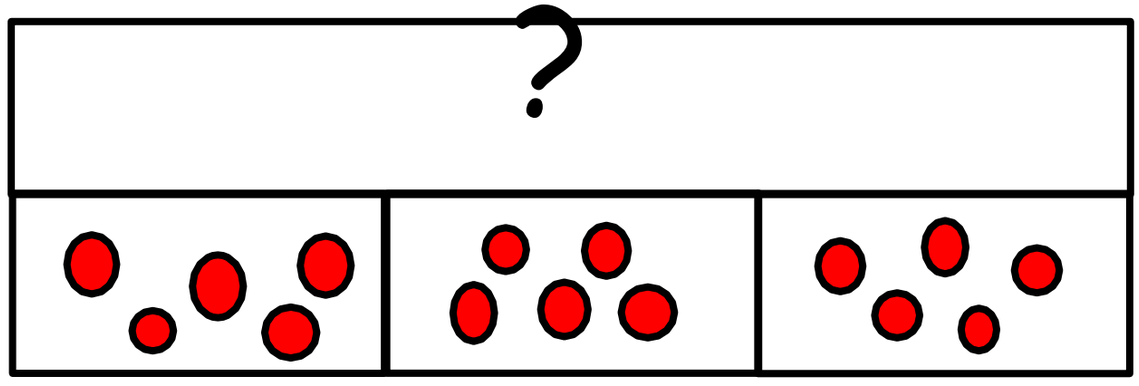
- 5, 10, 15, 20, 25, 30, 35.
- 5+5+5+5+5+5+5= 30
- 7 fives are 35
- There are 35 fish altogether.

Not in all one lesson!

Year 2 : 7 x 5 = 35

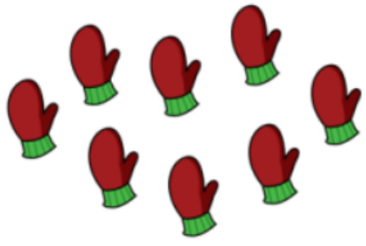
Bar model (year 2)

3 x 5 = __



Division (grouping)

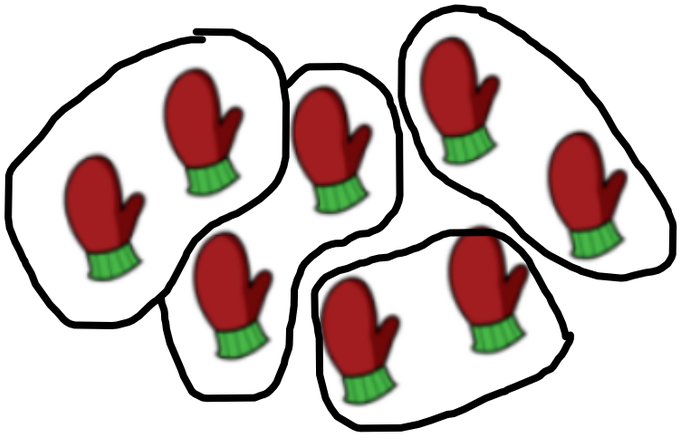
How many equal groups of 2 can you make with the mittens?



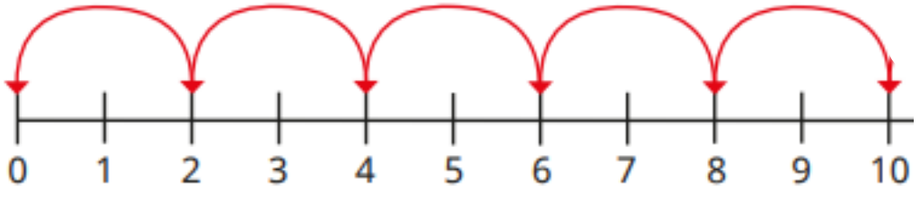
There are ____ groups of 2 mittens.

If you had 10 mittens, how many equal groups of 2 mittens could you make?

Year 1



Year 2



$10 \div 2 = 5$

Division - sharing

Share 12 cubes equally between 4 boxes.

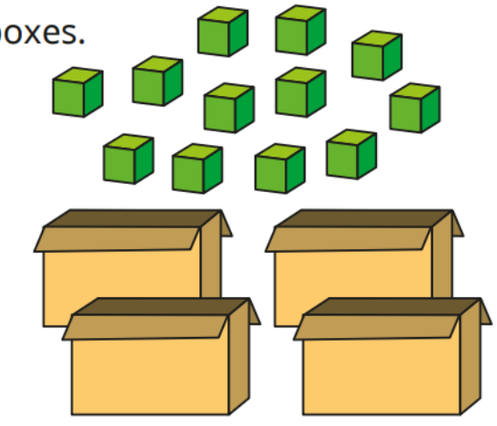
Complete the sentences.

There are _____ cubes altogether.

There are _____ boxes.

There are _____ cubes in each box.

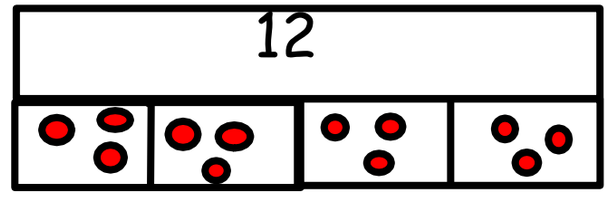
12 ÷ _____ = _____



Year 1
practical/problems

Year 2
introduce

÷

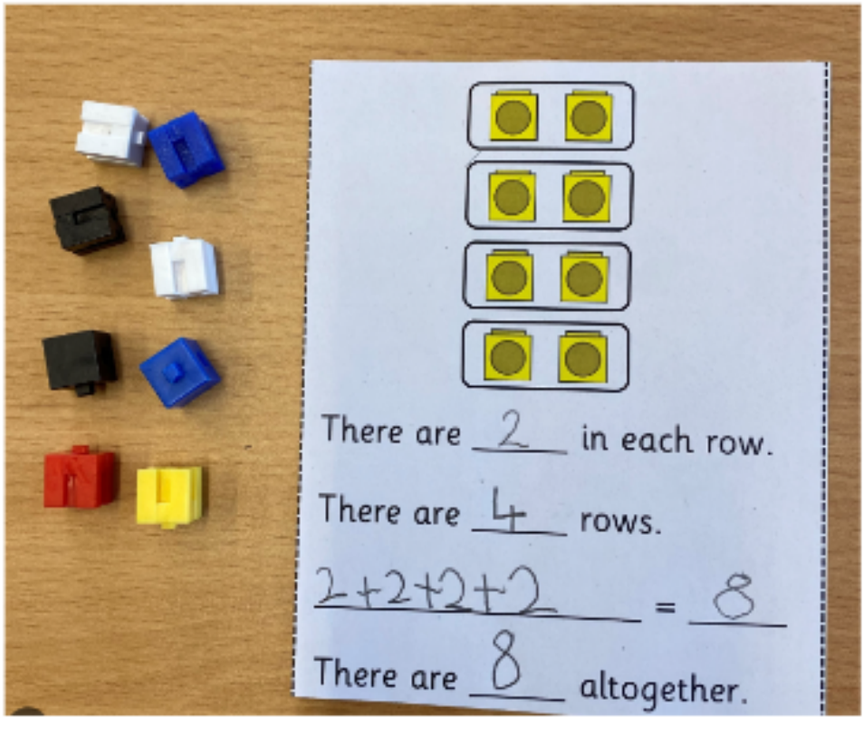


bar model

Arrays

Children notice patterns, recognise equal groups and develop their ability to count in steps of 2 5 and 10.

Year 1



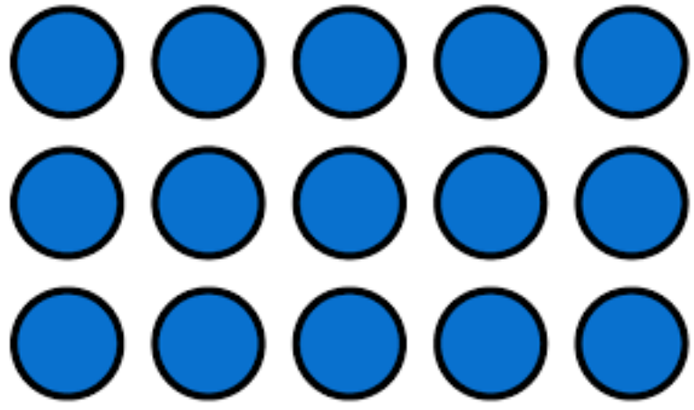
Year 2

x sign introduced.
2 facts e.g.
2x4 = 4x2

Arrays - linking division and multiplication

$3 \times 5 = 15$

$5 \times 3 = 15$



$15 \div 3 = 5$

$15 \div 5 = 3$

Practical things to do at home:

Involve the children e.g.

How many packets will we need?

How many have we in total?

How many can each person get?

Will we have enough if we buy 3 packets?

Please take a few minutes to complete the questionnaire.