Maths in Key Stage 1

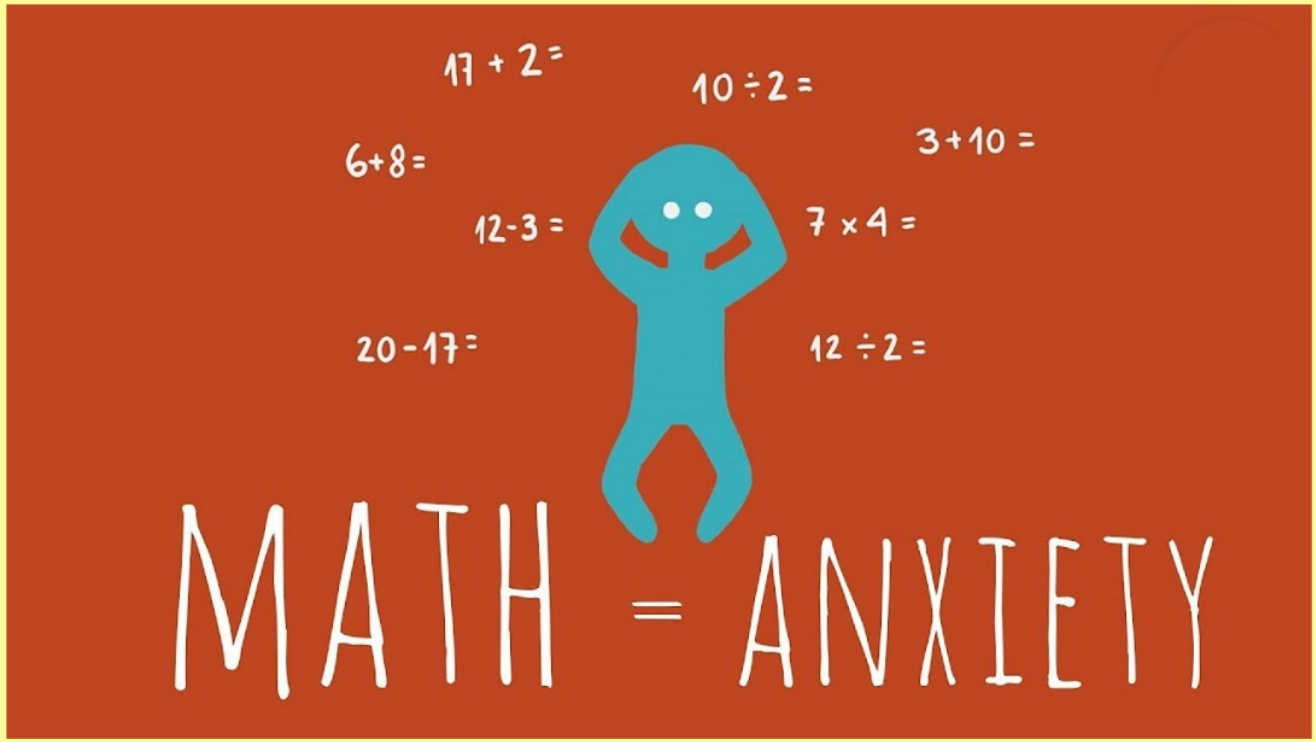
What do we teach?

How do we teach it?

How can you help?

Aim: To fully inform you of the calculations methods we use at school so that you can support your child more confidently at home.

Previous Experiences



Maths confidence means your child has ...
RESILIENCE
EMBRACES MISTAKES
MOTIVATION
PERSEVERANCE

The Maths Curriculum

fluency
reasoning
problem solving

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

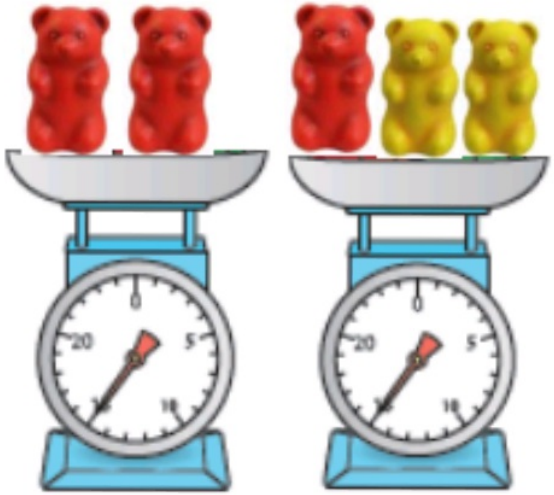
Use the number cards below to make as many additions and subtractions as you can? How many can you make?

- **True or False?**
  The arrow on the line below is pointing to 70.

Convince me

fluency
reasoning
problem solving

- How much do the 2 red bears weigh?



Which is heavier the red or the yellow bear? Explain your reasoning.

Year 1 Maths Curriculum

BROADWATER PRIMARY SCHOOL

Number and place value

- Count, read and write numbers to 100; count in multiples of 2s, 5s & 10s.
- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.
- Given a number, identify 1 more or 1 less.
- Represent numbers using pictorial representations including a number line; use language: "equal to, more than, less than, most, least"
- Read and write numbers from 1-20 in numerals and words

Addition and Subtraction

- Read, write and interpret mathematical statements involving addition, subtraction and equals signs.
- Represent and use number bonds and related subtraction facts within 20.
- Add and subtract 1-digit and 2-digit numbers to 20, including zero.
- Solve 1-step problems that involve addition and subtraction (using concrete objects and pictorial representations) and missing number problems

Multiplication and Division

- Solve 1-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Fractions

- 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.

Geometry

- Recognise and name common 2D and 3D shapes
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Measurement

- Compare, describe and solve practical problems for lengths and heights, mass/weight, capacity/volume and time.
- Measure and begin to record lengths and heights, mass/weight, capacity/volume and time.
- Recognise and know the value of different coins and notes
- Sequence events in chronological order, using appropriate language
- Recognise and use language relating to dates, including days of the week, weeks, months and years.
- Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Year 2 Maths Curriculum

BROADWATER PRIMARY SCHOOL

Number and place value

- Count, in steps of 2, 3 and 5 from 0, and in tens from any number
- Recognise the place value of each digit in a 2-digit number
- Identify, represent and estimate numbers using different representations, including the number line
- Compare and order numbers from 1-100
- 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

- Add and subtract numbers using concrete objects, pictorial representations and mentally.
- Solve problems with addition and subtraction using concrete objects and pictorial representations.
- Solve problems with addition and subtraction applying their increasing knowledge of mental and written methods.
- Recall and use addition and subtraction facts to 20 fluently, are derive and use related facts up to 100.
- Show that the addition of 2 numbers can be done in any order and subtraction cannot.
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Multiplication and Division

- Recall and use multiplication and division facts for the 2, 5 and 10 tables.
- Calculate mathematical statements for multiplication and division within the tables and write them using multiplication, division and equals signs.
- Show that multiplication can be done in any order, and that division cannot.
- Solve problems involving multiplication and division using arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.

Fractions

- Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity.
- Write simple fractions for example 1/2 of 6=3 and recognise the equivalence of 2/4 and 1/2.

Geometry

- Identify and describe the properties of 2D and 3D shapes, including the number of sides; lines of symmetry; number of edges, vertices and faces.
- Identify 2D shapes on the surface of 3D shapes
- Compare and sort common 2D and 3D shapes and everyday objects
- Order and arrange combinations of mathematical objects in patterns and sequences
- Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)

Maths in Key Stage 1

What do we teach?

How do we teach it?

How can you help?

Calculation policy is on the school website.

Stages for each operation

Your child could be working at a different stage to others

Year 1

add

plus

Addition

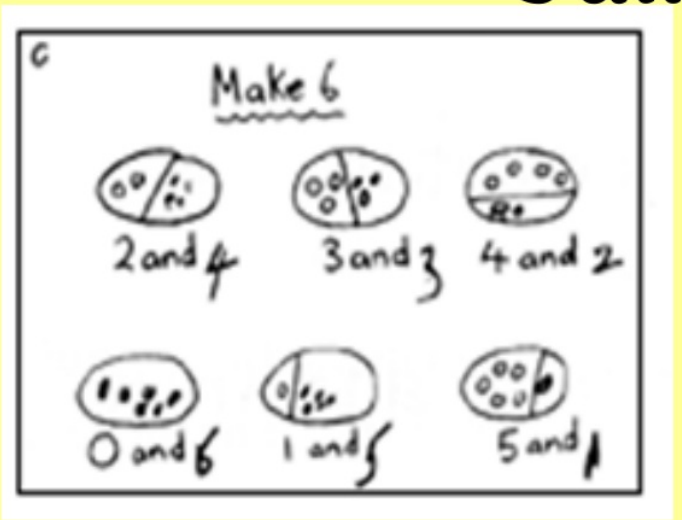
more than

altogether

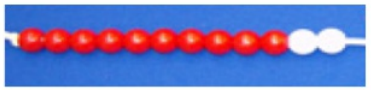
more

total

Stage 1: pictures and objects - builds on Early Years

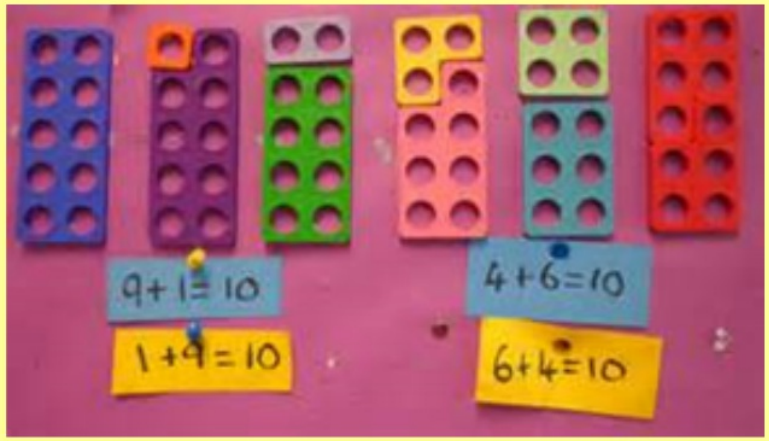


4 + 3 =



Bead strings

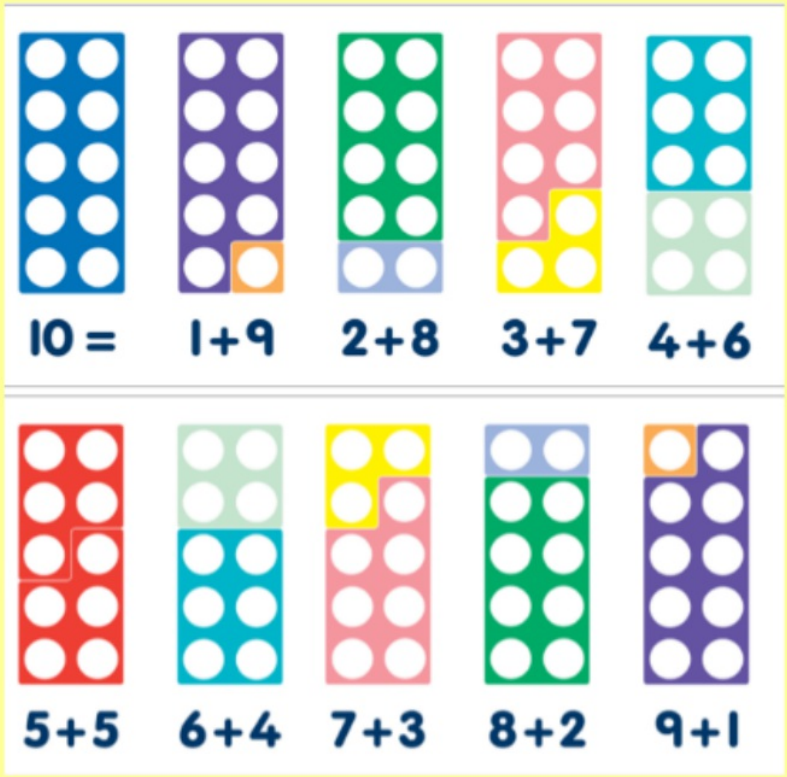
Working practically



Numicon to support

NUMBER BONDS

How many ways can you make e.g. 10?



Maths

Number bonds are a BIG part of YR1 maths.

10 - 4 = 6

10 - 6 = 4

4 + 6 = 10

□ +6= 10

If I know... 6 + 4 = 10

14 + 6 = 20

20 - 16 =4

16 + 4 = 20

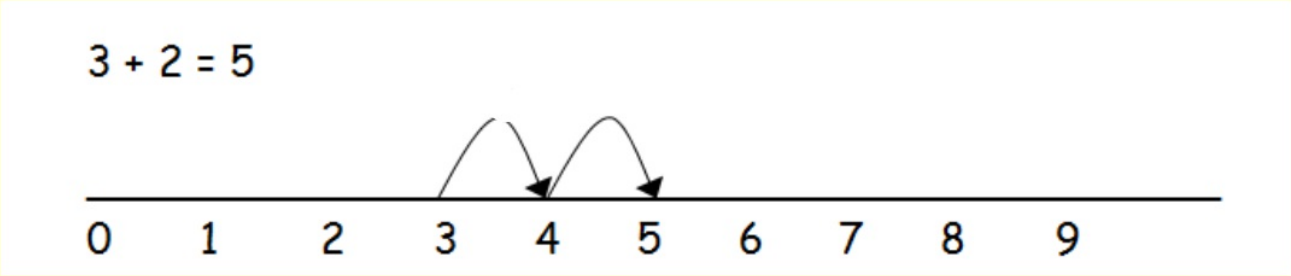
40 + 60 = 100

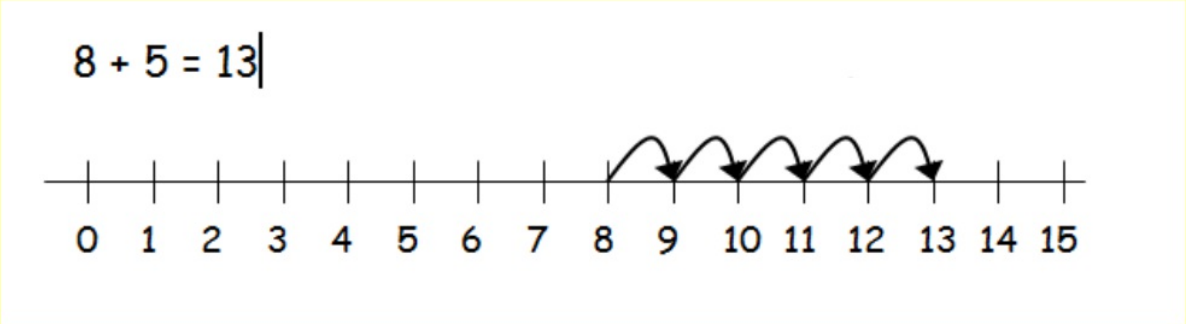
16 + □ = 20

20 -14 = 6

SL

Stage 2: the numberline



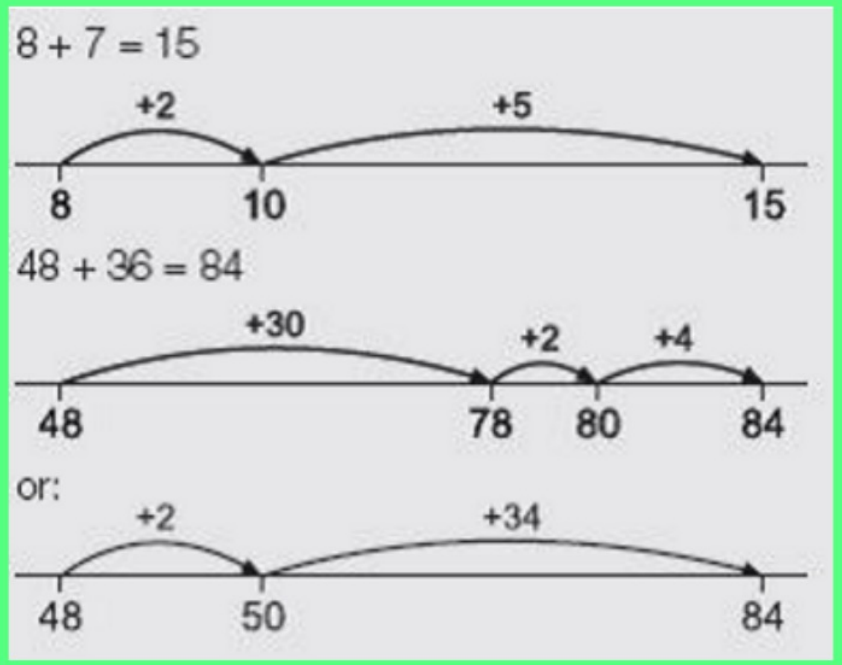


Year 2

Remember - Your child could be working at a different stage to others

more than
add
plus
sum
Addition
altogether
more
total

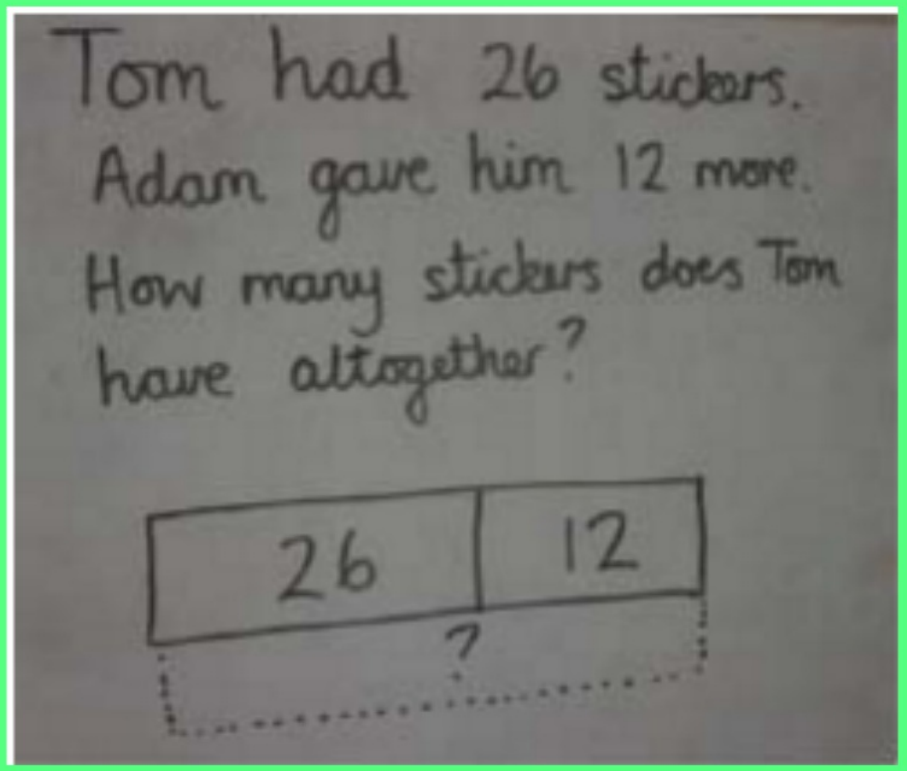
Stage 3: the empty numberline



Written, informal jottings must be taught **alongside** the use of resources to enable this strategy to develop

Steps in addition can be recorded on a number line. The steps often bridge through a multiple of 10.

Stage 4: Bar model representation



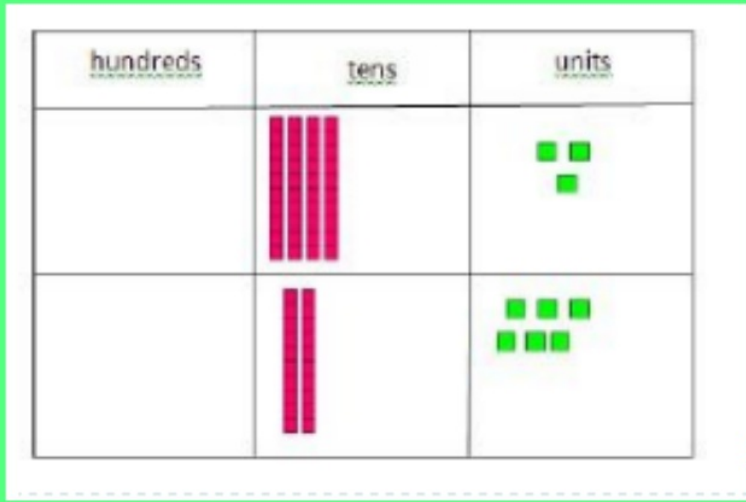
Stage 5: supported column method

This method will be taught as an introduction to a columnar method for recording addition. The use of resources (Dienes base 10 apparatus and place value mats) are crucial to support this method. A sound knowledge of place value is necessary at this stage. The development of this more formal columnar method begins by encouraging the representation of TU numbers in a variety of ways, e.g as pictoral representations.

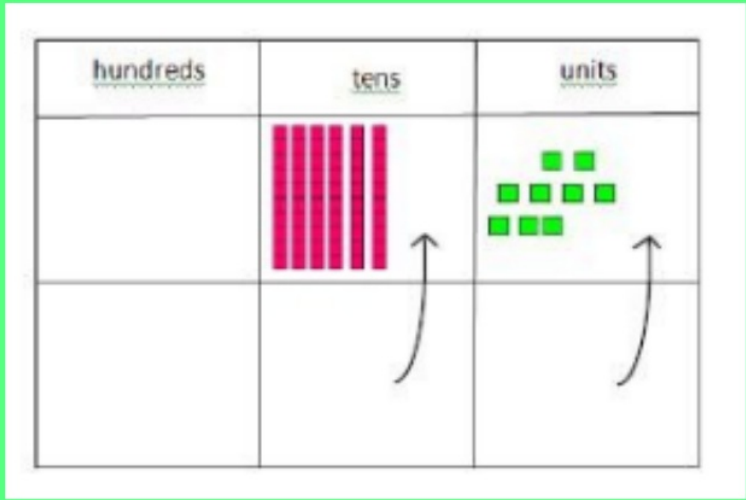
The formal recording with the columnar layout mirrors the practical use of the Dienes apparatus and is recorded alongside the practical procedure.

Vocabulary:

"start with the ones or units"



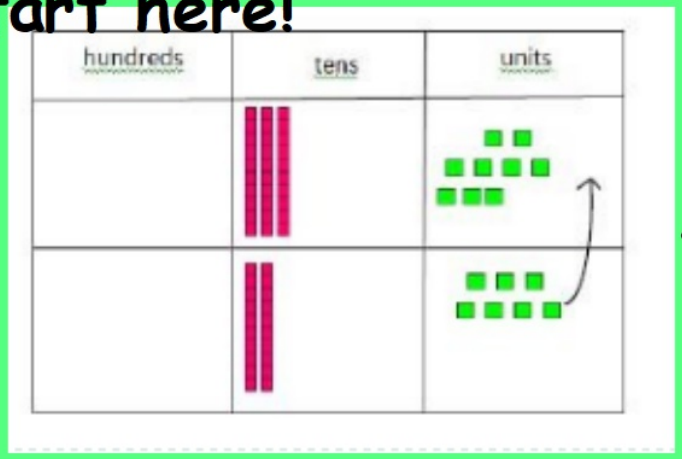
43+26

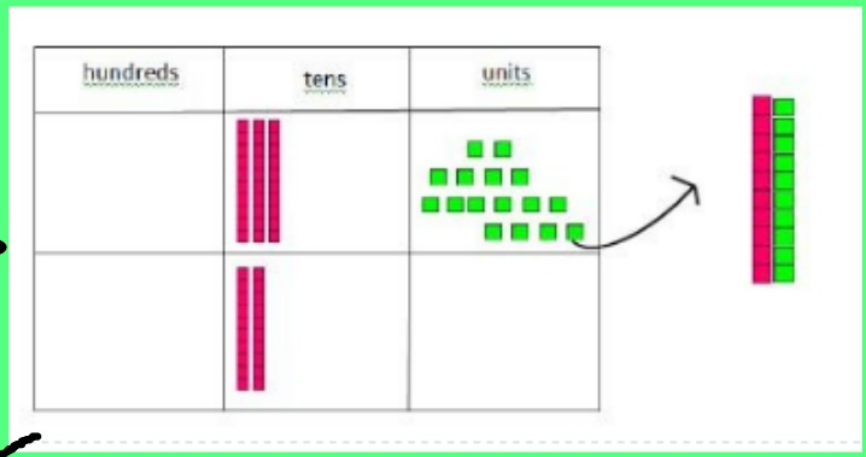


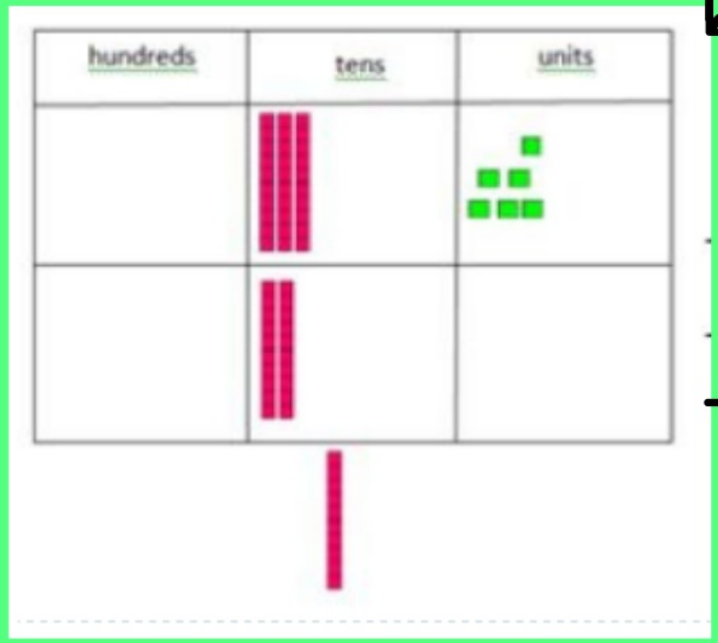
Regrouping

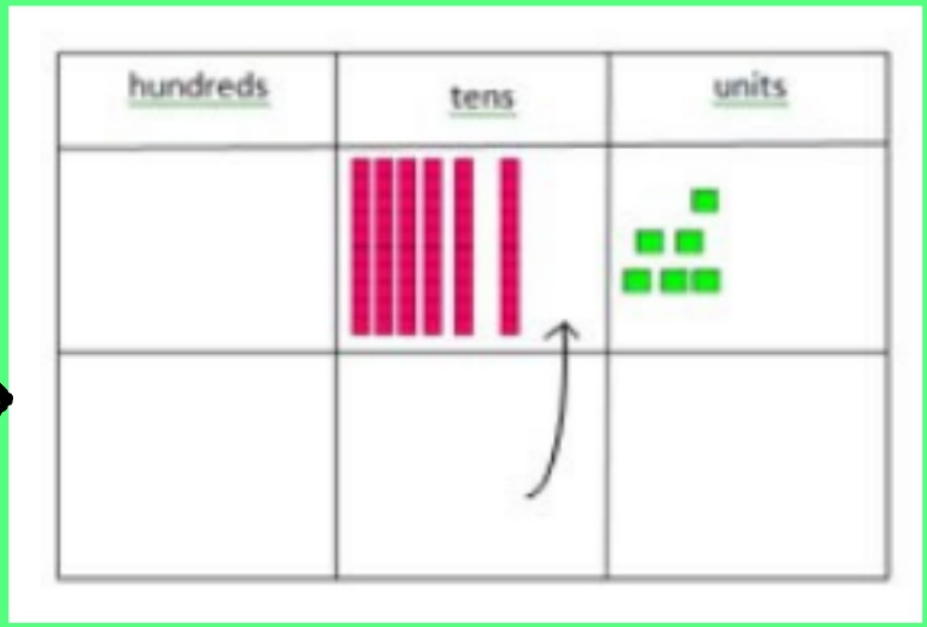
39+27

Start here!





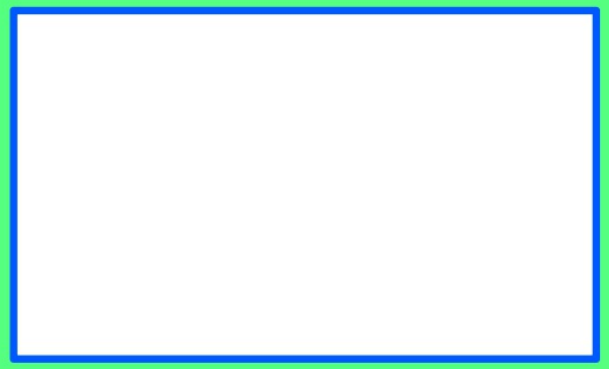




We also use jottings!

39+27

See demonstration on easel!



difference between

take away

less

Subtraction ...

subtract

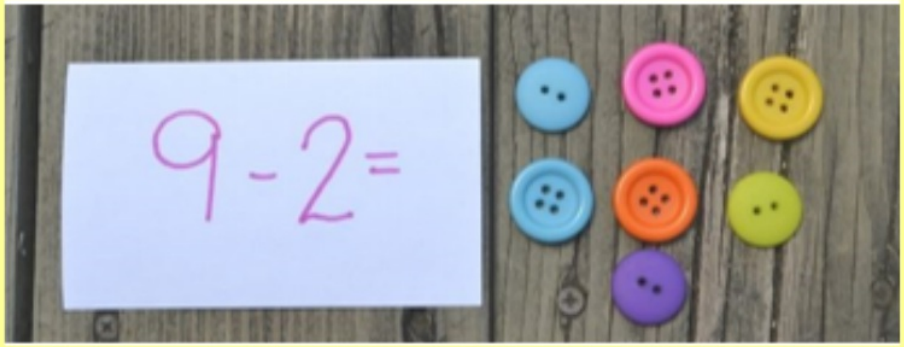
minus

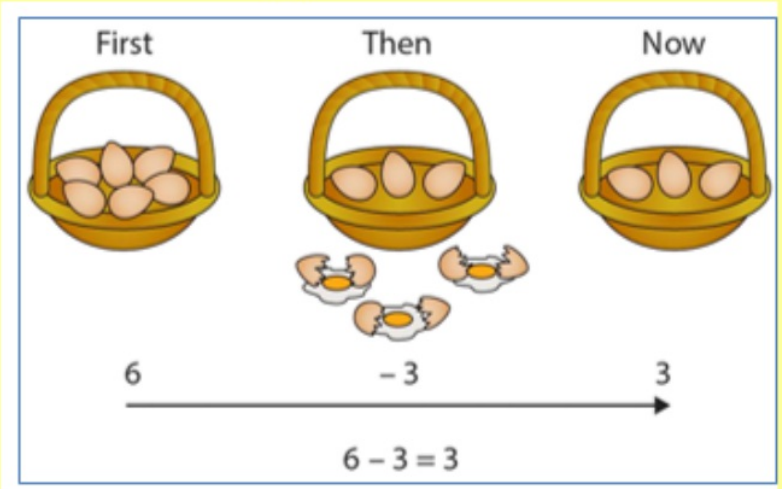
leftover

fewer

...the opposite of addition!

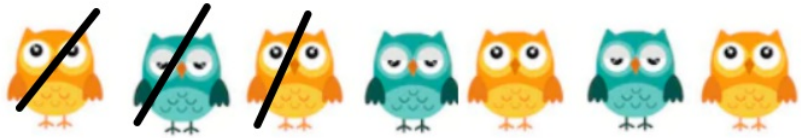
Stage 1: Pictures and objects





- Practical

Mr Wolf goes for a walk in the woods.
He sees some owls on a branch.
He makes up some subtraction numbers sentences.
How many could we make up?

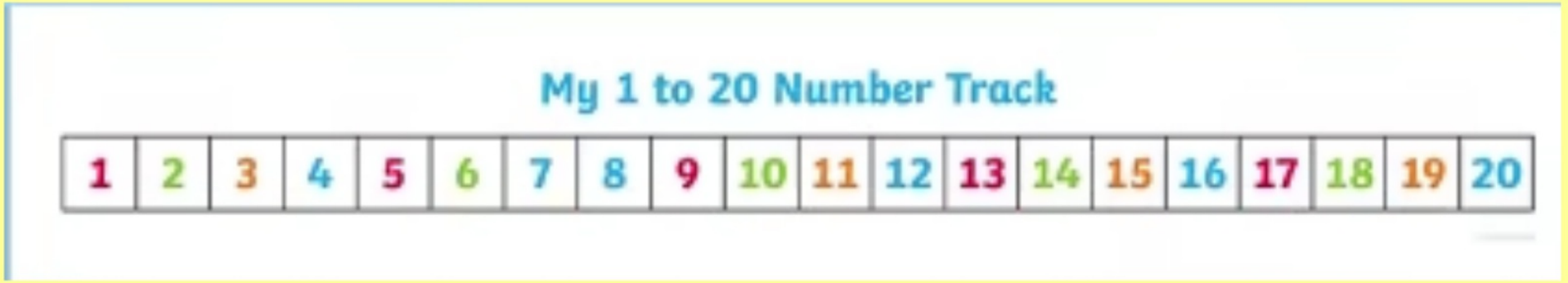


- Numicon

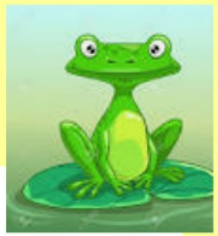
7-3 =

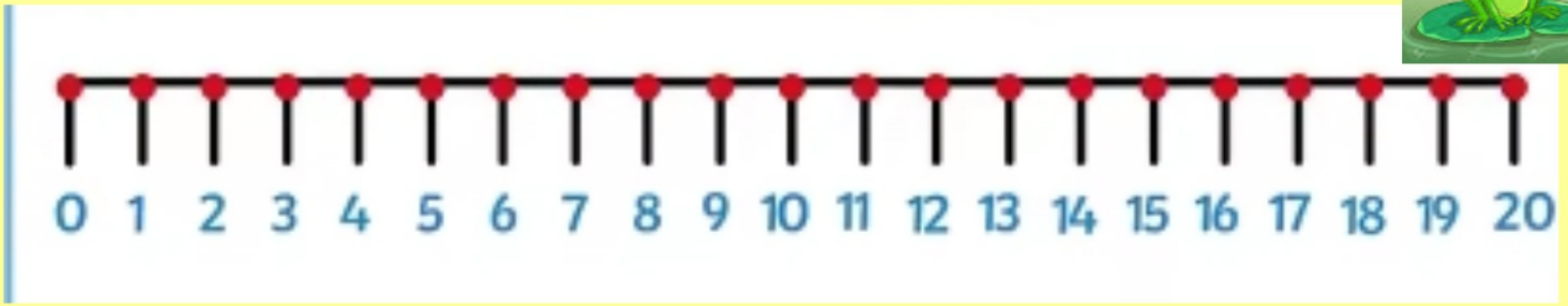
Stage 2: The numberline

Number Track



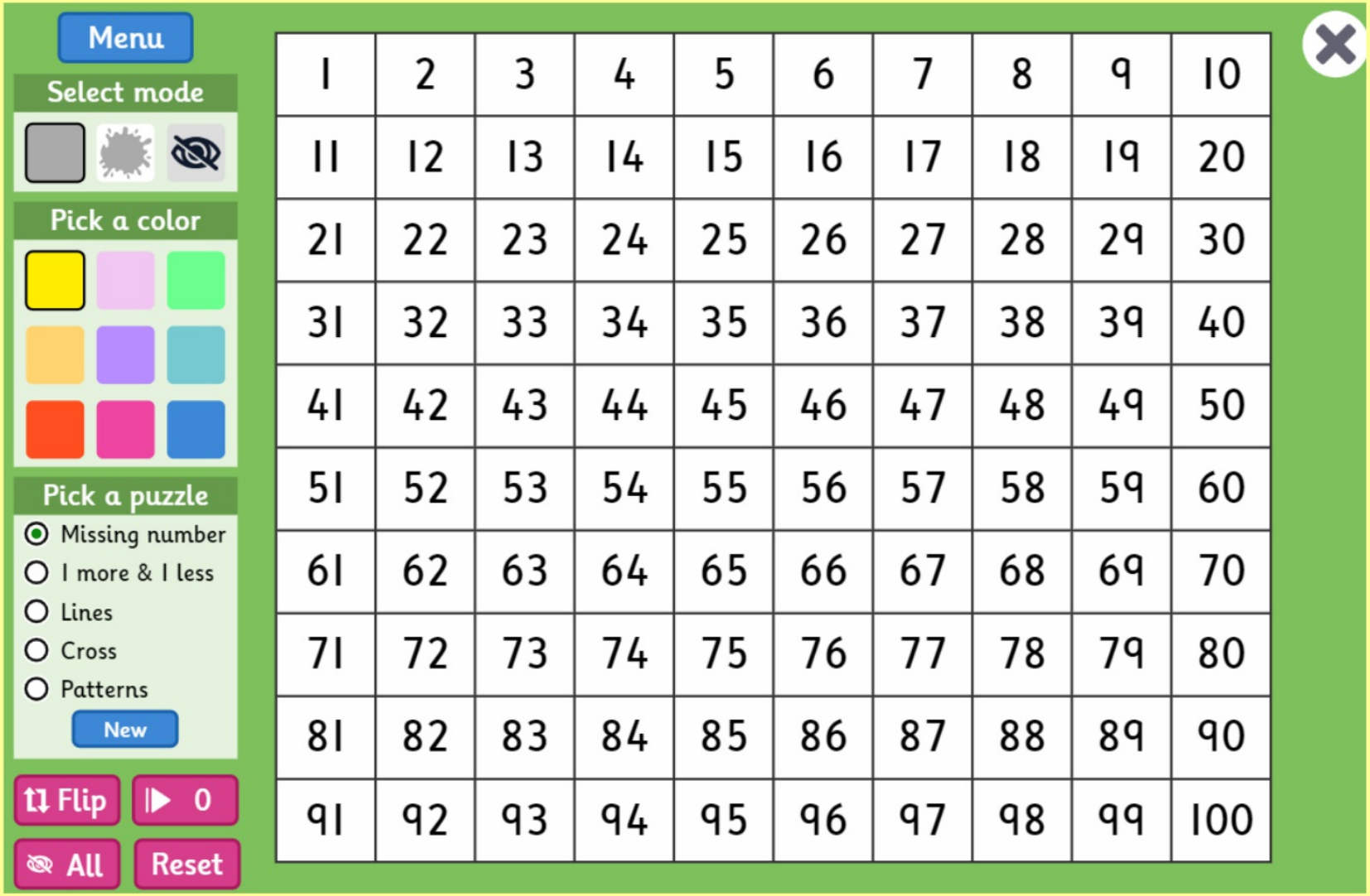
Number line





20 - 6 =

To subtract mentally, children MUST be confident to count back from any given number.



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

Year 2

take away

less

fewer than

Subtraction...

minus

subtract

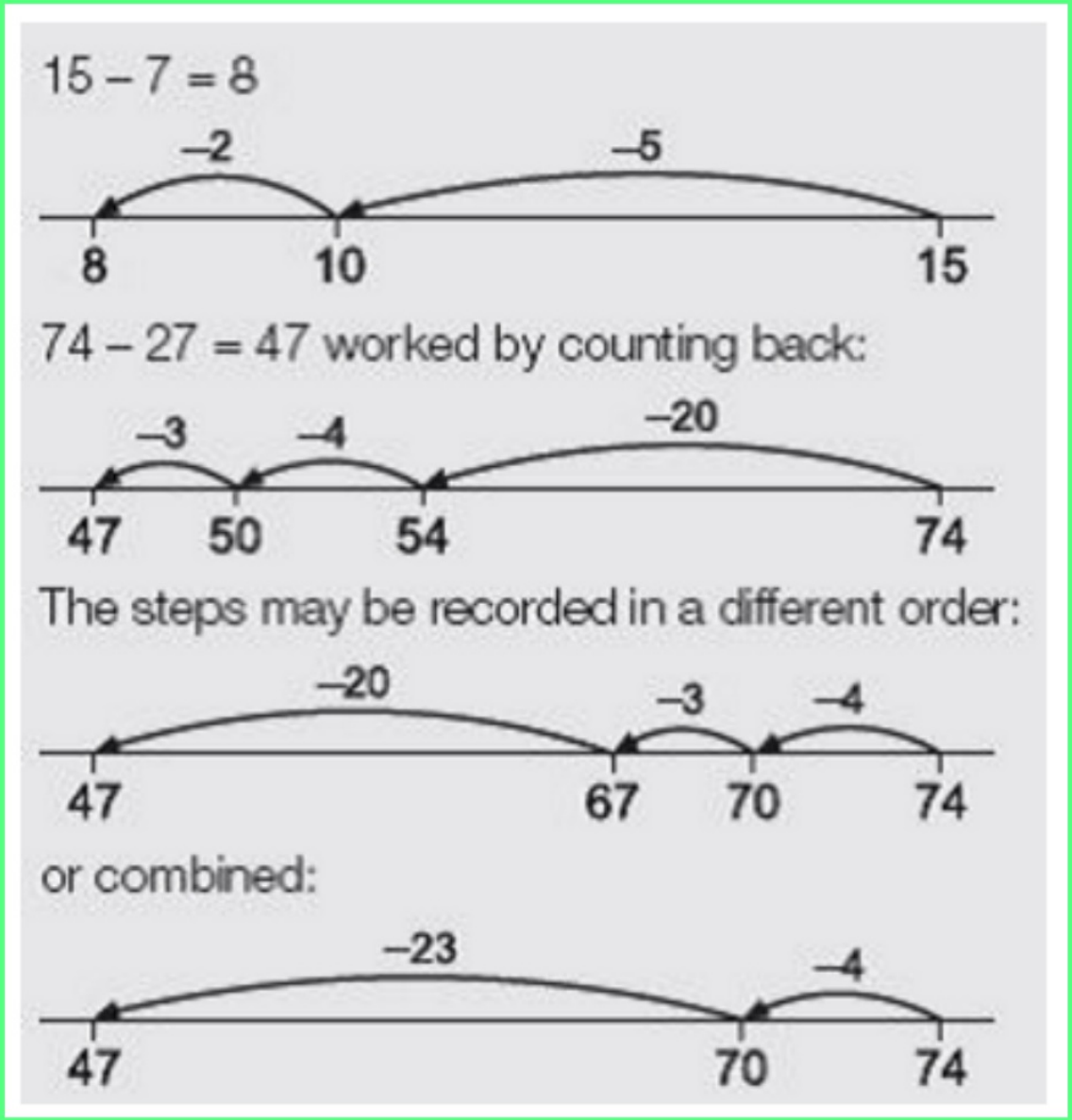
leftover

difference between

Stage 3: the empty numberline

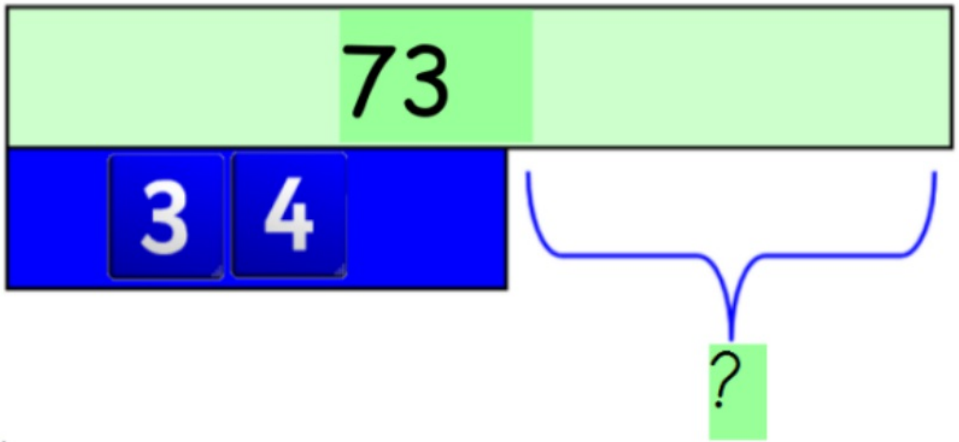
15-7=8

74-27 = 47



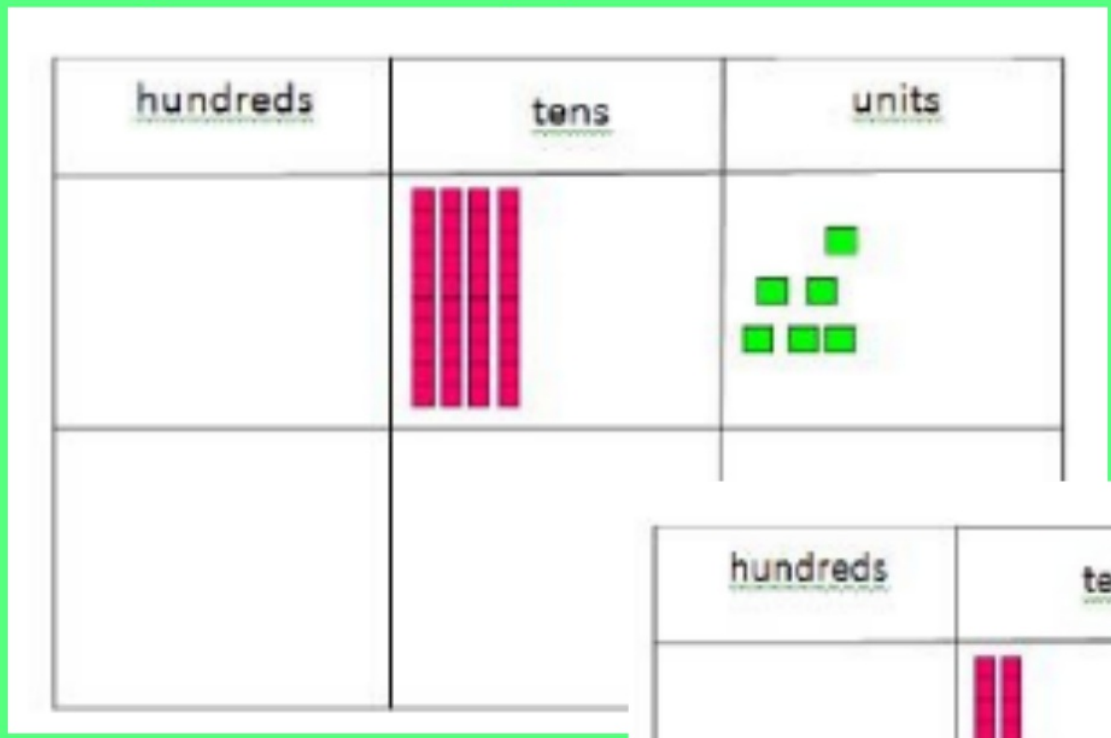
Stage 4: Bar model representation

Ben has 73 marbles, Tom has 34 marbles, how many more does Ben have than Tom?

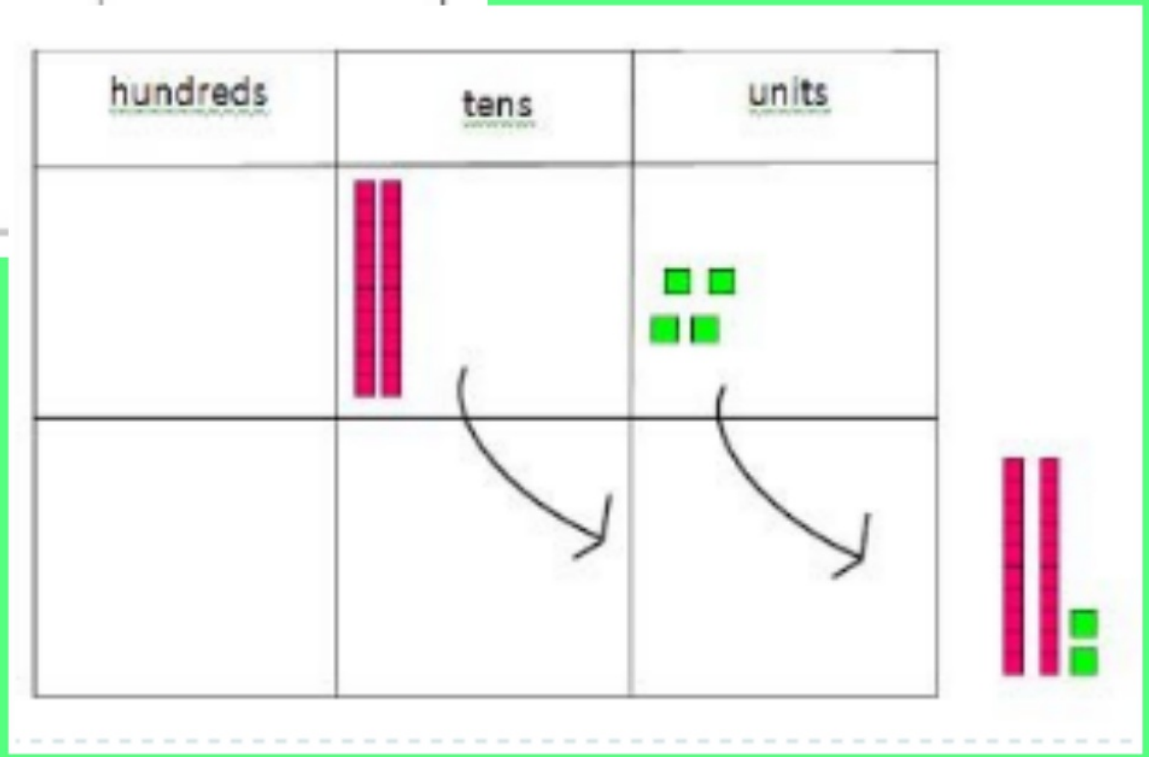


Freddy draws a comparison bar model to solve this word problem can you calculate the answer?

Stage 4: supported column method

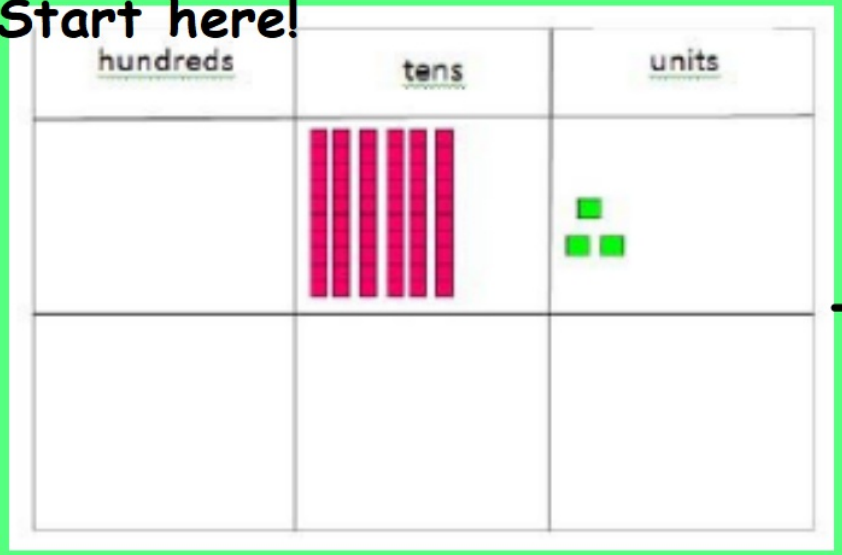


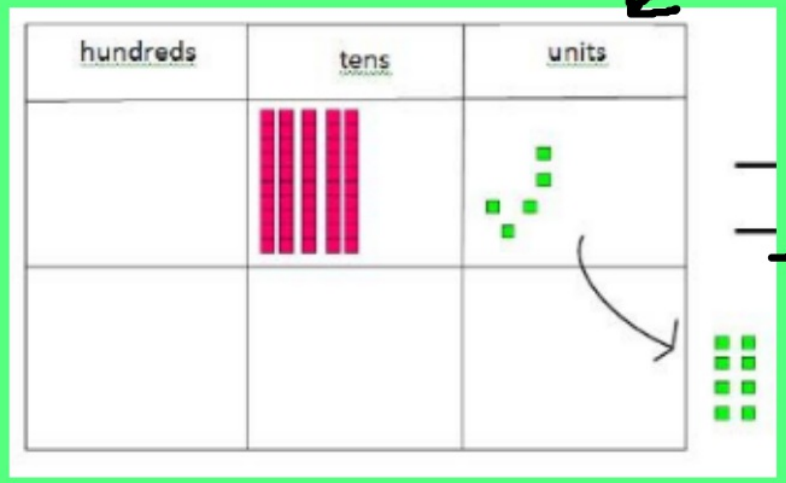
46 - 22

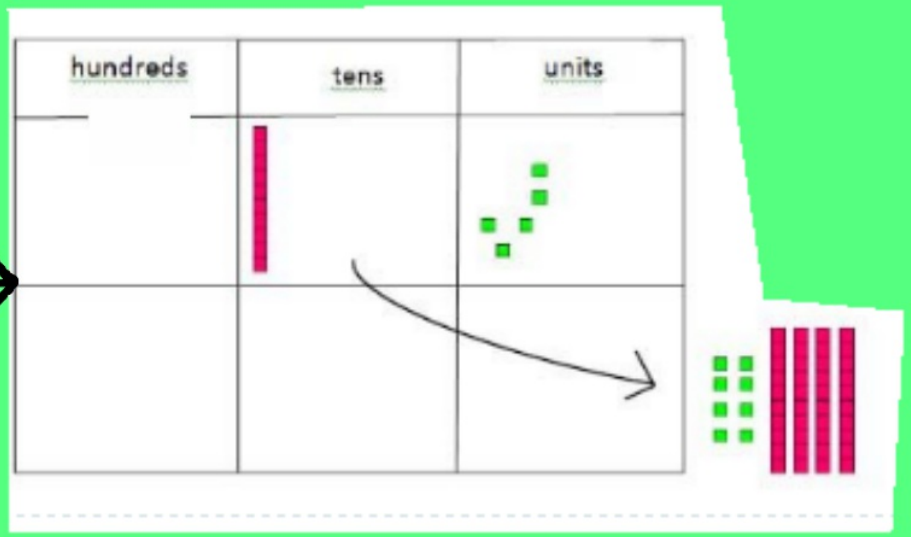


Regrouping 63-48

Start here!



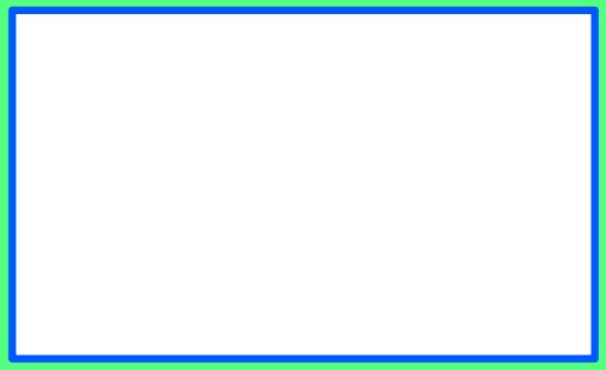


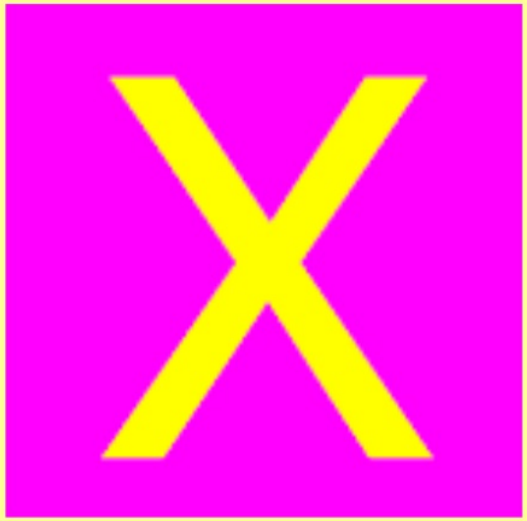


We also use jottings!

63-48

See demonstration on easel!





Multiplication

Year 1

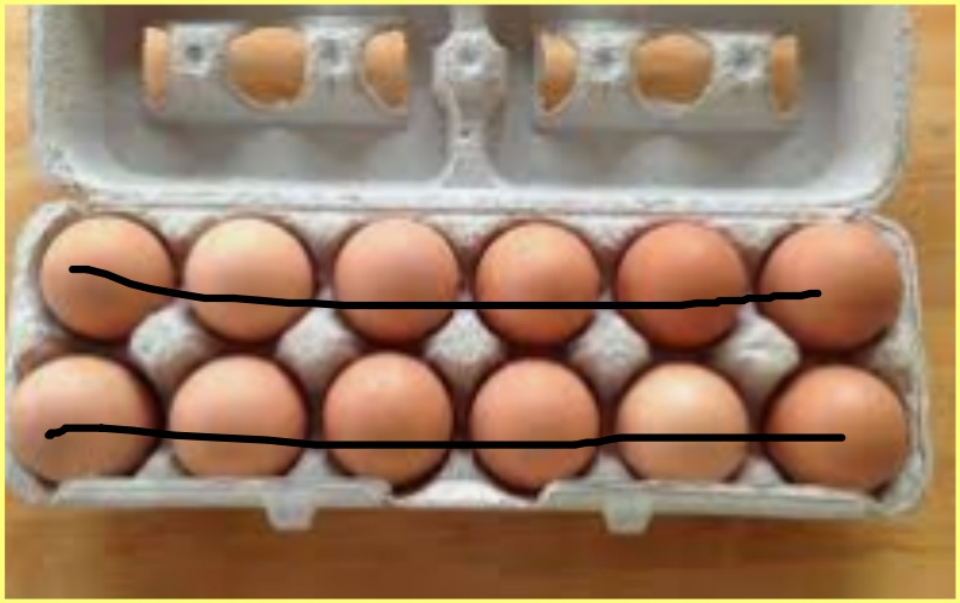
arrays
repeated addition

lots of

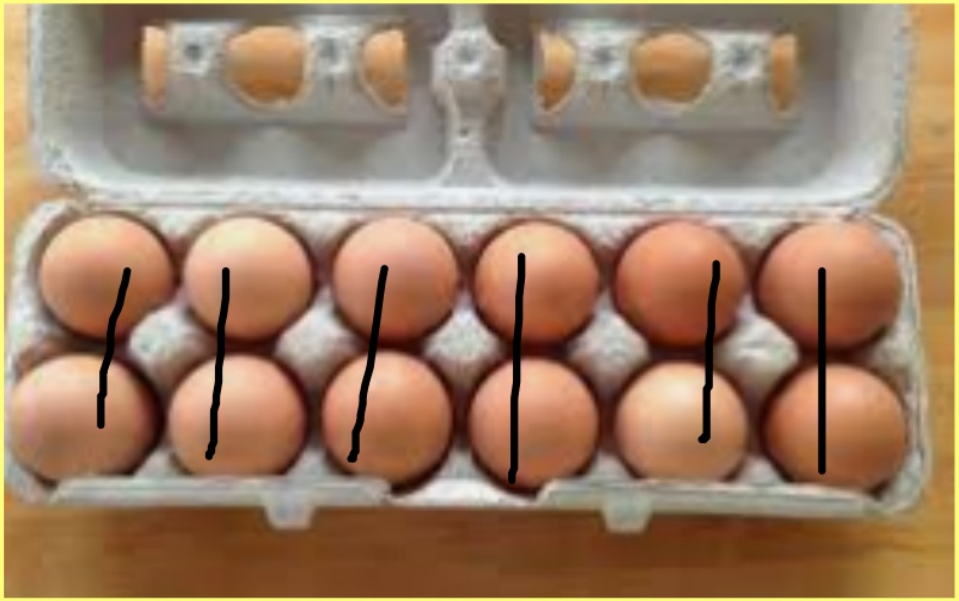
How many rows of 2?

How many times can you see 3?

Pictures and objects



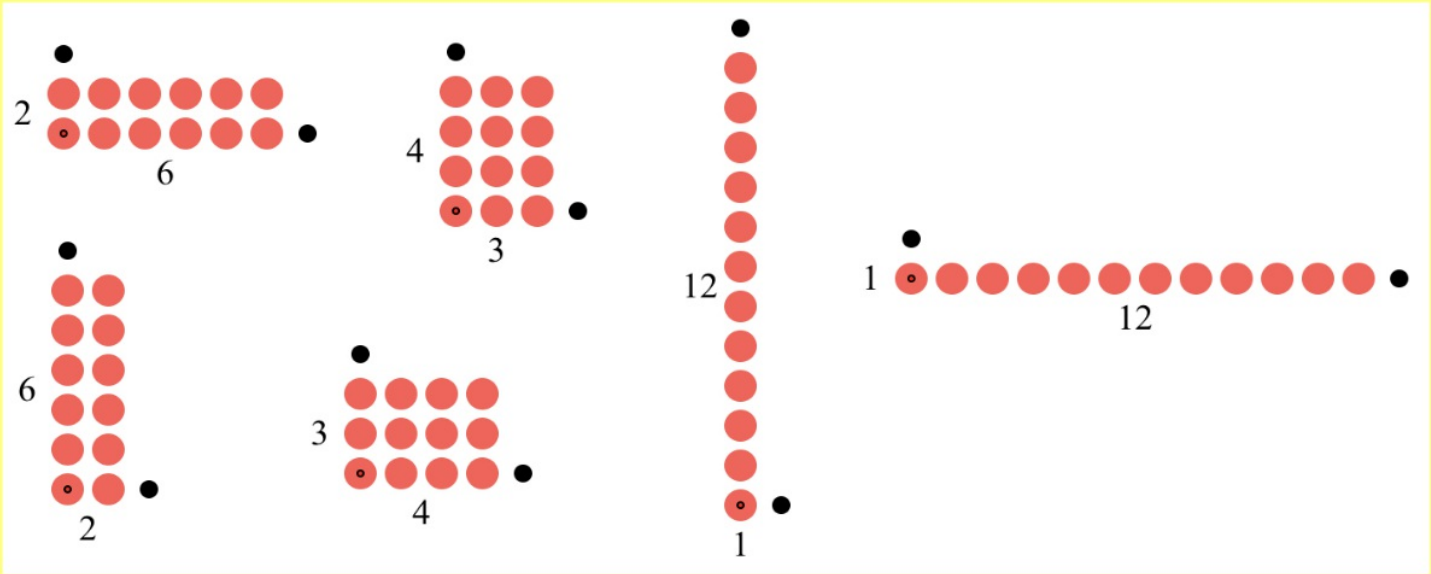
6 + 6



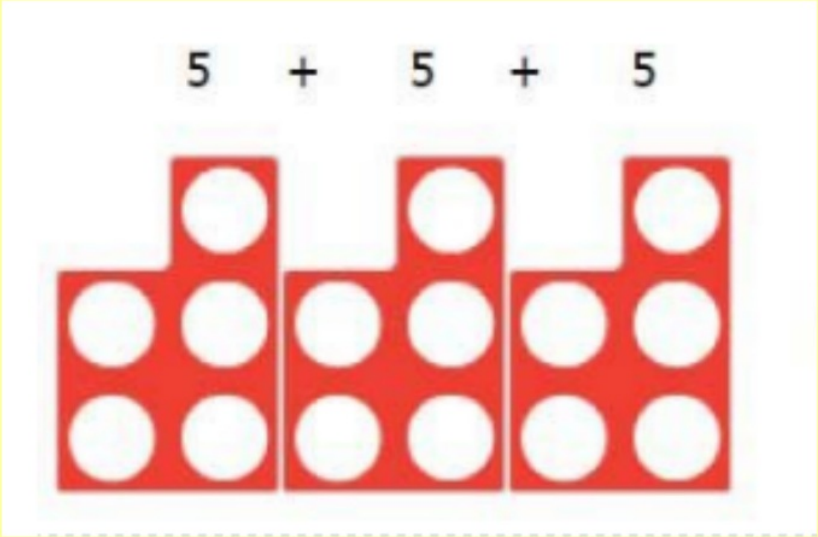
2 + 2+ 2 + 2+ 2+ 2

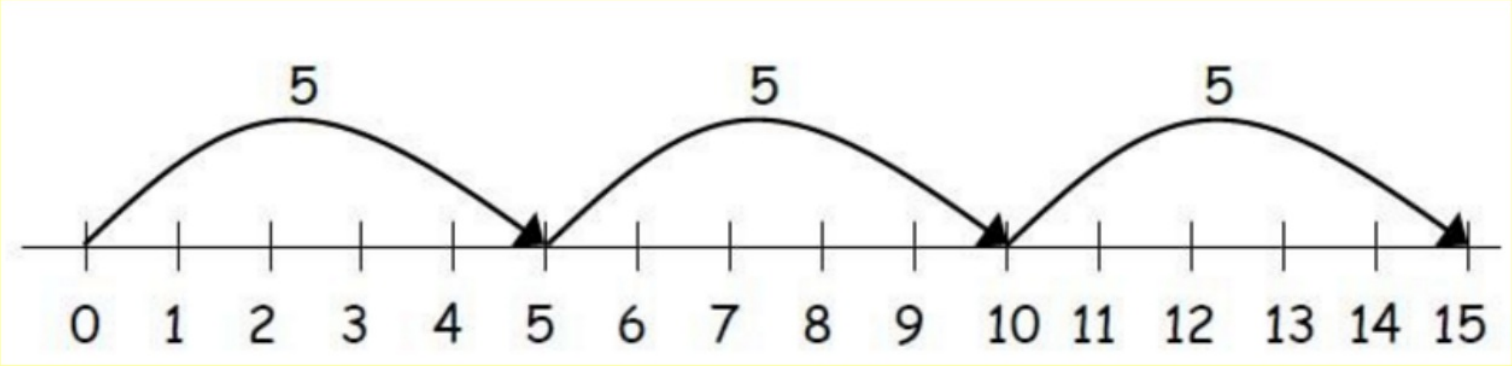
Pictures

How many lots of 3 are there?



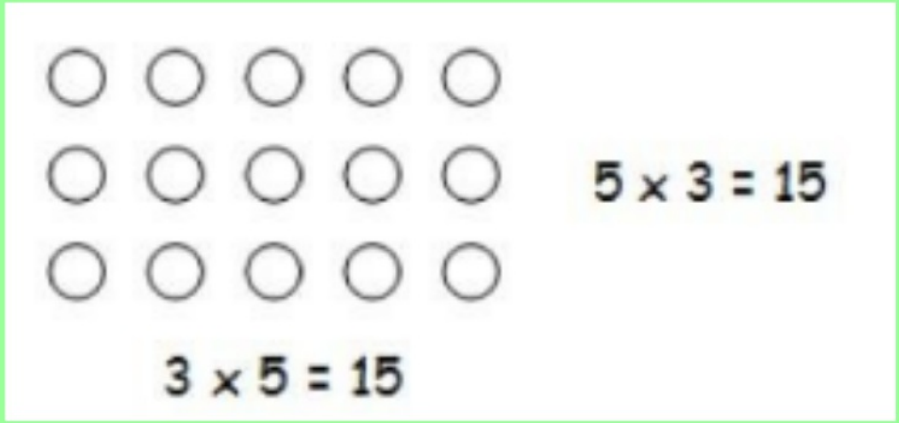
Stage 2: Repeated addition

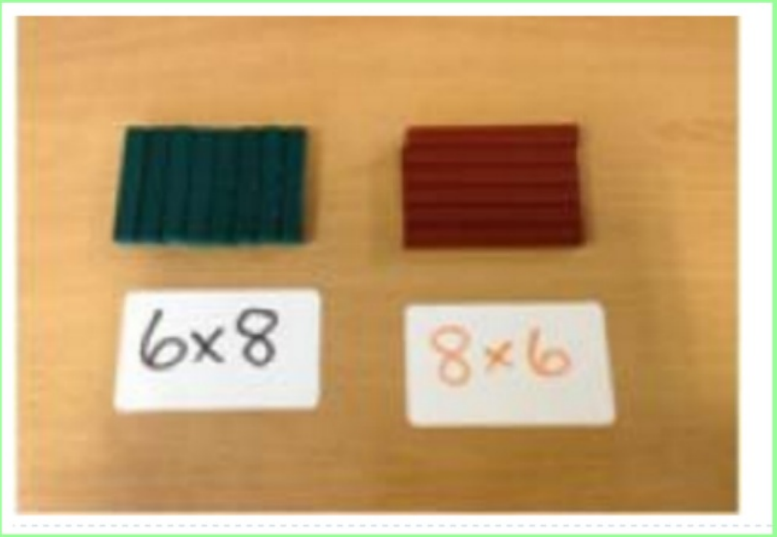




Year 2

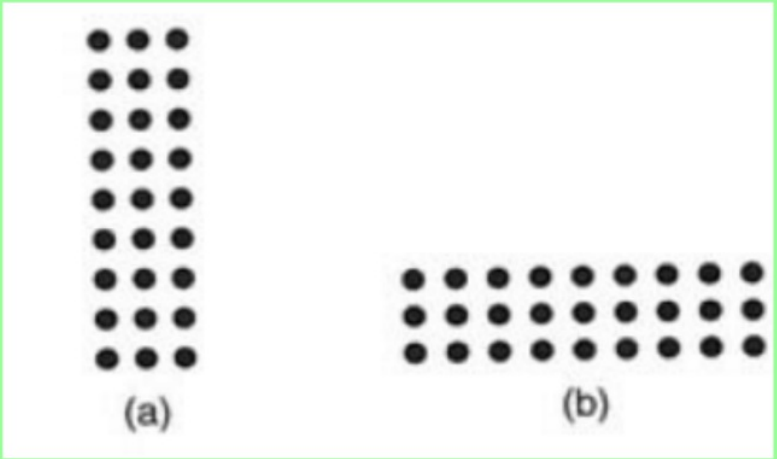
Stage 3: arrays





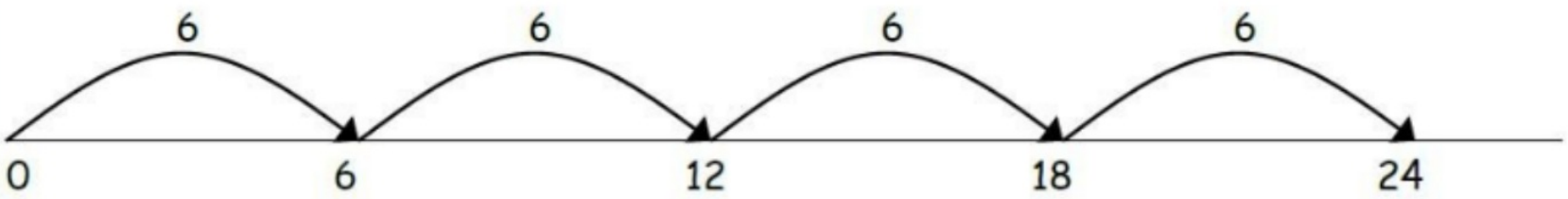
commutative law

"lots of "

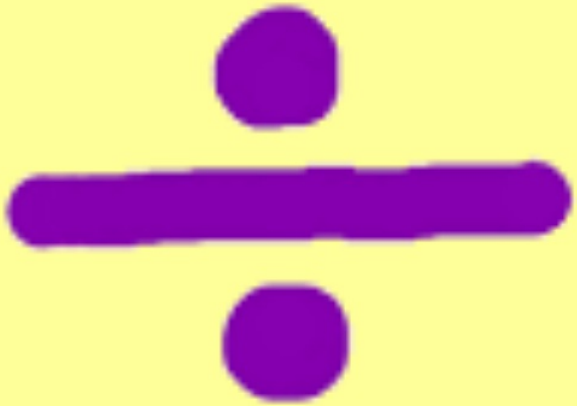


Stage 4: the empty numberline for repeated addition

4 times 6 is 6 + 6 + 6 + 6 = 24 or 4 lots of 6 or 6 x 4

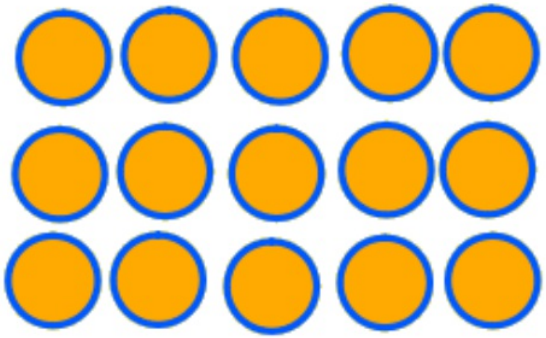


Division



Year 1

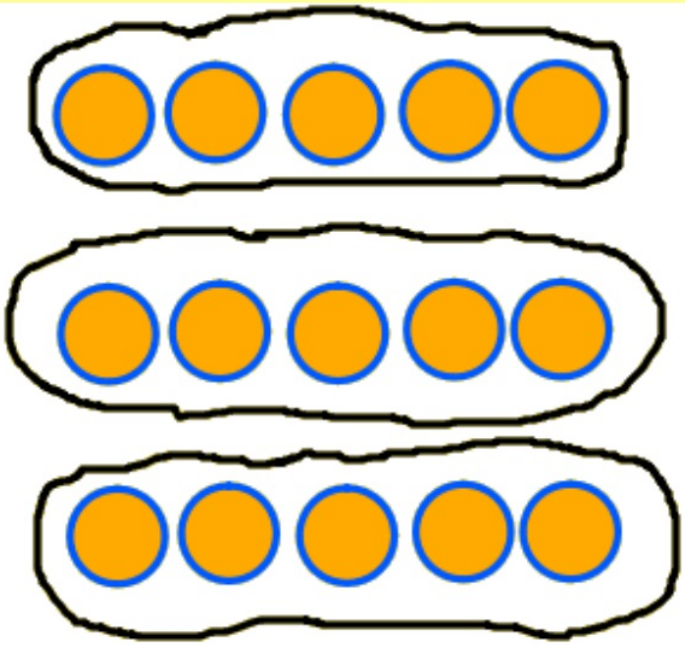
Links!



multiplication

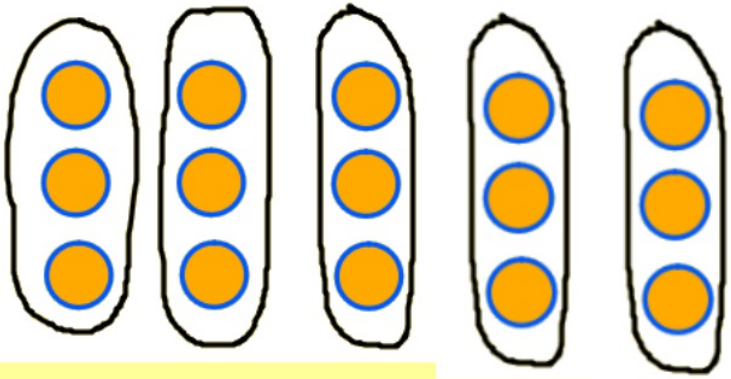
arrays

×



÷

divided into ... groups of ...



inverse

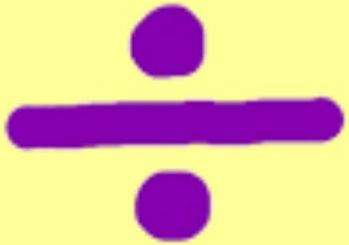
Rather than talking about sharing
we talk about grouping

group

shared equally between

divided by

sharing



division

How many each?

equal

groups of

divide into

sets of

lots of

Stage 1 objects

divided into groups of...

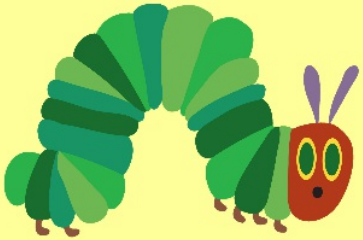
How could we divide the 12 bugs ?

How many groups could there be?

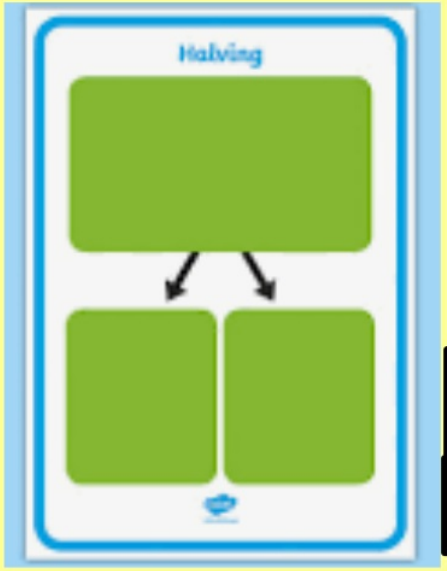
There are 12 bugs. How could they march past the queen without Joe being left out?

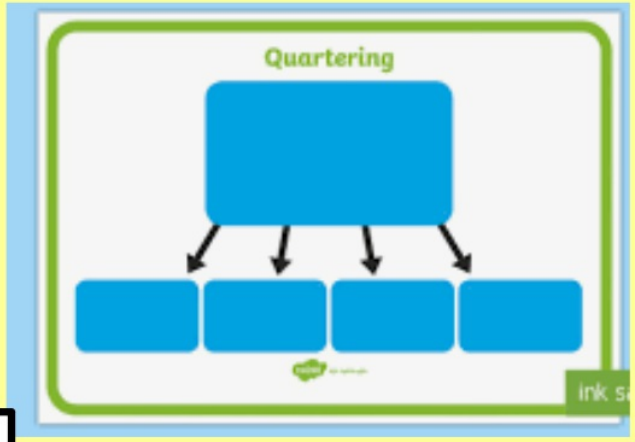
Stage 1 - Picture stage

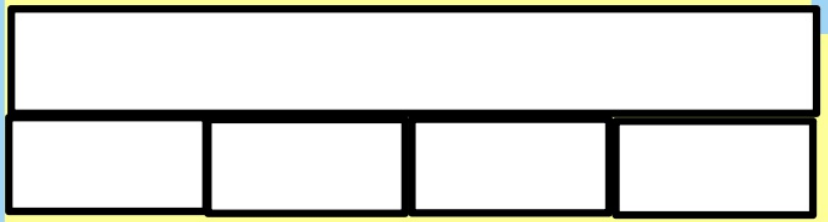
Drawings



If the hungry caterpillar had a picnic with 4 friends and they brought 12 sandwiches, how many sandwiches would they have each?







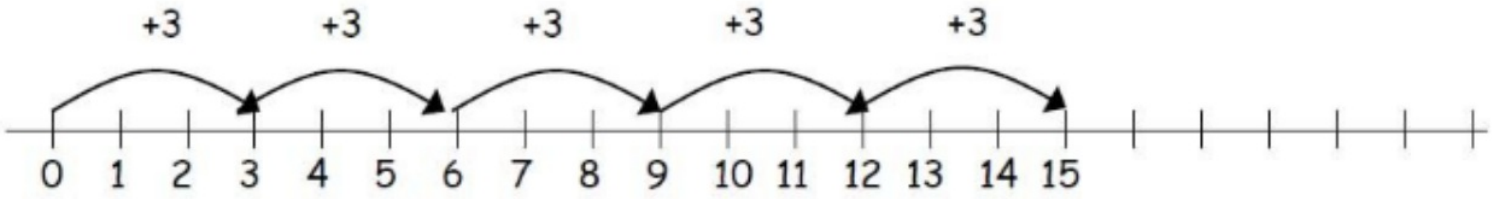
Year 2

Stage 2 - The Numberline

Grouping can be shown easily on a number line.

Group from zero in jumps of the divisor to find 'how many groups of 3 are there in 15?'

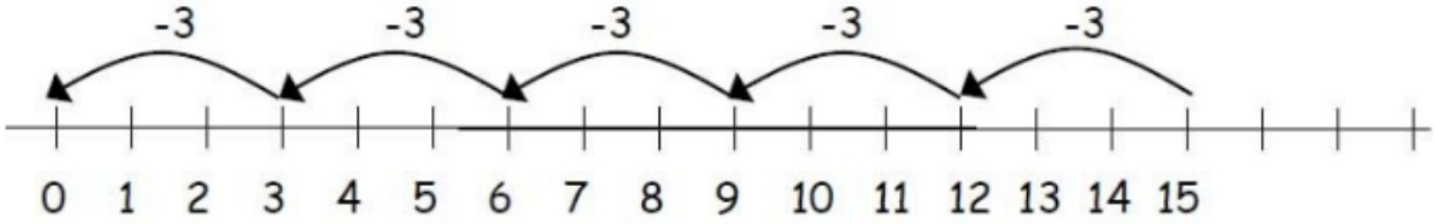
$15 \div 3 = 5$



How many 3's in 15?

How many jumps of 3 in 15?

or



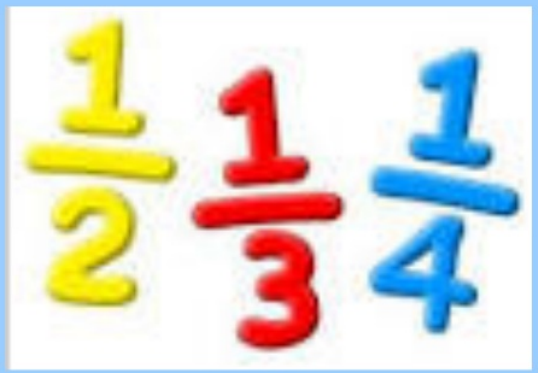
Jottings

$35 \div 5$

5 10 15 20 25 30 35

7 groups of 5

Fractions



half

halve

quarter

third

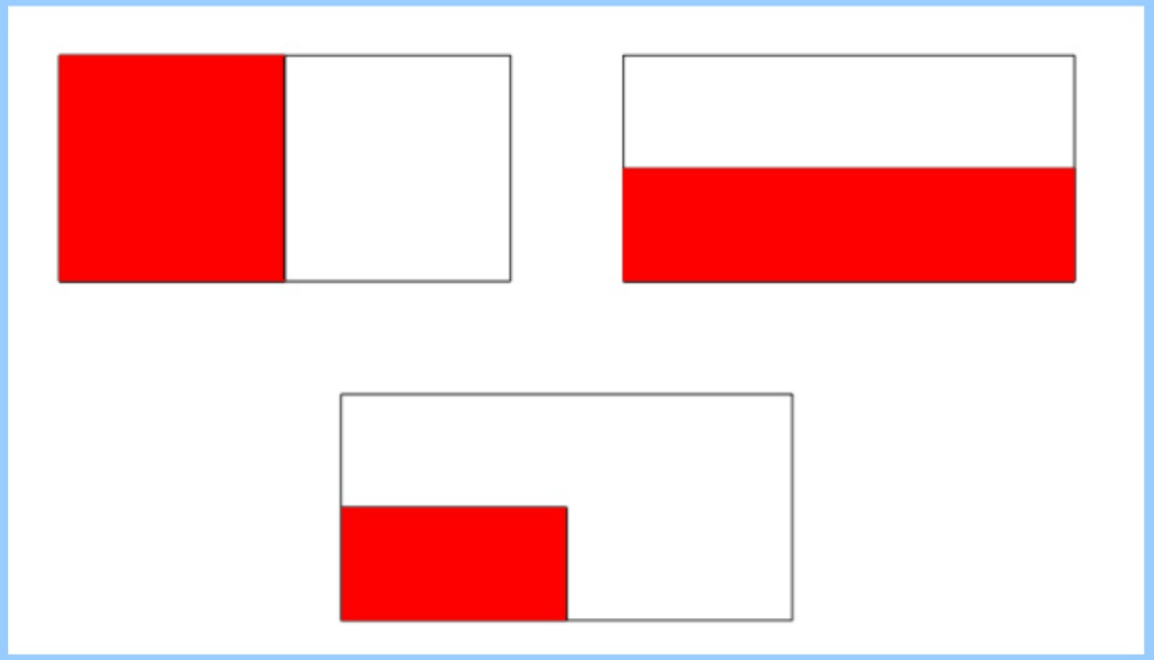
tricky language

Seeing lots of different types of fractions helps understanding.

How many quarters?

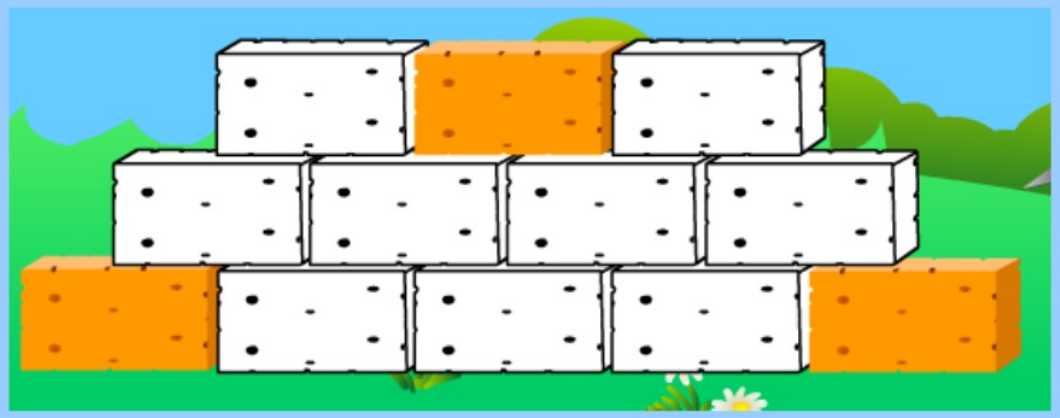
$\frac{1}{8}$

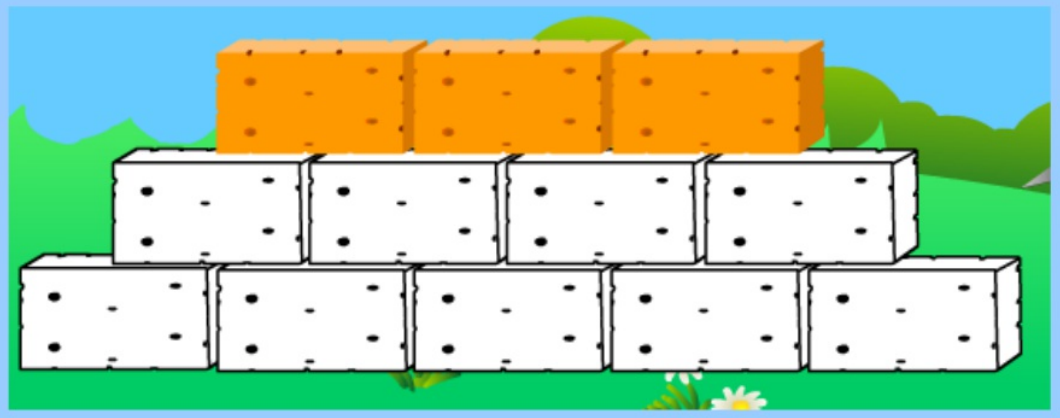
$\frac{1}{3}$



Seeing fractions as division

Which images show a half? How do you know?

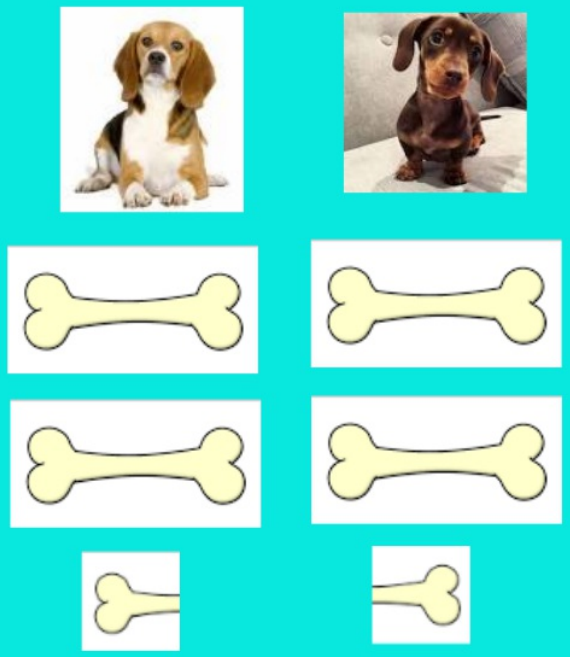




A quarter has been coloured.

True or false?

I have got 5 bones to share equally with my 2 dogs. How many bones will they get each?



Tom has 12 jelly babies. He eats $\frac{1}{4}$ How many did he eat?

What is $\frac{2}{4}$ of 16?

Other resources to support at home:

Numbots

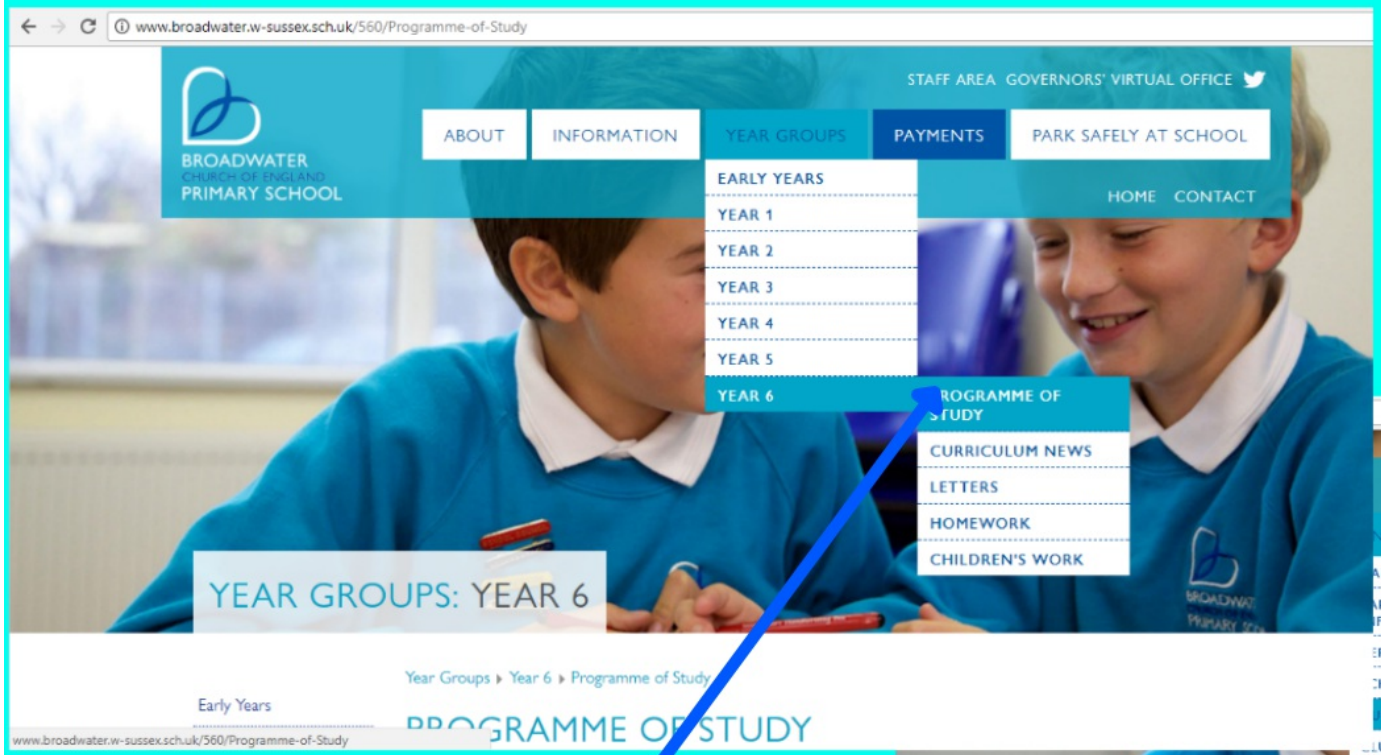
Hit the Button

MyMaths

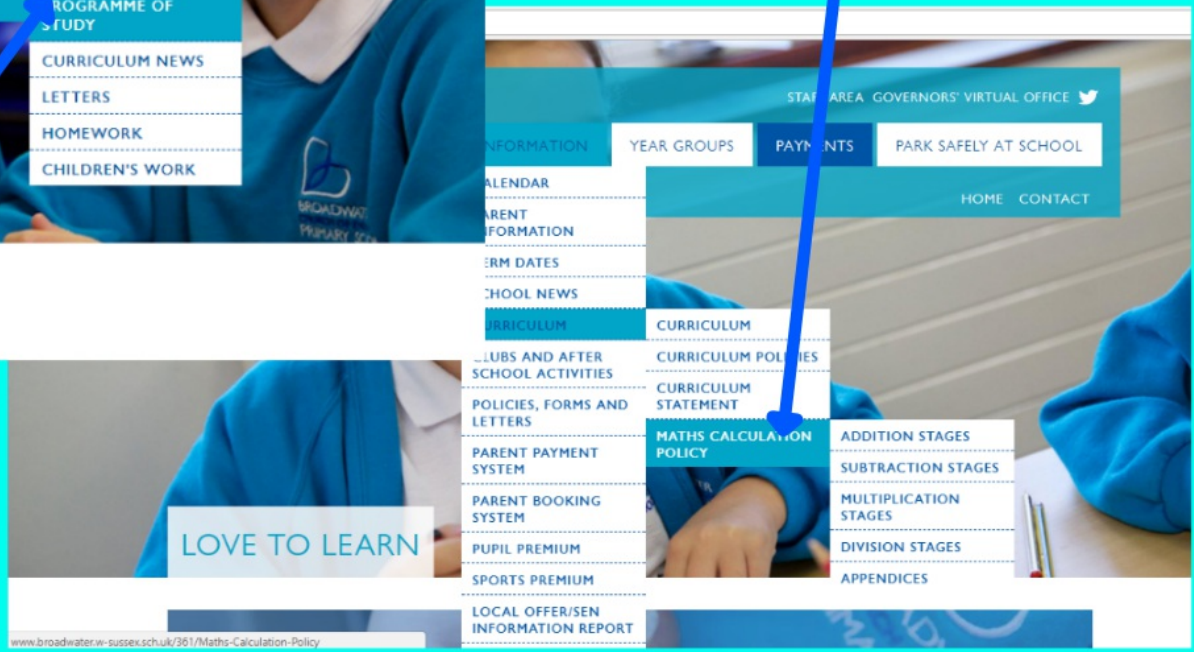
MyMaths.co.uk

BROADWATER
CHURCH OF ENGLAND
PRIMARY SCHOOL

Broadwater website



Our maths calculation policy



The National Curriculum objectives for each year group

Over to you!

Please feel free to have a look at the equipment set up on the tables that we use to support children's understanding of the four operations.

We will be happy to answer your questions.

Please visit our website for more curriculum information.

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