

Maths at Hillstone

Aim

Our aim is to equip all pupils with the skills and confidence to solve a range of problems through fluency with numbers and mathematical reasoning. Children are encouraged to see the mathematics that surrounds them every day and enjoy developing vital life skills in this subject.

Carefully planned activities encourage children to work mentally, observe patterns, make predictions and discuss relationships. Mathematics skills are also used in other subjects such as science, computing and art.

Mastering Maths at Hillstone

At Hillstone Primary, we have adopted a mastery approach in order to deliver the three aims of the National Curriculum, fluency, reasoning and problem solving. Underpinning this pedagogy is a belief that all children can achieve in maths. We believe in promoting a sustained and deep understanding by employing a variety of mastery strategies, with teaching for conceptual understanding at the heart of everything we do. We aim to create independent mathematicians who are well equipped to apply their learning to the wider world. Our approach aims to provide all children with full access to the curriculum, enabling them to develop independence, confidence and competence – ‘mastery’ in mathematics in order to be independent mathematicians who are well equipped to apply their learning to the wider world.

The mathematical journey that children undertake at Hillstone Primary 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Key features of our curriculum include:

- High expectations for every child
- Greater depth of topics
- Real life number sense and place value
- Application of skills learn to solve problem
- Calculating with confidence– understand why it works

We place emphasis on the cumulative mastery of essential knowledge and skills in mathematics. It embeds a deeper understanding of maths by utilising a concrete, pictorial, abstract approach so that pupils understand what they are doing rather than just learning to repeat routines without grasping what is happening.

YEAR

PLACE VALUE - COUNTING

Counting to 10:

We can count on...



Count on from 1

1 2 3 4 5



We can count back



Count back from 10.

10 9 8 7 6 5 4

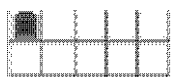


Then we learn about 0.

Counting with objects:

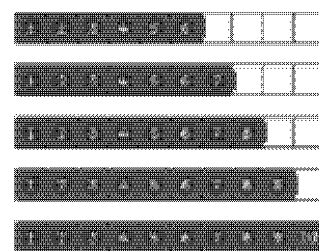
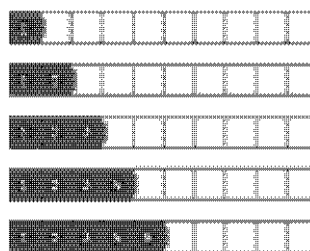


Physical objects

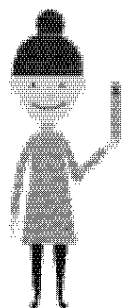


Tens squares

Counting with objects:



Counting with number lines:



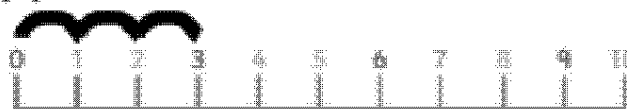
Three



3 2 1 0

3 4 5 6 7 8 9 10

Using multilink cubes



YEAR

PLACE VALUE

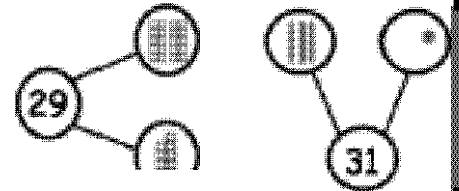
Dienes to represent numbers: Number bond method:

 Tens Ones

The dienes show
6 tens and 4 ones.

This shows the
number 64.

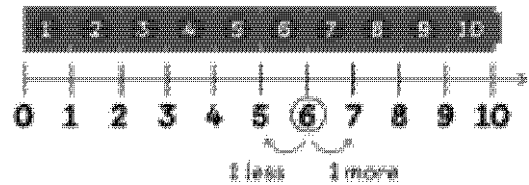
(50) (9)



Separating the numbers apart like this is called
partitioning.

Writing numbers to 10:

Ordering numbers:



We can find 1 more
and 1 less than.

Comparing numbers:

There are 3 cupcakes.

There are 5 cookies.



_____ is more than the others
_____ is less than the others?



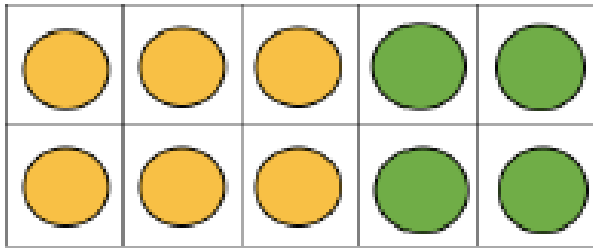
7 is more than 5.
7 is more than 3.
7 is the **g**_____

3 is less than 7.
3 is less than 5.
3 is the **smallest**

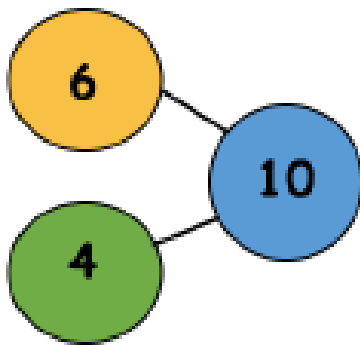
YEAR 1

ADDITION

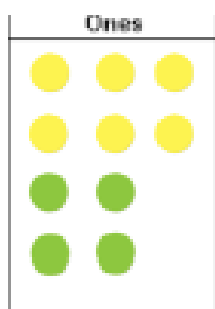
Tens frame:



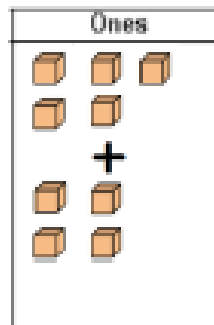
Number bond method:



Counters method:



Base 10 method:



Tens strip:



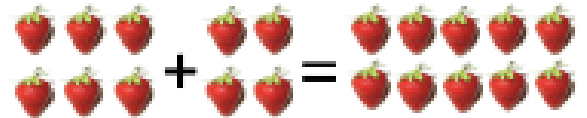
Count on from the biggest number:

$$6 + 4 = 10$$

Number bond method:



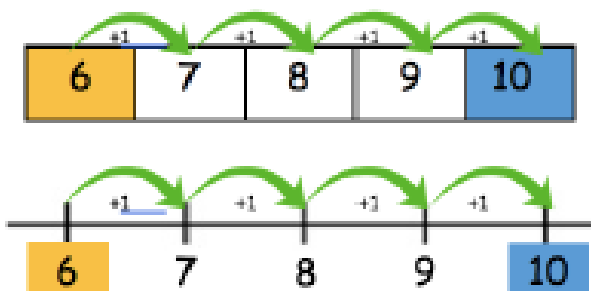
Picture method:



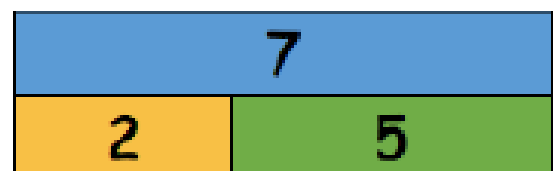
Abstract calculations:

| Commutative | Inverse |
|-------------|-------------|
| $2 + 5 = 7$ | $7 - 5 = 2$ |
| $5 + 2 = 7$ | $7 - 2 = 5$ |

Number line method:



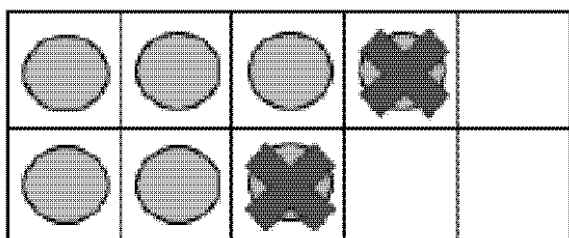
Bar model:



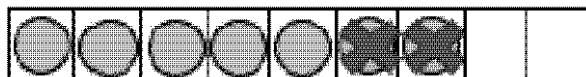
YEAR 1

SUBTRACTION

Tens frame:



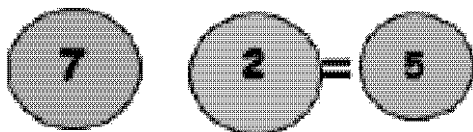
Tens strip:



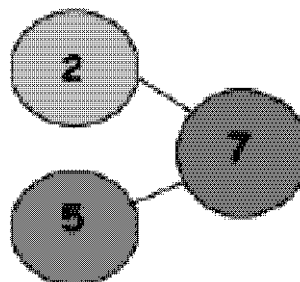
Count back from the biggest number:

$\quad - \quad -$

Number bond method:



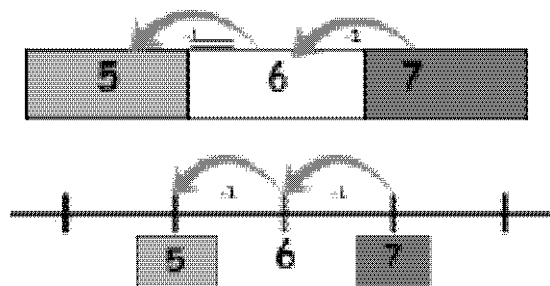
Number bond method:



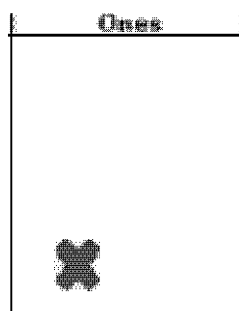
Picture method:



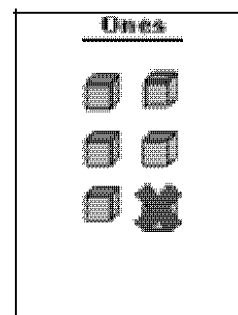
Number line method:



Counters method:



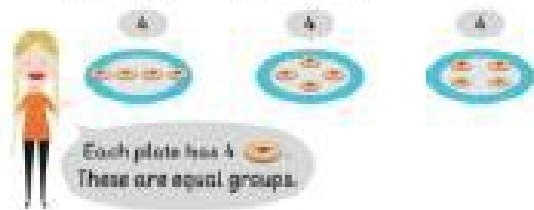
Base 10 method:



YEAR 1

MULTIPLICATION & DIVISION

Making equal groups



Adding equal groups



There are 4 trays.

Each tray has 5.

4 trays of 5 = 20

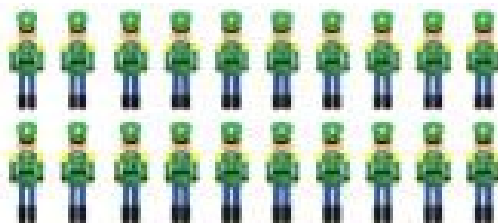
4 groups of 5 = 20

4 fives = 20

5, 10, 15, 20

There are 20 altogether.

Making equal rows



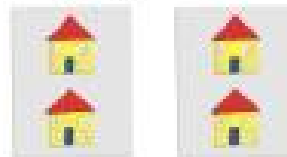
10, 20

There are 10 toy soldiers in one row.

2 tens = 20

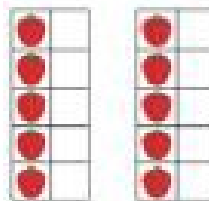
There are 20 toy soldiers altogether.

Making doubles



Double 2 = 4

2 twos



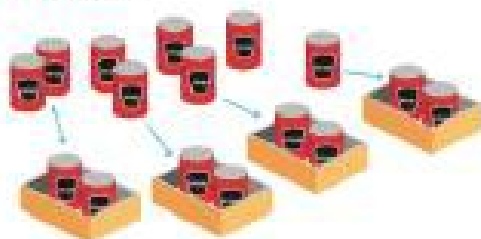
Double 5 = 10

2 fives

DIVISION

Grouping equally

There are 8 cans.



There are 4 boxes of 2 cans.

Sharing equally

There are 6 cookies and 3 children.

Each child takes one cookie.



Each child takes one more cookie.



Each child gets 2 cookies.