

Fairfield Spencer Academy Calculation Policy

Year 1



Primary Maths Series - Year 1 at a Glance

	AUTUMN TERM	SPRING TERM	SUMMER TERM
Week 1	Number and Place Value: Numbers to 10 LESSON BREAKDOWN	Calculations: Addition and Subtraction within 20 LESSON BREAKDOWN	Calculations: Multiplication LESSON BREAKDOWN
Week 2		Geometry – Properties of Shape: Shapes and Patterns LESSON BREAKDOWN	Calculations: Division LESSON BREAKDOWN
Week 3	Calculations: Addition and Subtraction LESSON BREAKDOWN	Measurement: Height and Length LESSON BREAKDOWN	Fractions: Fractions LESSON BREAKDOWN
Week 4			Number and Place Value: Numbers to 100 LESSON BREAKDOWN
Week 5		Revision and Mid-year (A) Tests	Measurement: Time LESSON BREAKDOWN
Week 6		Review and Remediation	
Week 7			Measurement: Money LESSON BREAKDOWN
Week 8	Geometry – Position and Direction: Positions LESSON BREAKDOWN	Number and Place Value: Numbers to 40 LESSON BREAKDOWN	Measurement: Volume and Capacity LESSON BREAKDOWN
Week 9	Number and Place Value: Numbers to 20 LESSON BREAKDOWN		Measurement: Mass LESSON BREAKDOWN
Week 10		Calculations: Addition and Subtraction LESSON BREAKDOWN	Geometry – Position and Direction: Space LESSON BREAKDOWN
Week 11			Revision and End-of-year (B) Tests
Week 12	Calculations: Addition and Subtraction within 20 LESSON BREAKDOWN	Calculations: Multiplication LESSON BREAKDOWN	Review and Remediation



CALCULATION POLICY



MAIN PRINCIPLES

What is maths

mastery?

Teaching maths for mastery is a transformational approach to maths teaching which stems from high performing Asian nations such as Singapore. When taught to master maths, children develop their mathematical fluency without resorting to rote learning and are able to solve non-routine maths problems without having to memorise procedures.

Concrete, pictorial, abstract (CPA)

Concrete, pictorial, abstract (CPA) is a highly effective approach to teaching that develops a deep and sustainable understanding of maths. Developed by American psychologist, Jerome Bruner, the CPA approach is essential to maths teaching in Singapore.

Number bonds

Number bonds are a way of showing how numbers can be combined or split up. They are used to reflect the 'part-part-whole' relationship of numbers.

Bar modelling

The bar model method is a strategy used by children to visualise mathematical concepts and solve problems. The method is a way to represent a situation in a word problem, usually using rectangles.

Fractions

In Singapore, the understanding of fractions is rooted in the Concrete, Pictorial, Abstract (CPA) model, where children use paper squares and strips to learn the link between the concrete ability to understand that we're giving an equal part a name. and the abstract. At the heart of understanding fractions is the

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:



1

PLACE VALUE



2



3

Physical objects

Tens squares

Counting with objects:



Counting with number lines:



Three



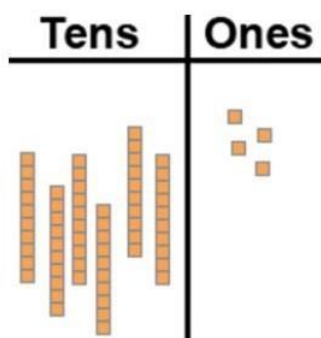
3, 2, 1, 0

3, 4, 5, 6, 7, 8, 9, 10



Using multilink cubes

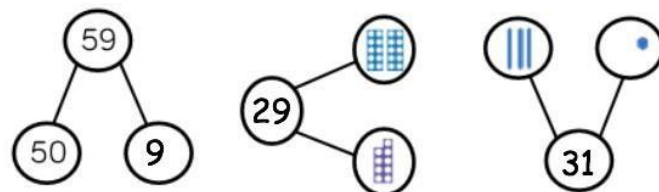
Dienes to represent numbers:



The dienes show
6 tens and 4 ones.

This shows the
number 64.

Number bond method:

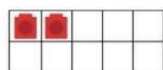


Separating the numbers apart like this is called
partitioning.

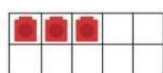
Writing numbers to 10:



1
one

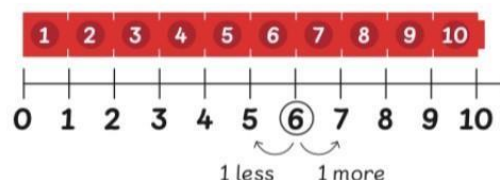


2
two



3
three

Ordering numbers:



5 

6 

We can find 1 more
and 1 less than.

Comparing numbers:

There are 3 cupcakes.



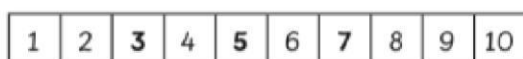
There are 5 cookies.



There are 7 doughnuts.



Which number is more than the others?
Which number is less than the others?

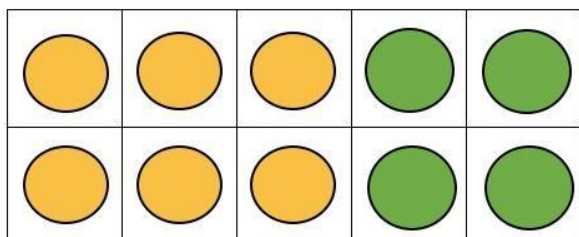


7 is more than 5.
7 is more than 3.
7 is the greatest.

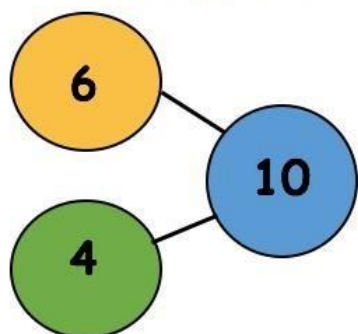
3 is less than 7.
3 is less than 5.
3 is the smallest.

ADDITION

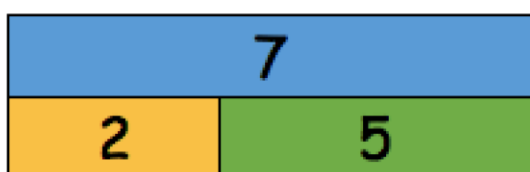
Tens frame:



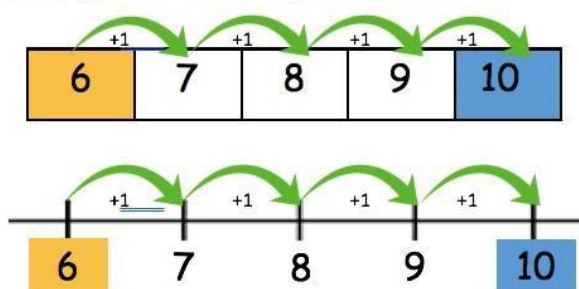
Number bond method:



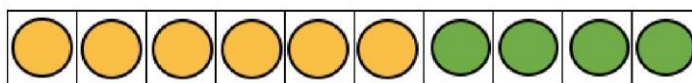
Bar model:



Number line method:



Tens strip:



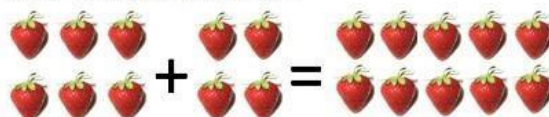
Count on from the biggest number:

$$6 + 4 = 10$$

Number bond method:



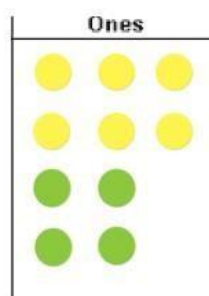
Picture method:



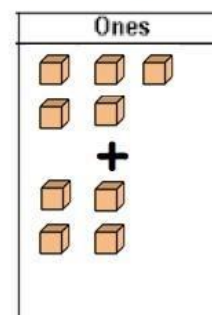
Abstract calculations:

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

Counters method:

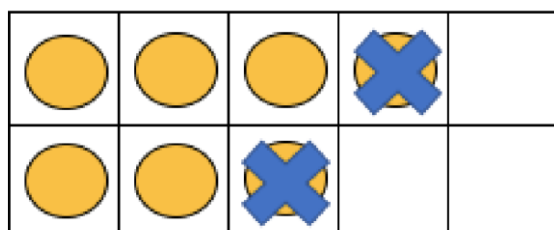


Base 10 method:



SUBTRACTION

Tens frame:



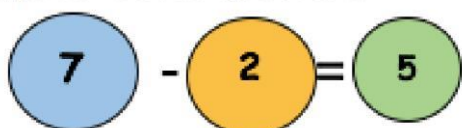
Tens strip:



Count back from the biggest number:

$$7 - 2 = 5$$

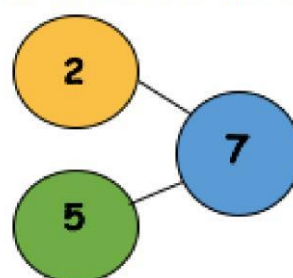
Number bond method:



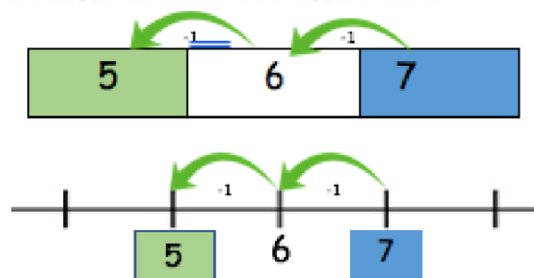
Picture method:



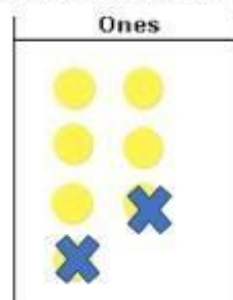
Number bond method:



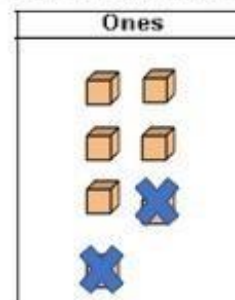
Number line method:



Counters method:

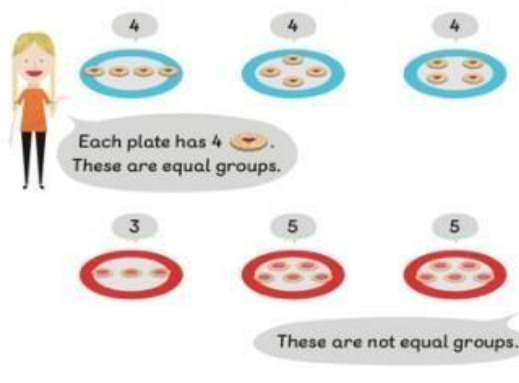


Base 10 method:

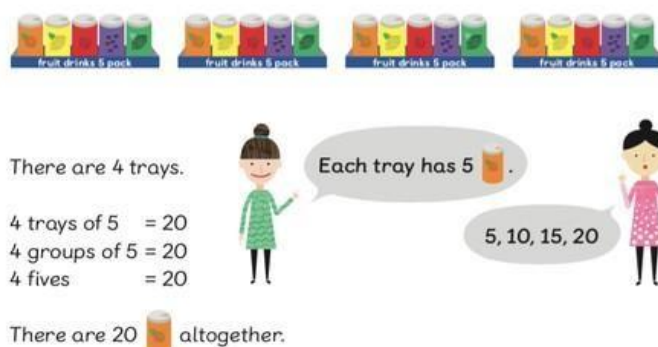


MULTIPLICATION & DIVISION

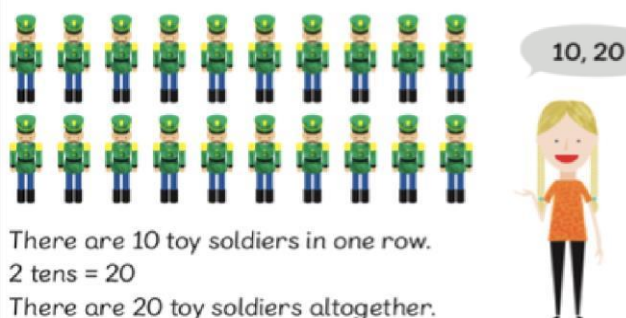
Making equal groups



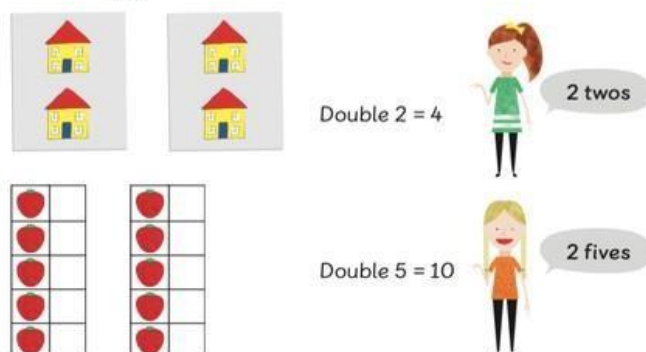
Adding equal groups



Making equal rows



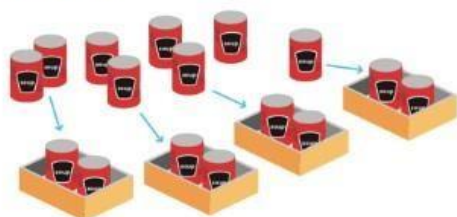
Making doubles



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.