



Vocabulary:

add, plus, more, total, increase, altogether, combine
addend + addend = sum
exchange, regroup, column, digit, value, partition

Addition: Year 1

Concrete

Adding one more

“Walk the one up the stairs.”



Pictorial

Number line

Count in jumps of one each time on a number line.



Abstract

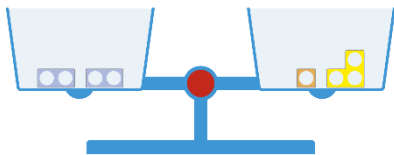
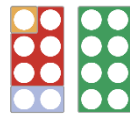
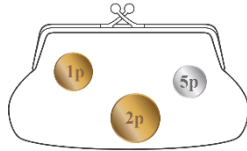
$0 + 1 = 1$
 $1 + 1 = 2$
 $2 + 1 = 3$

“zero add one equals one”
“one plus one totals two”
“two and one makes three”

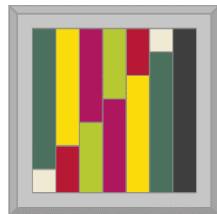
Adding facts within 10

Build fluency through conceptual variation.

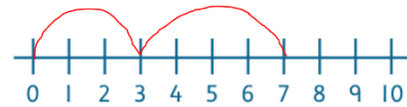
How many ways can we make seven? Which numbers total seven?



$2 + 2 = 1 + 3$



Number line

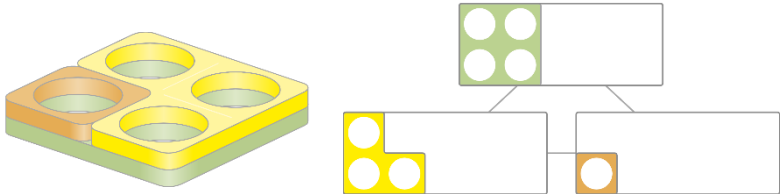


Number sentences

$5 + 2 = 7$
 $3 + 4 = 7$
 $1 + 6 = 7$
 $0 + 7 = 7$

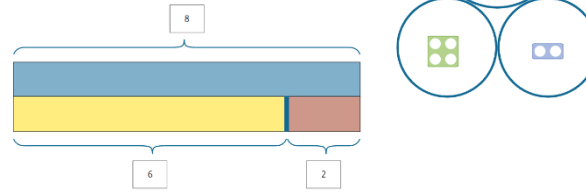
Part-part whole relationships

If the whole is four, one part is three, what is the other part?



Part-part whole

Bar model

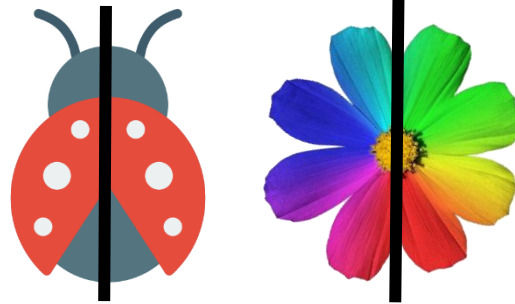
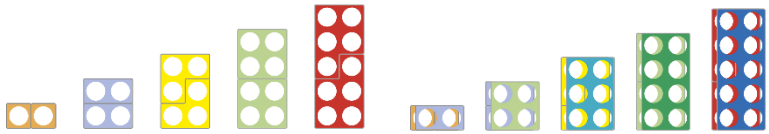


$4 = 3 + 1$
 $4 = 1 + 3$
Four is equal to three and one
Four is the whole. Three is a part and one is a part.

$4 = ? + 3$
 $4 = 1 + ?$

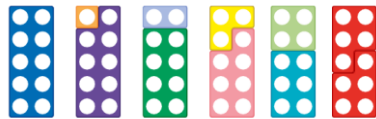
Doubling

Use of a mirror and Numicon can support visualisation.



$1 + 1 = 2$
 $2 + 2 = 4$
 $3 + 3 = 6$

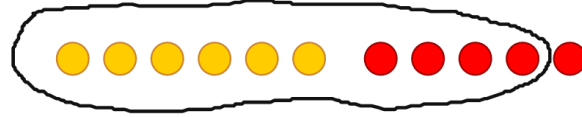
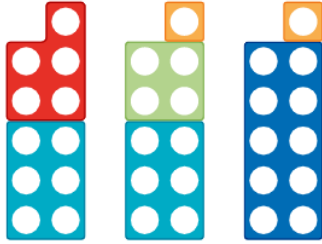
Number bonds to 10



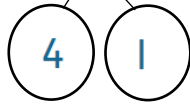
$10 + 0 = 10$
 $9 + 1 = 10$
 $8 + 2 = 10$
 $7 + 3 = 10$
 $6 + 4 = 10$
 $5 + 5 = 10$

Regrouping to make 10

$6 + 5 = 11$ Begin with the larger number. Partition the smaller number and find the number bond to ten.



$$6 + 5 = 11$$



$$6 + 4 = 10$$

$$10 + 1 = 11$$

$$6 + 5 = 11$$



Addition: Year 2

Concrete

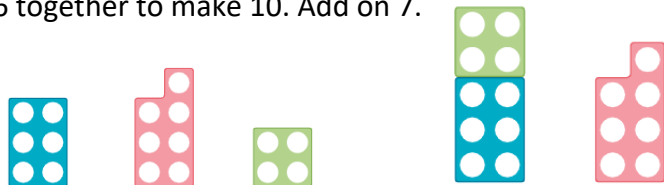
Adding three single digit numbers

Look for number bonds within the adding sentence.
Following on from making 10, make ten with 2 of the numbers (if possible) then add on the third number.

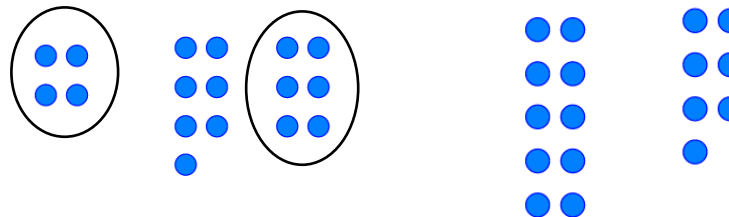
Example

$$4 + 7 + 6 = 17$$

Put 4 and 6 together to make 10. Add on 7.



Pictorial



Abstract

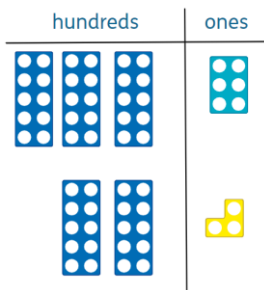
$$4 + 7 + 6 = 17$$

$$4 + 6 = 10$$

$$10 + 7 = 17$$

Column method without regrouping (partitioning)

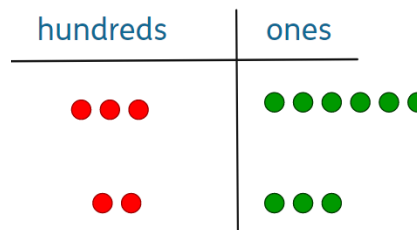
Make both numbers using the place value headings (on a grid).



Add the ones first, then the tens.



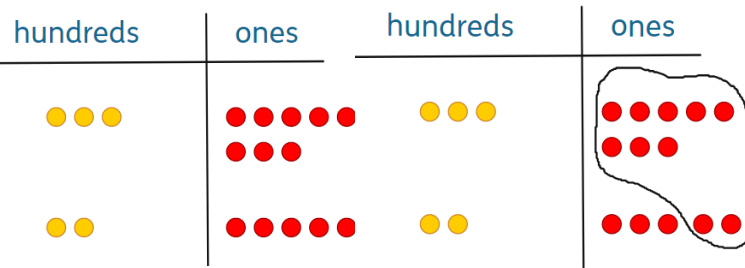
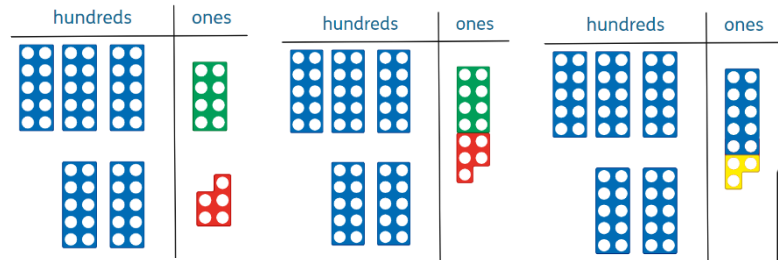
Children can use counters or draw counters to calculate.



T	O
30	6
+ 20	3
<hr/>	
50	+ 9 = 59



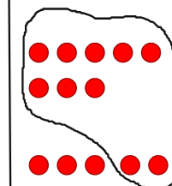
Column method with regrouping



$$30 + 8$$

$$20 + 5$$

50	+ 10 + 3
<hr/>	
= 63	



Addition: Year 3-6

Concrete

Expanded method with regrouping (3 digits)

Hundreds	Tens	Ones



Hundreds	Tens	Ones
6	1	5

Pictorial

Hundreds	Tens	Ones
6	1	5

Abstract

Expanded method:

$$\begin{array}{r}
 \text{H T O} \\
 3 \ 6 \ 4 \\
 + 2 \ 5 \ 1 \\
 \hline
 500 + 100 + 10 + 5
 \end{array}$$

Compact method:

$$\begin{array}{r}
 \text{H T O} \\
 3 \ 6 \ 4 \\
 + 2 \ 5 \ 1 \\
 \hline
 6 \ 6 \ 5 \\
 \hline
 1
 \end{array}$$

Compact column method (up to 4 digits)

Thousands	Hundreds	Tens	Ones
8	1	6	9

Bar model to represent and visualise the calculation

?	
6,432	1,737

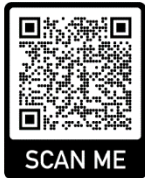
Written calculation (expanded into compact)

$$\begin{array}{r}
 \text{Th H T O} \\
 6, \ 4 \ 3 \ 2 \\
 + 1, \ 7 \ 3 \ 7 \\
 \hline
 9 \ (2 + 7) \\
 60 \ (30 + 30) \\
 1, \ 1 \ 00 \ (400 + 700) \\
 7, \ 0 \ 00 \ (6000 + 1000) \\
 \hline
 8, \ 1 \ 6 \ 9 \\
 \hline
 1
 \end{array}$$



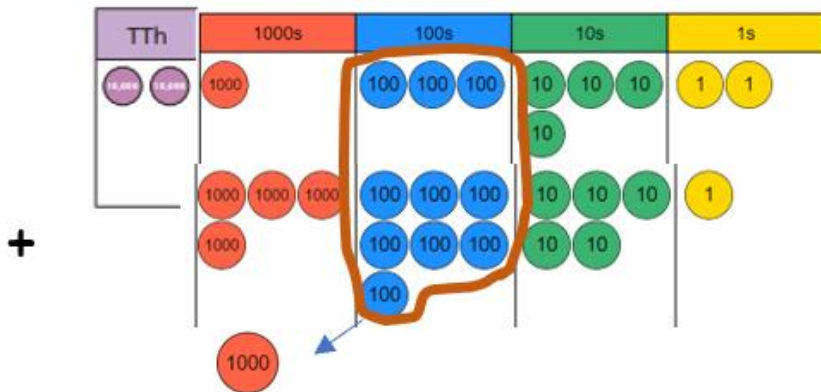
Compact

$$\begin{array}{r}
 \text{Th H T O} \\
 6, \ 4 \ 3 \ 2 \\
 + 1, \ 7 \ 3 \ 7 \\
 \hline
 8, \ 1 \ 6 \ 9 \\
 \hline
 1
 \end{array}$$



Column method with more than 4 digits (including decimals)

Ten Thousands	Thousands	Hundreds	Tens	Ones
2	6	0	9	3



Bar model to represent and visualise the calculation

?	
21,342	4,751

Written calculation

$$\begin{array}{r}
 \text{TTh Th H T O} \\
 21,342 \\
 + 4,751 \\
 \hline
 26,093 \\
 \hline
 \end{array}$$