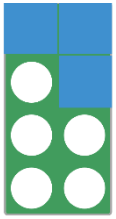
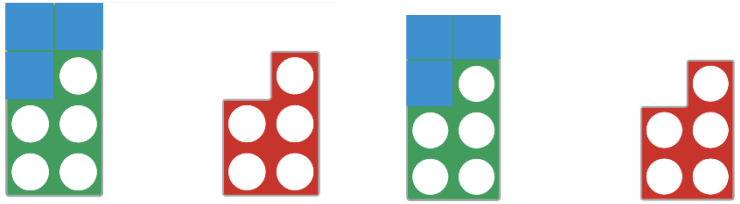
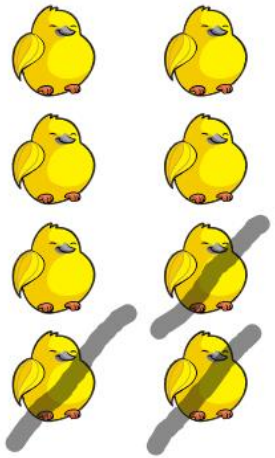
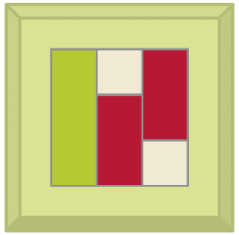
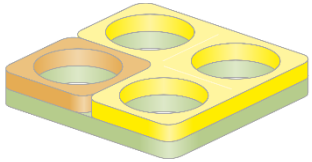
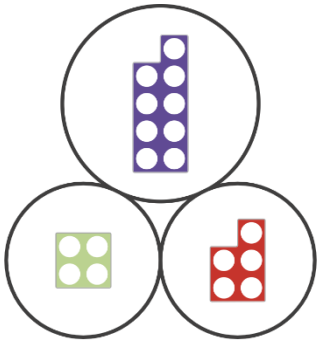
Newbold Verdon Primary School - Calculation Policy

numicon

Subtraction: Year 1

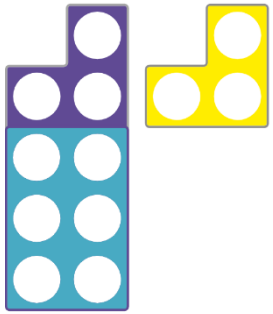
Vocabulary:
subtracting, left over, difference, 'how many more?', reduce, less, count back, regroup, **minus, subtract, take away**

minuend – subtrahend = difference

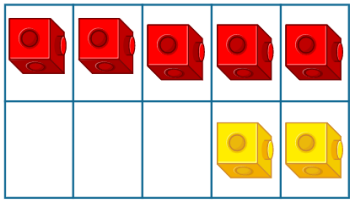
Concrete	Pictorial	Abstract
Taking away ones  Eight take away three equals five Use real life context e.g. children playing in the park  8 take away 3 = 5 8 subtract 3 = 5 8 minus 3 = 5		8 – 3 = 5
Finding subtracting facts; part-part whole relationship If the whole is 4, one part is 3 what is the other part?  	Part-whole model 	7 – 4 = 3 7 – 3 = 4

Finding the difference

Place the smaller number on top of the larger number.
Look at the difference. Find the matching shape.



Repeat with cubes, share bears, counters etc. on a tens frame



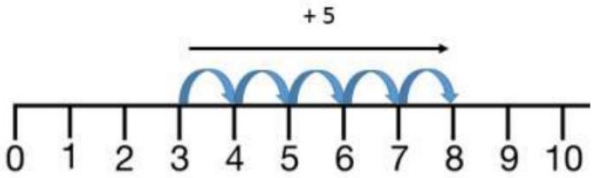
Vary representation using cuisenaire rod.
Take out larger rod and place smaller rod underneath.
Ensure they are aligned. Look for rod that fits to make the larger number. This is the difference.

the difference between	9	and	6	is	3

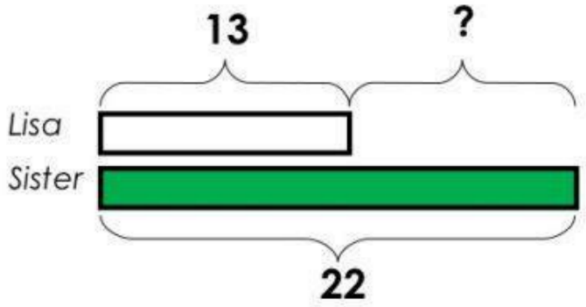
or

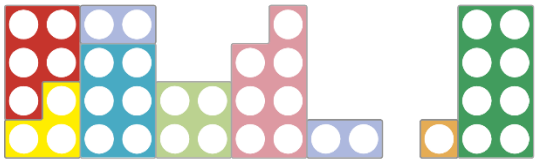
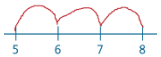
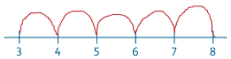
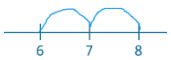
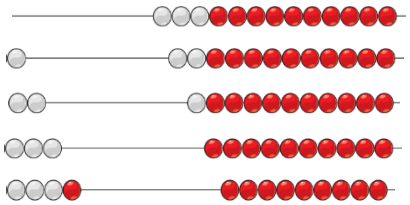
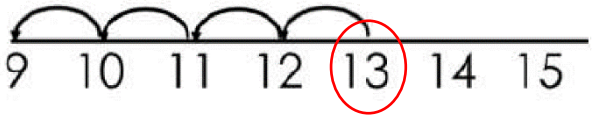
the difference between	6	and	9	is	3

Counting on, on a number line from the smaller number to the larger number



Represented in a bar model to show the difference (follows on from Cuisenaire rods)



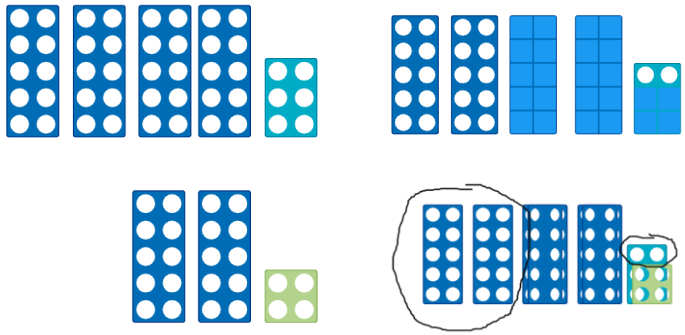
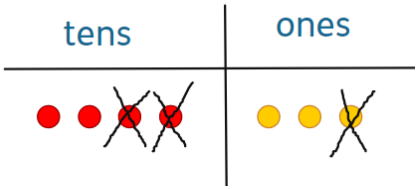
How many more? Lay out the first Numicon shape. Place 	Jumps on a number line to 8. How many more to make 8?  5 and three more make 8  3 and five more make 8  6 and two more make 8	
Counting back in ones Example 13 – 4 = 9  Make the larger number using Numicon shapes. Use **ones** shape to count back X number of times.  Make larger number on a bead string. Use ***pause, point and push*** one bead at a time	Jumps on a number line – counting back Circle the number you are starting at. Jump back one each time and draw jumps. 	13 – 4 = 9 9 = 13 – 4

Newbold Verdon Primary School - Calculation Policy

Subtraction: Year 2

<u>Vocabulary</u>:
subtracting, left over, difference, 'how many more?', reduce, less, count back, bridge, regroup, minus, subtract, take away

minuend – subtrahend = difference

Concrete	Pictorial	Abstract
Column method without regrouping 	43 - 21 = 	43 – 21 = 22

Newbold Verdon Primary School - Calculation Policy

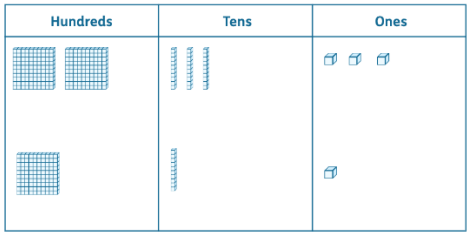
Subtraction: Year 3 - 6

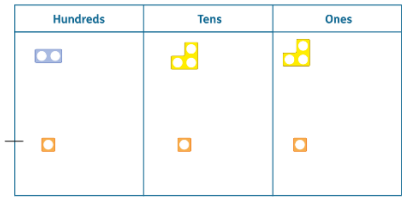
Vocabulary:
subtracting, left over, difference, 'how many more?', reduce, less, count back, bridge, regroup, minus, subtract, take away

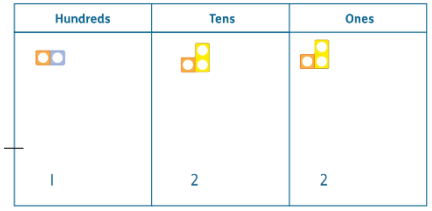
minuend – subtrahend = difference

Concrete

Column method without regrouping







Numicon shapes are used as digit replacement.
Children work from the one's column through to the tens, then hundreds and subtract the digit by placing it on top to see the difference (or what's left).

Teacher modelling of vocabulary will reinforce the value of the "three" in the ten's column as three tens or thirty.

Pictorial

Counters/circles/jottings to represent each digit.
Children can cross out correct number.

Abstract

Expanded

H	T	O
2	3	3
- 1	1	1

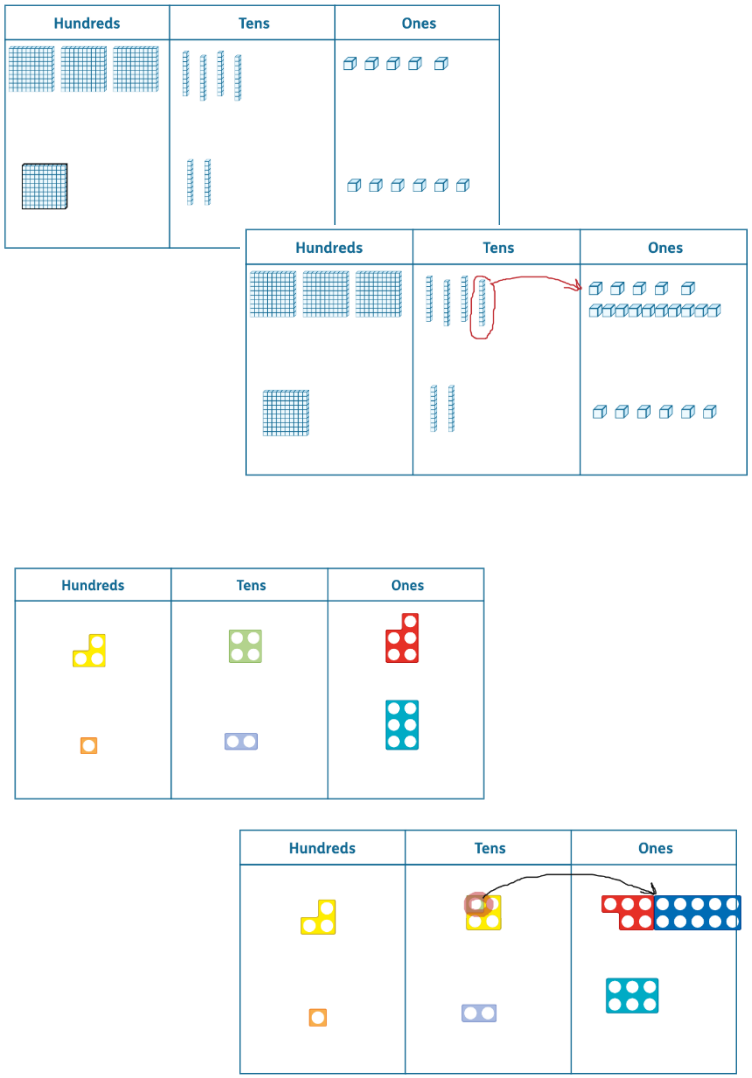
3 - 1 = 2
30 - 10 = 20
200 - 100 = 100

100 + 20 + 2 = 122

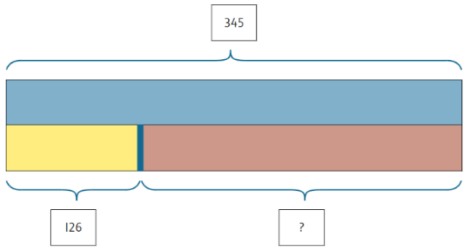
Compact

H	T	O
2	3	3
- 1	1	1
1	1	1

Column method with regrouping



Bar model to represent calculation and to support visualisation



Expanded

	H	T	O
	3	3 4	15
-	1	2	6
			9
		1	0
+	2	0	0
	2	1	9

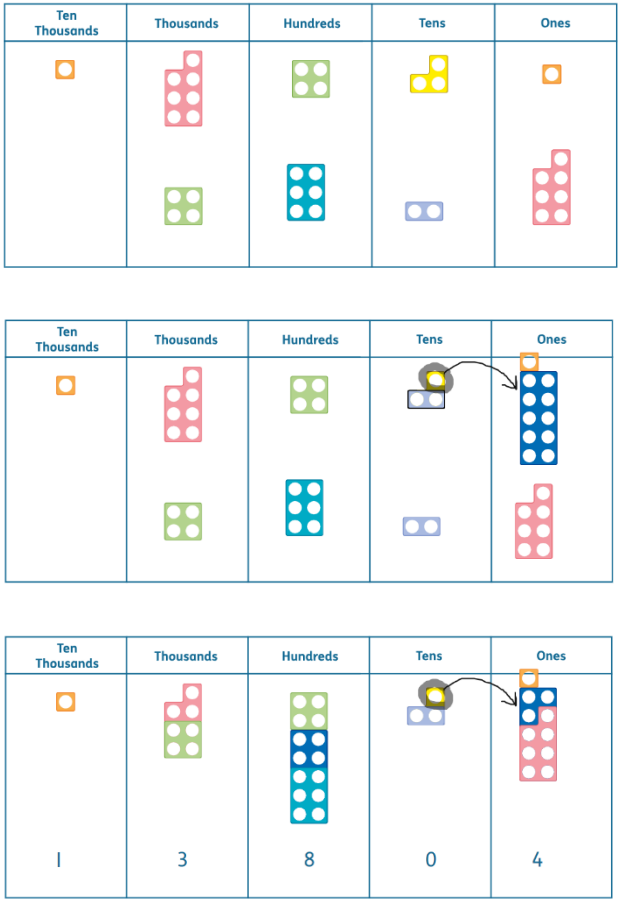
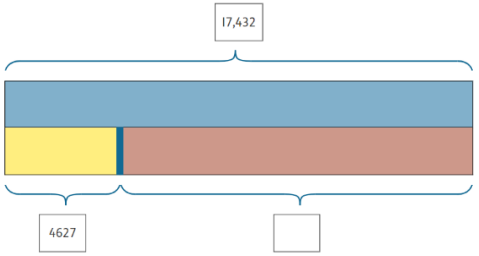
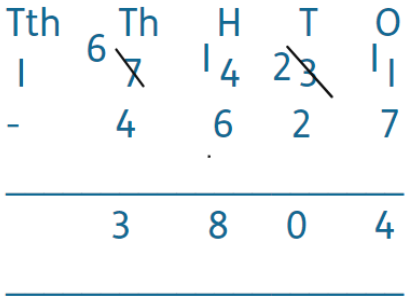
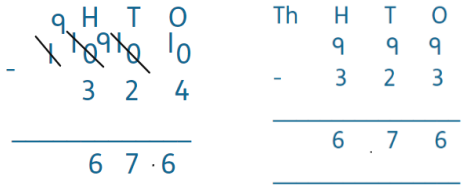
Compact

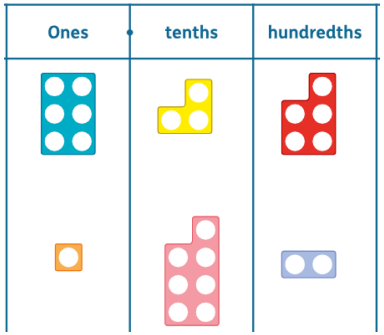
	H	T	O
	3	3 4	15
-	1	2	6
	2	1	9

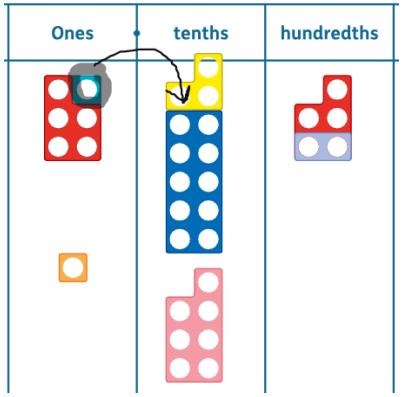
Years 4 – 6

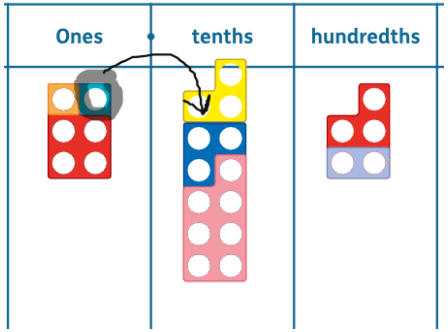
Column method for subtraction continues with numbers increasing in magnitude (size). In Year 4, children are expected to subtract 4-digit numbers from 4-digit numbers. In Year 5 and 6 children subtract numbers with greater than 4-digits from numbers with greater than 4-digits. Children are expected to complete calculations where they have to regroup more than once within a single calculation.

In Year 5 and 6, there is then the addition of decimals.

Concrete	Pictorial	Abstract
Column method with regrouping 	**Bar model to represent calculation and to support visualisation** 	 **Adjusting method.** Particularly for contexts with measure (money, mass, length). Built upon foundational principles of difference, children adjust both numbers to keep the difference the same. This removes need for multiple exchanging. **Example**: 1000 – 324 = 676 







T	O	.	t	h
	~~5~~6	.	13	5
-	1	.	7	2
	4	.	6	3