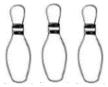
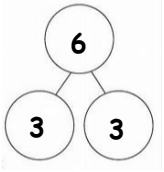
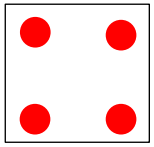
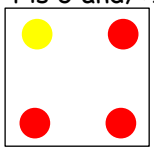
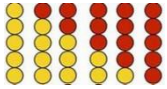
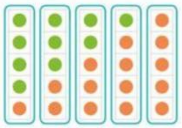
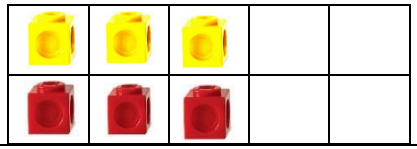
F2	Addition	
Vocabulary: subitise, number, numeral, composition, whole/part/part, number bonds, double, and, add, plus, equals, altogether, total, count on		
Concrete	**Pictorial**	**Abstract**
Composition of numbers Children talk about the different arrangements they can see within a whole. Play games e.g., skittles and looking at how many are standing. How many have fallen over? How many are there altogether? 	Show children pictures of the skittles. Can children identify the two parts? How can they show it? Circle. Draw it.   	**No formal written method.** Child can record the abstract as a number sentence for example: 3 + 3 = 6 They could record as pictures, bar model or in a part whole model.  
Exploring a number How many different ways can we make 4? What is different? What is the same? 	 4 is 3 and/+1 	
Systematic working and commutativity (counters/cubes) Ways to make numbers to 5. 	Ways to make numbers to 5 	
Exploring numbers using Maths equiptment (Numicon/rekenrek)  	**Jottings** 4 and 1 = 5 	

frames and 10 frames.

3 + 3



Jottings

3 + 3

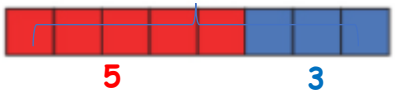
Conceptual subitising

Recognising smaller groups within a larger set and adding those small groups together, such as 2 dots plus 2 dots equals four dots.

2 + 2 = 4

4

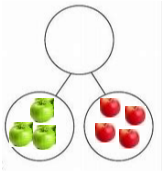
Bar model

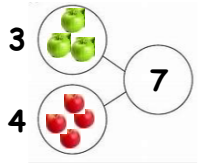


Joining two groups and counting all.

and/plus

makes/equals 7 apples





Tell a number story to match a picture.

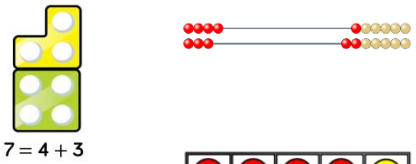
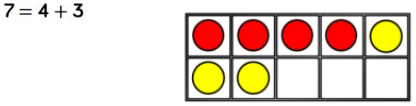
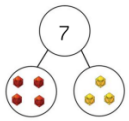
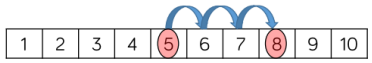
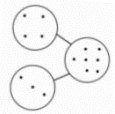
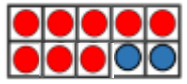
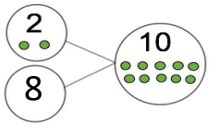
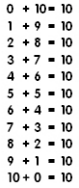
The boy has 3 green apples, and the girl has 4 red apples. Altogether they have 7 apples.

Instant Recall

- Number bonds to 5
- Some number bonds to 10

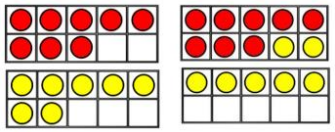
Mental

Encourage children to visualise a hidden group and calculate how many altogether for example there are 3 apples in the bowl, there are 4 apples next to the bowl, how many apples altogether? 3 plus 4 equals… how do you know? Convince me.

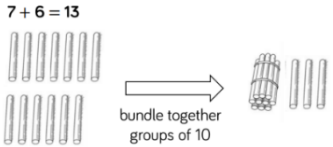
YEAR 1	Addition	
Vocabulary: Addition, add, forwards, put together, more than, total, altogether, equals, same as, greater than, most, pattern, odd, even, digit, counting on, part, whole.		
Concrete	**Pictorial**	**Abstract**
Add numbers within 10 including number bonds to 10 4 + 3 = 7 3 + 4 = 7  7 = 4 + 3   7 = 4 + 3 7 = 3 + 4 Plus using place value mats and diennes.	**Add numbers within 10 including number bonds to 10** **Number line (counting on):** 5 + 3 = 8  **Diennes jottings:** 5 + 3 = 8  **Part part whole model:**  7 = 4 + 3 7 = 3 + 4	Mental facts to 10 **Number facts** Recall and use addition facts to 10 fluently **the total of 6 and 3 6 plus 2 4 more than 5** **Near doubles:** Instantly recall doubles to 10 and use this to calculate near doubles. 4 + 5 = 4 + 4 + 1 OR 4 + 5 = 5 + 5 - 1 **One and two more:** Of numbers up to 10. 8 + 1 = 9 (consecutive numbers) 5 + 2 = 7 (Consecutive odd or even numbers) 4 + 2 = 6
Number bonds to 10: Rekenrek **8 + 2 = 10**  Numicon 10 frame  	**Number bonds to 10:** 	**Instant recall of facts** **Number bonds to 10:** 

Add numbers within 20 including number bonds to 20:

Partitioning:



8 + 7
8 + 2 + 5
10 + 5 = 15



Counting on:

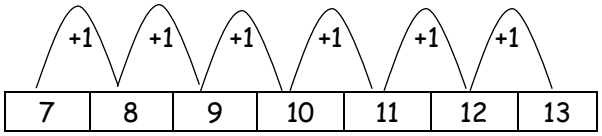
Number bonds to 20:

16 + 4 = 20
4 + 16 = 20

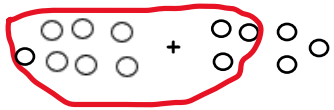
Cubes

Add numbers within 20 including number bonds to 20:

Partitioning: 7 + 6

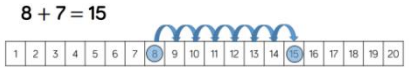


Moving on to partitioning 6 into 3 and 3
(7 + 3 = 10 then 10 + 3 = 13)

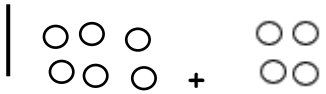


10 + 3 = 13

Counting on:



Number bonds to 20:



Mental facts to 20

Partitioning (bridging through 10):

5 + 7
5 + **5** + **2** (partition 7 into 5 and 2) **OR**
7 + **3** + **2** (partition 5 into 3 and 2)

Using known facts and place value

15 + 4
5 + 4 = 9 so 15 + 4 = 19

Number facts

Know number pairs with a total of 20
16+☐ = 20 **20 = 3+☐**

One and two more:

Of numbers up to 20.
18 + 1 = 19 (consecutive numbers)
15 + 2 = 17 (Consecutive odd or even numbers)
14 + 2 = 16

Instant recall of facts:

Number bonds to 20

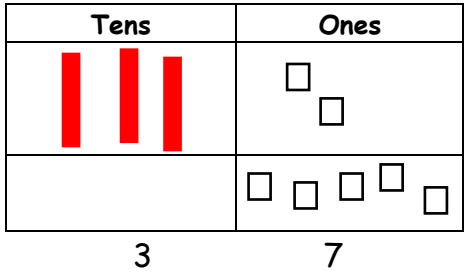
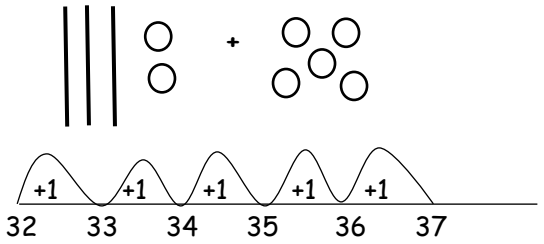
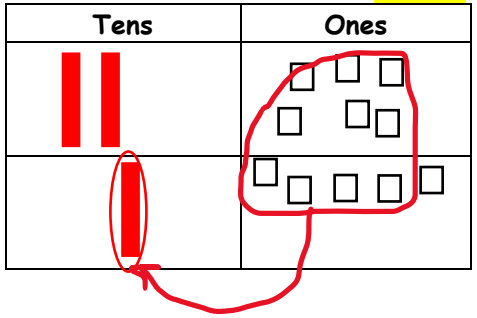
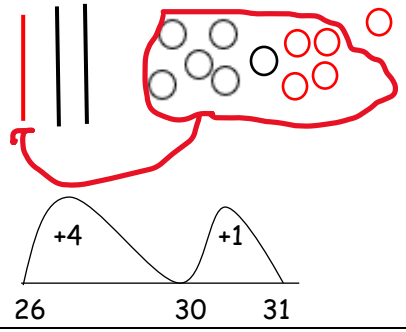
Redistribution:

12 + 5 redistributes to 10 + 7.

Commutativity and Inverse

16 + 4 = 20 20 – 16 = 4
4 + 16 = 20 20 – 4 = 16

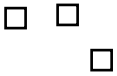
Missing Number/Inverse
☐ - 5 = 12 **12 - ☐ = 4**

YEAR 2	Addition	
Vocabulary: Addition, add, plus, altogether, count on, equals, in total, in all, same as, whole, part, number bonds, number sentence, calculation, number, numeral, digit (one-digit, two-digit), odd, even, pattern, tens, ones, partition, commutativity, jottings. (see previous year groups)		
Concrete	Pictorial	Abstract
Children need to be secure in number bonds to 10 and 20. See Year 1 addition policy.		
Adding 2 digit numbers + multiples of 1 and 10 **No exchanging (diennes)** 32 + 5 = 37 or 5 + 32 = 37  Leading onto a 2-digit number add tens (34 + 40) Linear?	**Adding 2 digit numbers + multiples of 1 and 10** **No exchanging** 32 + 5 = 37 or 5 + 32 = 37  Then adding tens only.	**Adding 2 digit numbers + multiples of 1 and 10** **No exchanging** Adding ones Adding tens T O 3 2 + 5 3 7 Tens Ones 3 2 2 0 5 0 This written method is only shown alongside the pictorial.
Exchanging (diennes) 26 + 5 = 31 or 5 + 26 = 31 Linear?  	**Exchanging** 26 + 5 = 31 or 5 + 26 = 31  	**No written method for exchanging.**

Adding two 2 digit numbers

No exchanging

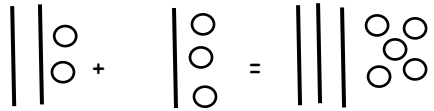
22 + 13 = 35 Linear?

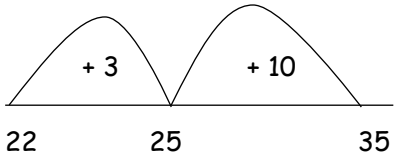
Tens	Ones
	
	

Adding two 2 digit numbers

No exchanging

22 + 13 = 35





Written

Adding two 2 digit numbers

No exchanging

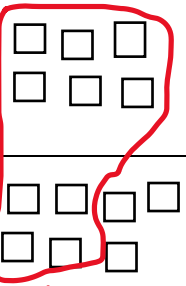
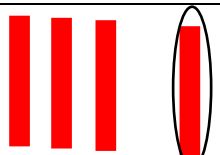
Tens	Ones
2	2
1	3
	5
3	0
3	**5**

Tens	Ones
2	2
1	3
3	**5**

This written method is only shown alongside the pictorial representation.

Exchanging

26 + 37 = 63

Tens	Ones
	
	

6 3

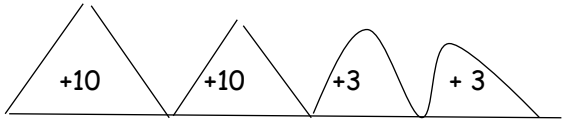
Linear?

Exchanging

26 + 37 = 63

63	
26	**37**

Using a number line



(children may count in ones from 57 to 63 to start with).

Change to adding ones first

No written method for exchanging.

Mental Methods

Number facts:

Known complements to the next multiple of 10

52 + ___ = 60

Know pairs of multiples of 10 totalling 100

60 + ___ = 100

Number bonds to 10:

46 + 4 = 50 (**6 + 4 = 10**)

Counting on:

37 + 20 **(+10 then +10)**

42 + 23 **(+20 then +3)**

47 + 15 **(+10, +3 to the next 10 then +2)**

Near doubles:

If 7 + 7 = **14**

Then 7 + 8 = **14** + 1 = 15

Redistribution:

38 + 47

Redistribute to 40 + 45 = 95

Partitioning:

23 + 12

20 + 10 = **30;** 3 + 2 = **5; 30 + 5 = 35**

Adjusting:

34 + 9 **(+10 then subtract 1)**

45 + 19 **(+20 then subtract 1)**

Using known facts and place value:

63 + 4

If **3 + 4 = 7** then **63 + 4 = 67**

40 + 50

If **4 + 5 = 9** then **40 + 50 = 90**

Inverse:

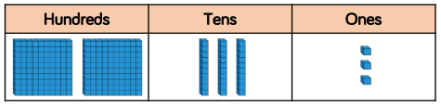
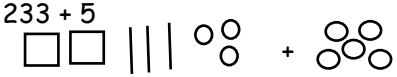
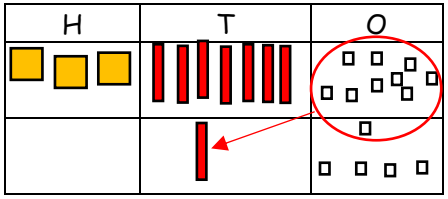
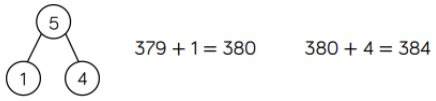
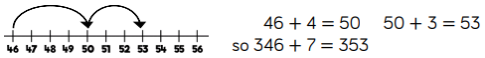
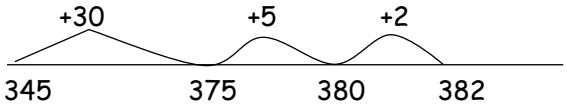
Understand the inverse:

45 + 8 = 53

8 + 45 + 53

53 – 45 = 8

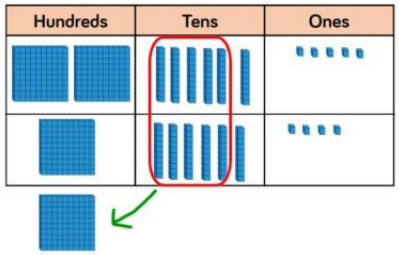
53 – 8 = 45

YEAR 3	Addition	
Vocabulary: Hundreds, tens, ones, estimate, partition, recombine, difference, decrease, near multiple of 10 and 100, inverse, rounding, column subtraction, exchange. (see previous year groups)		
Concrete	**Pictorial**	**Abstract**
Adding 100s, 10s and 1s no exchanging: (Use diennes, place value counters or numicon).  233 + 5 233 + 40 233 + 600 Initially add 1, 10 and 100 before moving onto adding multiples of 1, 10 and 100.	**Adding 100s, 10s and 1s no exchanging:** Use diennes notation: 233 + 5 	Mental **Counting On** 137 + 50 **(counting on in tens; 147, 157, 167, 177)** **Adjusting:** 234 + 29 **(add 30 and subtract 1)** 234 + 99 **(add 100 and subtract 1)** 234 + 299 **(add 300 and subtract 1)** **Using Known Facts And Place Value:** 282 + 7 **2+7=9 so 282+7= 289** 231 + 50 **30 + 50 = 80 so 231 + 50 = 281** **Partitioning:** 236 + 133 200 + 100 = **300** 30 + 30 = **60** 6 + 3 = **9,** **So 300 + 60 + 9 = 369** **Redistribution:** 136 + 47 redistribute to 133 + 50 = 183
Adding 100s, 10s and 1s exchanging: 379 + 5 = 384  10 ones = 1 ten (for 379 + 40 then 10 tens = 1 hundred)	**Adding 100s, 10s and 1s exchanging:** **Partitioning:** 379 + 5 = 384  346 + 7 = 353  345 + 37 = 382 (Partitioning the second number and counting on)  	

Adding 3-digit numbers:

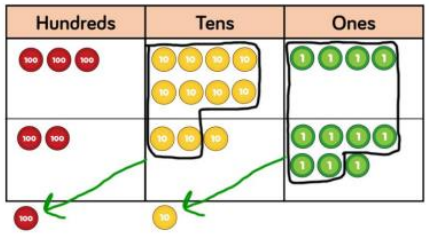
Starting with no exchanging leading onto exchanging in the ones then the tens then the ones AND tens.

Diennes:



265
+ 164
9
120
300
429

Place Value Counters:



384
+237
11
110
500
621

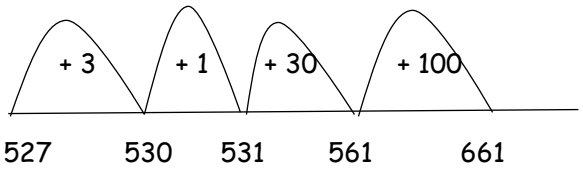
Adding 3-digit numbers:

?	
265	164

Use diennes jottings for adding where:

□ = 100 | = 10 ○ = 1

527 + 134 = 661



Written

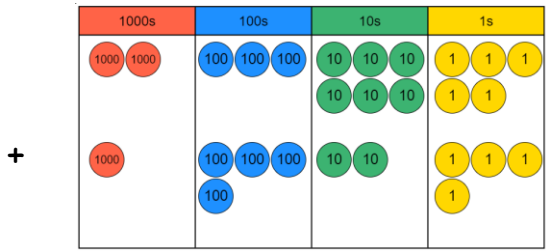
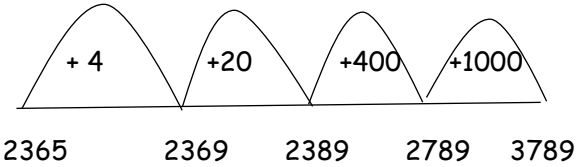
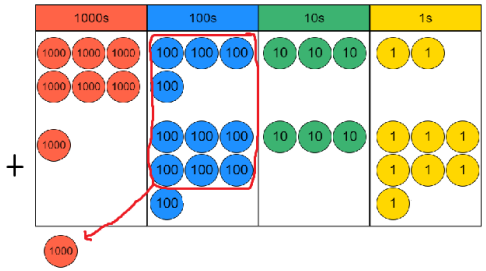
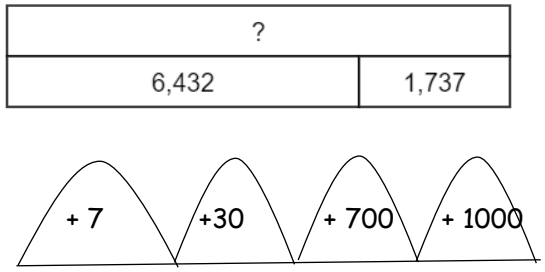
Add numbers with up to 3 digits

No exchanging:

322 + 235 7 50 500 557	322 + 235 557

Exchanging:

Ones to tens	Tens to hundreds
527 + 134 1 1 50 600 661	362 + 451 3 110 700 813

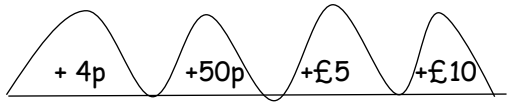
YEAR 4	**Addition**	
Vocabulary: thousands, hundreds, tens, ones, estimate, partition, recombine, increase, near multiple of 10 and 100, inverse, rounding, column addition, exchange, addend + addend = sum/total (See previous year groups)		
Concrete	Pictorial	Abstract
Add whole numbers with up to 4 digits. **No exchanging:** 2365 + 1424 = 3789  	**Add whole numbers with up to 4 digits.** **No exchanging:** 2365 + 1424 = 3789  	Written **Add whole numbers with up to 4 digits.** **No exchanging:** 2365 + 1424 3789
Exchanging: 6,432 + 1,737 = 8169  Start without exchanging leading onto exchanging at different points (ones to tens; tens to hundreds etc).	**Exchanging:** 6432 + 1737 = 8169  (Could split + 700 into + 600 then + 100 to cross boundaries)	**Exchanging:** **Expanded** Th H T O 6 432 + 1 737 9 60 1 100 7 000 8 169 **Compact** Th H T O 6 432 + 1 737 8 169 1

Add decimals up to 2 decimal places (as money or measures):
£15.54 + £26.25 = £41.79

T	O	th	hth
			
			

Use place value counters or money depending on the context.
Start with no exchanging leading to exchanging.

Add decimals up to 2 decimal places (as money or measures):
£15.54 + £26.25 = £41.79



£26.25 £26.29 £26.79 £31.79 £41.79

Add decimals up to 2 decimal places (as money or measures):

Expanded	Compact
£26.25 + £15.54 0.09 0.70 11.00 30.00 £41.79	£26.25 + £15.54 £41.79 1

Mental Methods:

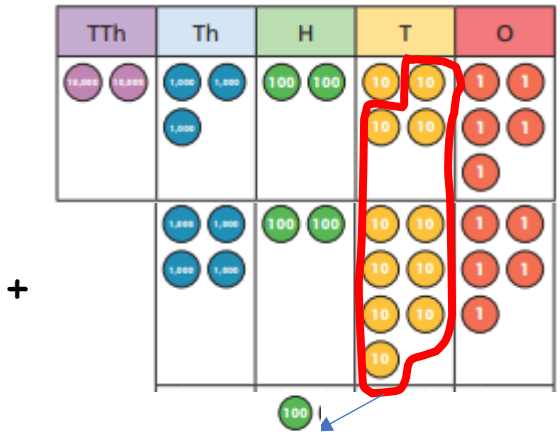
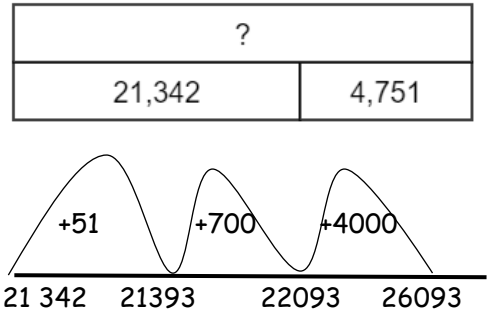
Counting on:
2534 + **2150**
2534 + **2000 + 100 + 50 = 4684**

Using known facts and place value:
5060 + 47
60 + 47= 107 so 5060 + 47 = 5107
0.6 + 0.2
If **6 + 2 = 8** then **0.6 + 0.2 = 0.8**

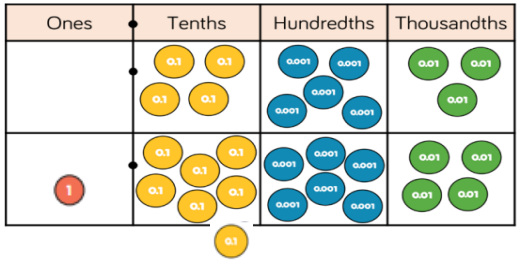
Redistribution:
2504 + 3234 redistribute to 2500 + 3238.

Adjusting:
Demo on a number line first.
2345 + 499 **(add 500 and subtract 1)**
2345 + 2999 **(add 3000 and subtract 1)**

Partitioning:
2314 + 1242
2000 + 1000 = **3000**
300 + 200 = **500**
10 + 40 = **50**
4 + 2 = **6**
3000 + 500 + 50 + 6 = 3556

YEAR 5	**Addition**	
Vocabulary: sum, total, parts and whole, plus, add, altogether, more than; addend + addend = sum/total (see previous year groups)		
Concrete	Pictorial	Abstract
Add whole numbers with more than 4 digits. (Up to answers with 6 digits). 21 342 + 4 751 = 26 093  +	**Add whole numbers with more than 4 digits.** 21 342 + 4 751 = 26 093  	Written **Add whole numbers with more than 4 digits.** **Exchanging** (building up from non exchanging then exchanging at diferent points) 21 342 + 4 751 = 26 093 TTh Th H T O 2 1 3 4 2 + 4 7 5 1 2 6 0 9 3 1

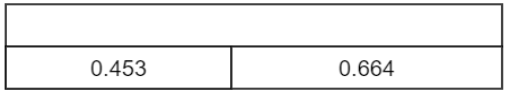
Adding decimals (up to 3 decimal places)
0.453 + 0.664 = 1.117

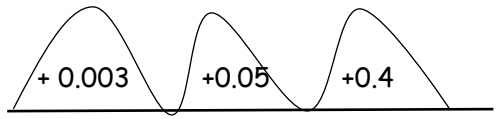


1 . 1 1 7

Start with no exchanging then build up by exchanging at different points.

Adding decimals (up to 3 decimal places)
0.453 + 0.664 = 1.117





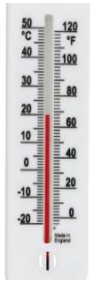
0.664 0.667 0.717 1.117

Adding decimals (up to 3 decimal places)
0.453 + 0.664 = 1.117

Exchanging
(building up from non exchanging then exchanging at diferent points)

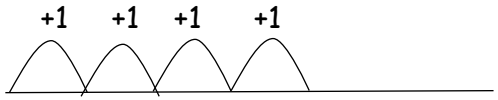
O . th hth thth
0 . 4 5 3
+ 0 . 6 6 4
1 . 1 1 7
1 1

Adding negative numbers
Using real life objects:



Adding negative numbers
Using a number line (the number line could be represented vertically too):

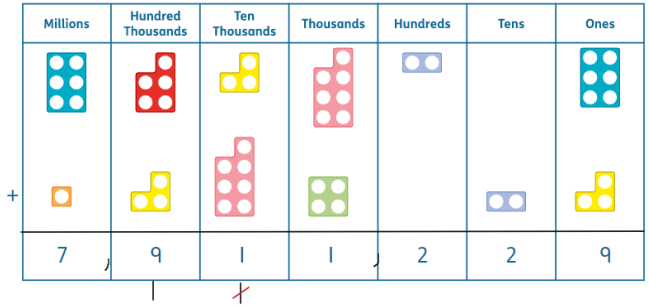
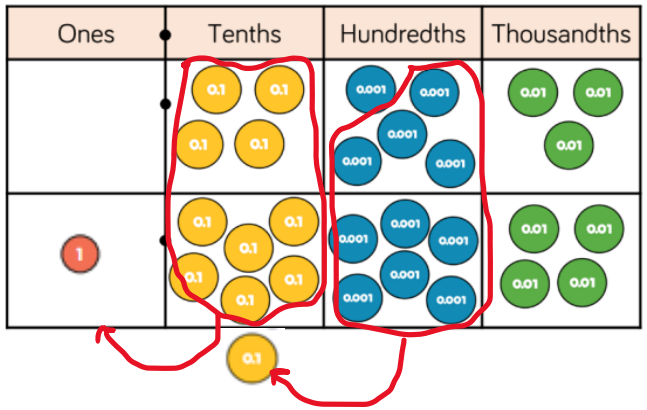
-3 + 4 = 1

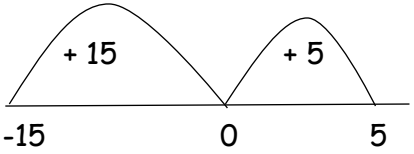


-3 -2 -1 0 1 2 3

Adding negative numbers
Develops into a mental method – no written method.

Mental Methods:		
Counting on: 4.3 + 1.5 **(partition 1.5 then +1 and + 0.5)** 19.7 + 2.6 **(+2, +0.3 to the next whole number then +0.3)** **Redistribution:** 0.66 + 0.23 redistribute to 0.69 + 0.20	**Adjusting:** 2 456 + 399 **(add 400 and subtract 1)** 8.3 + 1.9 **(add 2 and subtract 0.1)** 14.6 + 3.9 **(add 4 and subtract 0.1)** **Using known facts and place value:** 7.5 + 2.6 **7.5 + 2.5 = 10 so 7.5 + 2.6 = 10.1** 0.06 + 0.08 If **6 + 2 = 8** then **0.06 + 0.02 = 0.08** Derive and use addition facts to 1 (with decimals up to 2 decimal places). Recall and use addition facts for 1 and 10 (with decimal numbers up to 1 place) Recall pairs of 3 digit numbers with a total of 1000.	**Partitioning:** **Adding a power of 10** 23 453 + 10 000 = 33 453 45 321 + 1 000 = 46 321 **No exchanging** 42 345 + 21 423 = 63 768 **Exchanging** 3.6 + 1.7 3 + 1 = **4** 0.6 + 0.7 = **1.3** **4 + 1.3 = 5.3**

YEAR 6	**Addition**	
Vocabulary: sum, total, parts and whole, plus, add, altogether, more than; addend + addend = sum/total (see previous year groups)		
Concrete	Pictorial	Abstract
Add larger whole numbers. 6,537,206 + 1,374,023 = 7 911 229  No place value counters for larger numbers. Revisit previous years' addition calculation policies.	**Add larger whole numbers** Number lines from previous year groups are used if needed.	**Add larger whole numbers (exchanging at different points)** M HTh TTh Th H T O 6 5 3 7 2 0 6 + 1 3 7 4 0 2 3 7, 9 1 1, 2 2 9 1 1
Adding decimals up to 3 decimal places. (including decimals with different numbers of decimal places)  	**Adding decimals up to 3 decimal places.** (including decimals with different numbers of decimal places) See previous addition policies if needed for jottings using a number line.	**Adding decimals up to 3 decimal places** (including decimals with different numbers of decimal places) O . t h th 0 . 4 5 3 + 0 . 6 6 4 1 . 1 1 7 1 1

Adding negative numbers In real life contexts 	**Adding negative numbers** -15 + 20 = 5  (could go up in 1s first)	**Adding negative numbers** Develops into a mental method – no written method.

Mental

<u>Counting on:</u>
6.46 + 2.03
(partition 2.03 then +2 and +0.03)

<u>Adjusting:</u>
34 256 + 14 999 **(add 15 000 and subtract 1)**
6.73 + 0.99 **(add 1 and subtract 0.01)**

<u>Using known facts and place value:</u>
0.64 + 0.36
64 + 36 = 100 so 0.64 + 0.36 = 1

<u>Partitioning:</u>
Adding a power/multiple of 10
163 453 + 20,000
275 321 + 1,000
(children recognise which column will change)

No exchanging
345 252 + 223 516
3.421 + 2.357

Exchanging
3.4 + 2.77
3 + 2 = **5**
0.4 + 0.7 = **1.1**
5 + 1.1 + 0.07 = 6.17