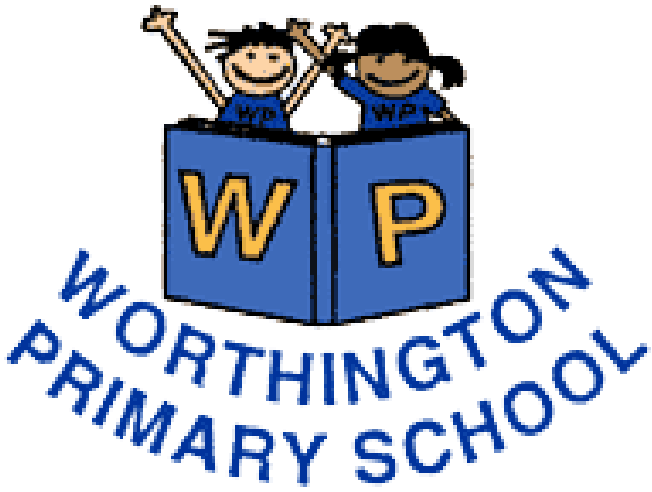


Addition and Subtraction Calculation Policy

This policy has been adapted from the White Rose Scheme of Learning and the NCETM Mastery Materials. This is a working document and is subject to change and revisions.

Addition

EYFS

Addition in the EYFS focuses heavily on language and vocabulary. Real life contexts are used to allow the children to explore addition within the world around them. They will begin to be introduced to representations used across the school and adults will model stem sentences to allow the children to repeat and rehearse the correct vocabulary.

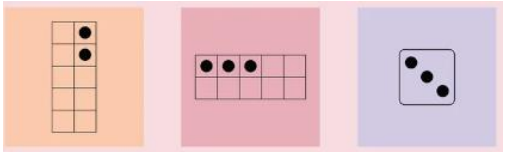
Subitising numbers within 10

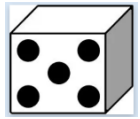
(Nursery to 5)

Subitising is the ability to look at a small set of objects and instantly know how many there are without counting them.
Children will first look at regular arrangements, then irregular arrangements. On average adults can subitise four as an irregular pattern.

Perceptual Subitising

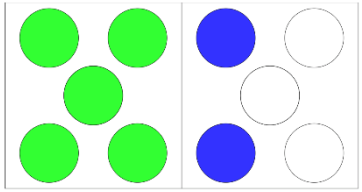
Instant visual recognition -instantly knowing how many are in a set with 5 or less items in an irregular pattern.





I can see four dots.

I can see ___ and ____ make _____.

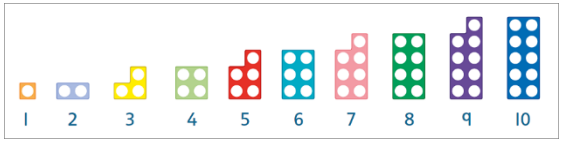


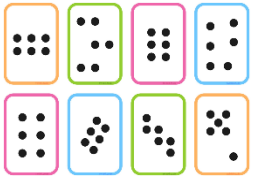
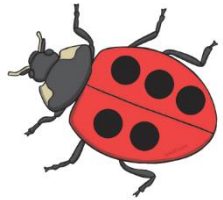
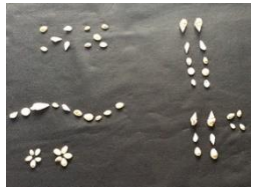
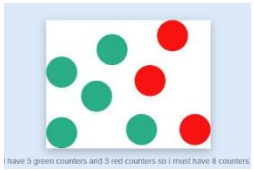
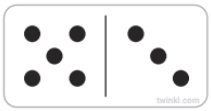
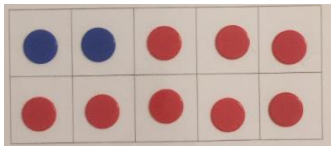
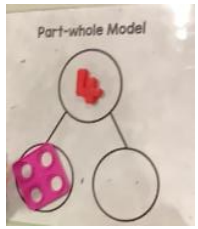
Know the 'one more than less than' relationship between counting numbers.

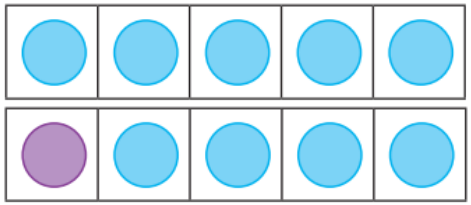
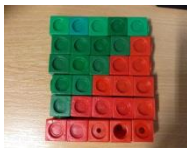
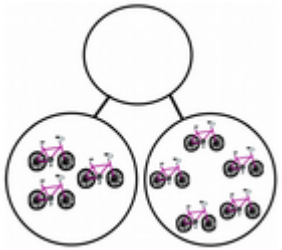
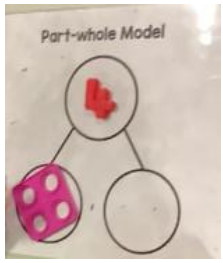
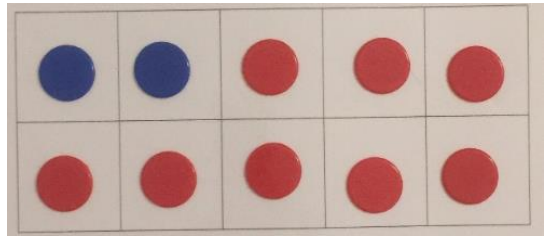
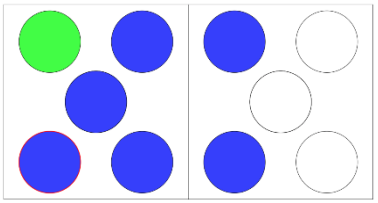
Children in EYFS will learn the one more and one less relationship between counting numbers through song and rhymes. They will use everyday objects to count. They will then discuss the relationship between one more and less.

I know that _____ more/less than is _____ because

The number I count before/after is _____

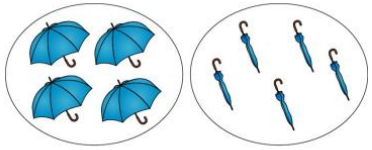
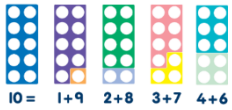
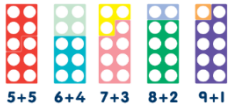
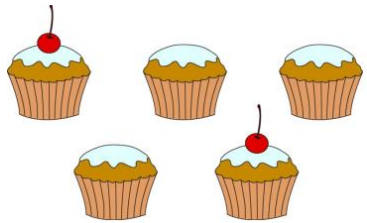
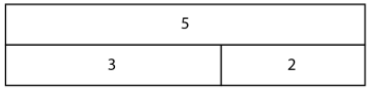
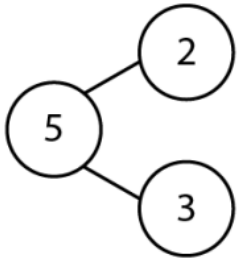
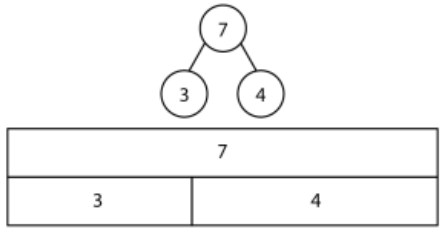
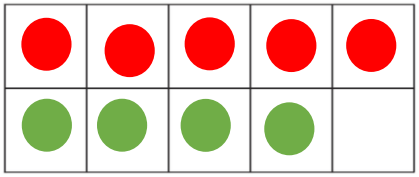
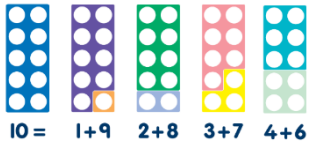
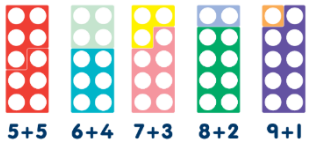
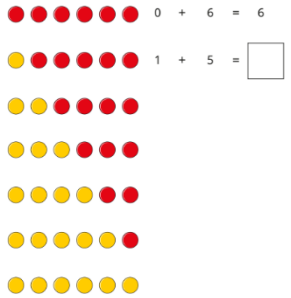


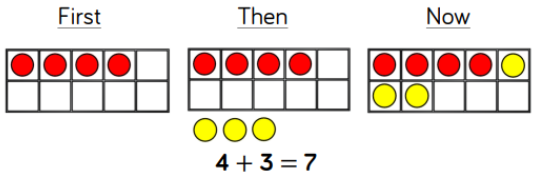
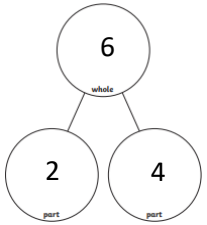
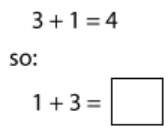
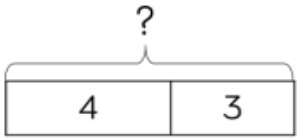
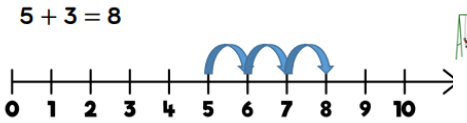
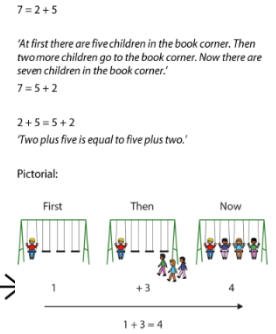
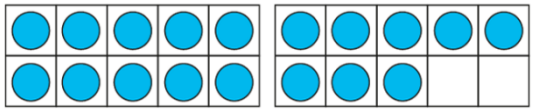
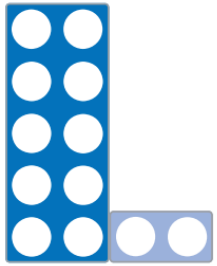
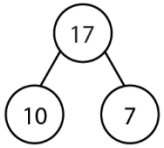
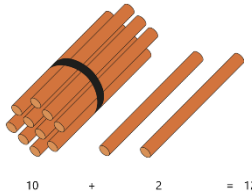
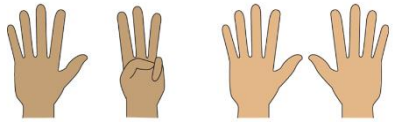
Part whole – identifying smaller numbers within a number *(conceptual subitising)*	**<u>Conceptual Subitising</u>** Recognising smaller groups and adding them together. E.g. 5 dots plus 2 dots.       *There are ____ spots altogether. I can see 4 and 1, I can see 3 and 2, and I can see 1 and 1 and 1 and 1 and 1.* 
Partition numbers into 2 and more than 2 groups	Children need opportunities to explore a range of ways to partition a whole number. The emphasis here is on identifying the pairs of numbers that make a total. Children can do this in two ways – physically separating a group, or constructing a group from two kinds of things.  With two hands, show me five fingers. Can you do it in a different way? Show five fingers altogether with a friend.   Children need opportunities to explore the different ways that numbers can be partitioned, i.e. into more than two groups. Situations to promote this include increasing the number of pots to put a given amount into, e.g. planting ten seeds into three or more pots. *In a toy shop, ten toys need arranging onto the three shelves. How will you organise them?*

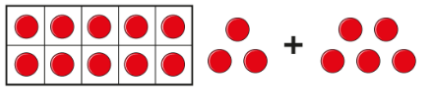
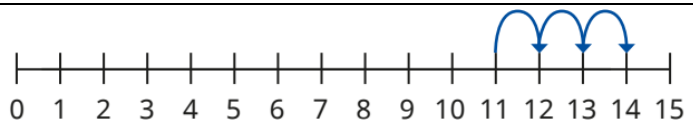
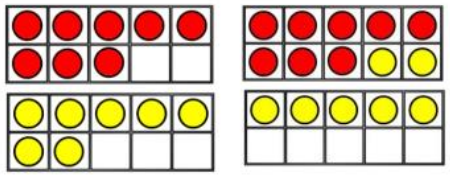
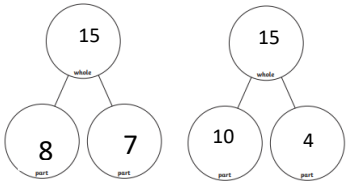
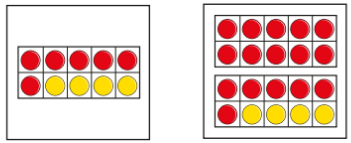
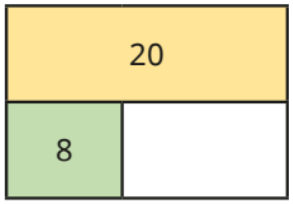
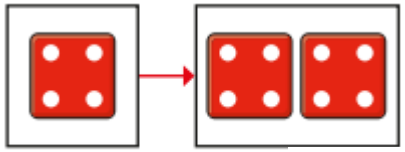
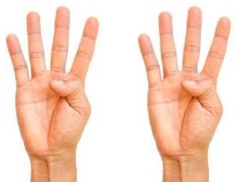
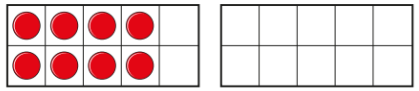
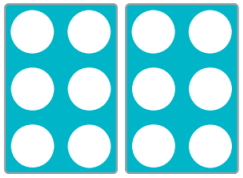
Number bonds within 10 *Nursery to 5*	Children need opportunities to say how many are hidden in a known number of things. For example: 'Five toys go into a tent, then two come out. How many are left in the tent?' The child should respond that there are still three toys in the tent.      *___ is the whole; ___ is a part and ___ is a part.* *This is a whole ___ because I have all of it.* *The whole is made up of _____* *There are ____ bikes in total because*   *I have ___ blue counters and ____ red counters.* *I know that ____ and ____ makes _____*

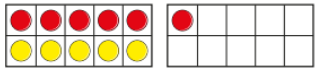
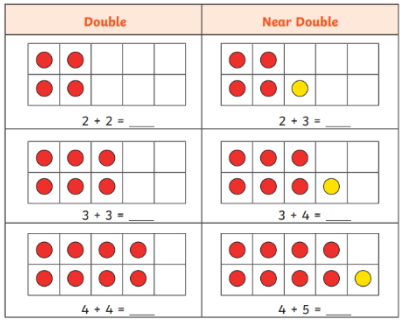
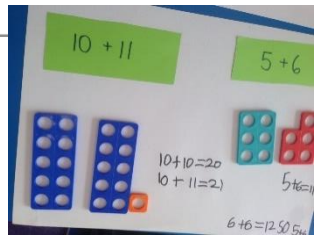
Addition

Year 1

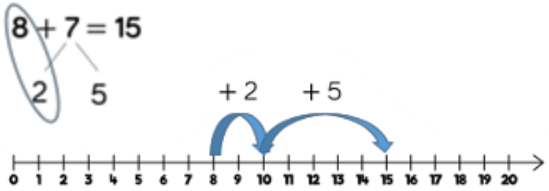
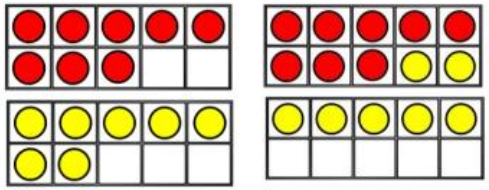
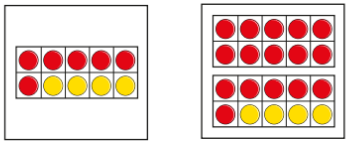
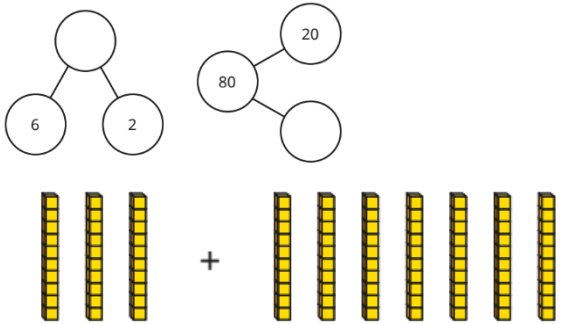
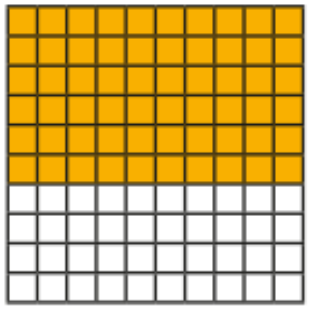
Introduction to additive structures. *Combining two or more parts to make a whole the addition symbol can be used +* *The equals symbol = can be used to show equivalence between the whole and sum of the parts.*	 4 + 5 • *'There are four open umbrellas and five closed umbrellas.'* • *'We can write this as four plus five.'* 4 + 5 • *'The 4 represents the four open umbrellas.'* • *'The 5 represents the five closed umbrellas.'*    • *'There are five cakes. There are two cakes with cherries and three cakes without cherries.'* • *'We can write this as five is equal to two plus three.'* 5 = 2 + 3 • *'We can write this as five is equal to three plus two.'* 5 = 3 + 2 • *'We can write this as two plus three is equal to five.'* 2 + 3 = 5 • *'We can write this as three plus two is equal to five.'* 3 + 2 = 5 • *'Two is an addend, three is an addend, and five is the sum.'*     'Seven is the whole; three is a part; four is a part.' 7 = 3 + 4 7 = 4 + 3 3 + 4 = 7 4 + 3 = 7
Number bonds within and to 10.	Year 1 children will use the above strategies and their knowledge of subitising from EYFS to find number bonds within and to 10.  *There are ____ red counters and ____ green counters.* *The total is _____* *This shows 5 plus 4 is 9*    *Children will also work systemically to find number bonds.*

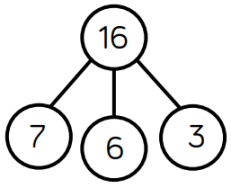
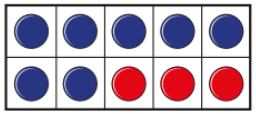
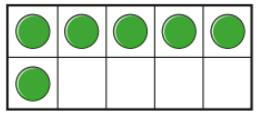
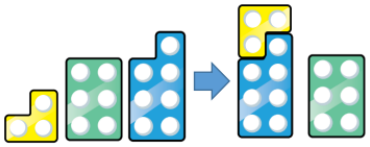
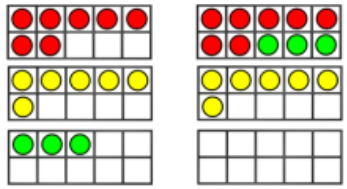
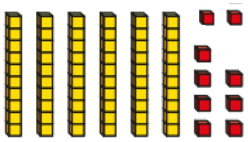
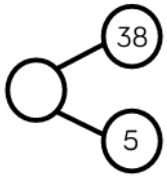
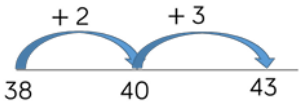
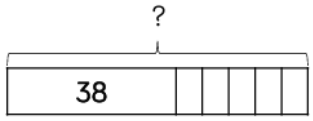
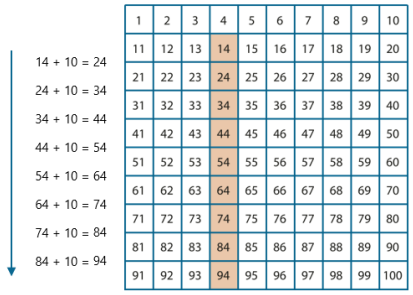
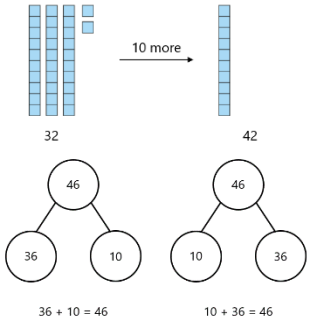
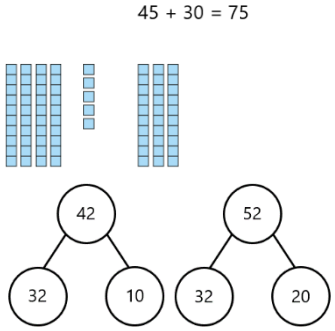
Add two 1-digit numbers to 10 Including fluency in addition facts: *Adding two – knowing the next consecutive odd or even number*	Children will use the representations below and begin to use their knowledge of number bonds and related facts to add       
Add 1 digit to ten.	Children will explore that teen numbers are '10 and a bit'.  18 = 10 + 8     *____ is equal to ten plus _____* *I know there are ___ because ten plus ___ equals ____*

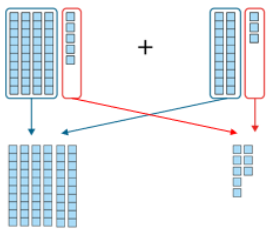
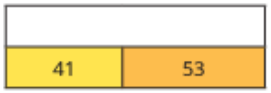
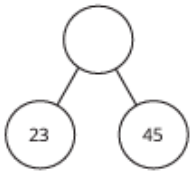
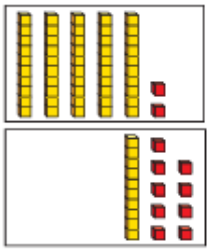
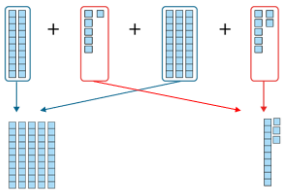
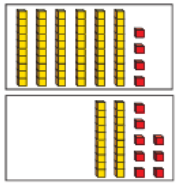
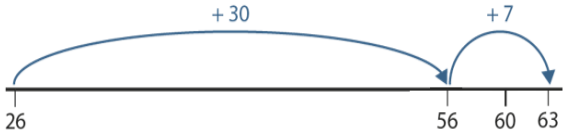
Add 1 and 2-digit numbers within 20. *Including bridging*	  13 + 5 = ☐    There are ____ red counters. There are ____ yellow counters. There are ____ counters altogether. ____ + ____ = ____  In year 1 the children will use this strategy practically and verbalise their understanding. *'I have 8 red counters and 7 yellow counters. I can make ten counters if I partition 7 into 2 and 5.'*
Find doubles	   Double 8 is ☐  ____ + ____ = ____, so double ____ is ____ Double ____ is ____ ____ is the double of ____

Find near doubles	 6 + 5 is equal to double ☐ plus ☐ 6 + 5 = ☐  _____ is 1 more than _____, so I can work out double _____ and then add 1 Double _____ plus 1 is equal to _____ _____ is 1 less than _____, so I can work out double _____ and then subtract 1 2 + 3 = double 2 plus 1 9 + 8 = double 8 plus 1 

Addition
Year 2

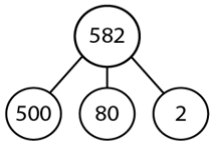
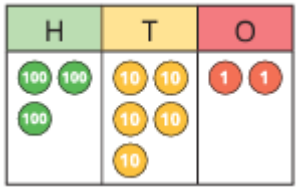
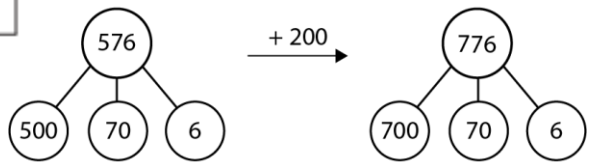
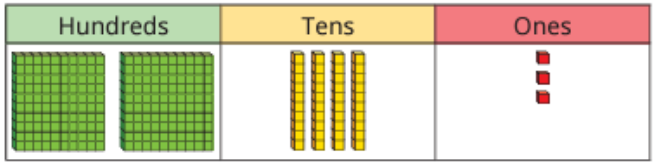
	Year two will continue to strengthen their understanding of addition through mental strategies taught in Year 1. They will continue to 'bridge ten' within 20. Children in Year 2 will not be taught a formal written method (columnar) for addition and will focus on efficient strategies below to calculate.
Add by making ten.	   There are ____ red counters. There are ____ yellow counters. There are ____ counters altogether. ____ + ____ = ____ In Year 2, the children will build on their knowledge from Year 1 and begin to mentally calculate addition calculations by making ten alongside the above manipulatives.
Add using related facts to 100	  *If I know 2 + 5 = 7 then I know 20 + 50 = 70* If ____ ones + ____ ones = 10, then ____ tens + ____ tens = 100 If I have ____ tens, I need to add ____ more tens to make 100 I need to add ____ to ____ to make 100

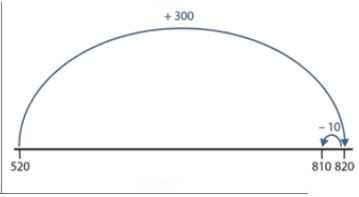
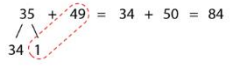
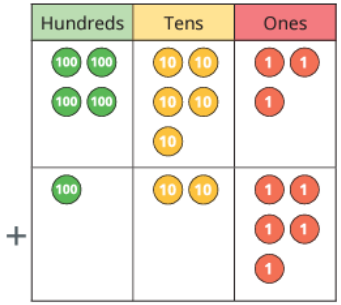
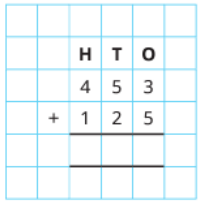
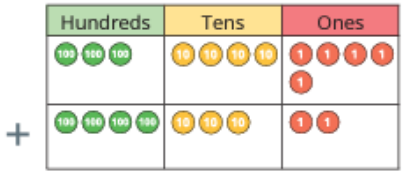
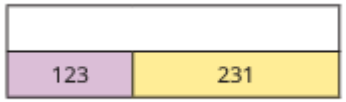
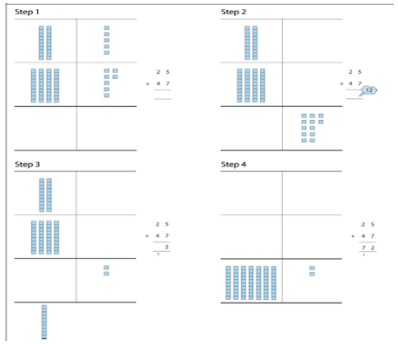
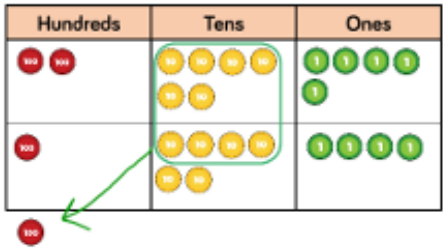
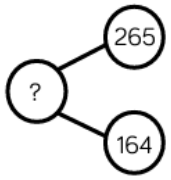
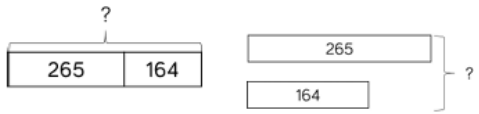
Add three 1digit numbers	     $7 + 6 + 3 = 16$ 10 _____ ones + _____ ones = _____ ones So _____ ones + _____ ones + _____ ones = _____ones _____ and _____ are a bond to _____ 10 + _____ = _____ So _____ + _____ + _____ = _____
Add 1- and 2-digit numbers to 100 *Including bridging.*	     $38 + 5 = 43$ ____ has ____ tens and____ ones. The next 10 is _____ The bond to 10 is _____ I need to add ____ to ____ to get to the next ten.
Add ten more/ten to a two digit number.	   40 has ____ tens so I need to add 10 ____ times. The ___ place changes and the ____ place stays the same.

Add two 2-digit numbers without regrouping.	45 + 23 = 68  60 + 8 = 68 Work out the wholes.   _____ ones + _____ ones = _____ ones _____ tens + _____ tens = _____ tens There are _____ ones altogether. There are _____ tens altogether. _____ tens and _____ ones is _____
Add two 2 digit number with bridging (crossing a ten)	▶ 52 + 19  20 + 6 + 30 + 7 = 63  50 + 13 = 63  4 ones + 8 ones = _____ ones _____ ones = _____ ten + _____ ones 6 tens + 2 tens + _____ ten = _____ tens _____ tens + _____ ones = _____ 

Addition

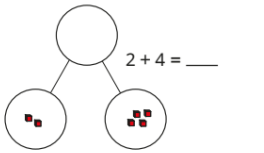
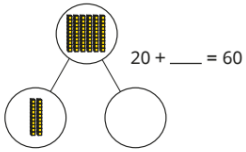
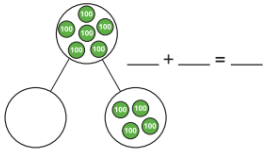
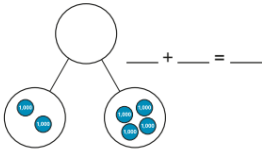
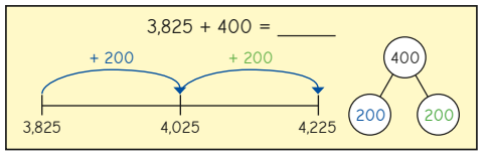
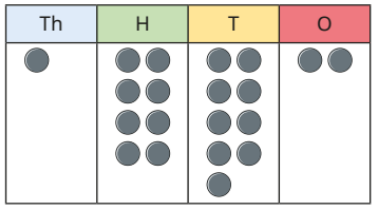
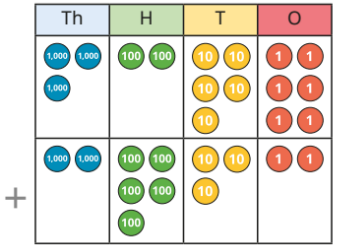
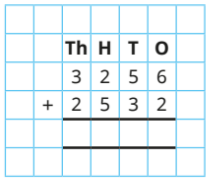
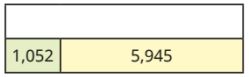
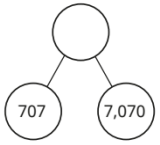
Year 3

Add 10 and 100s	 582 = 500 + 80 + 2 582 = 500 + 2 + 80 582 = 2 + 500 + 80 582 = 2 + 80 + 500 582 = 80 + 2 + 500 582 = 80 + 500 + 2  +.   There are _____ hundreds, _____ tens and _____ ones. _____ hundreds plus/minus _____ hundreds is equal to _____ hundreds. The hundreds column will increase/decrease by _____ There are _____ hundreds, _____ tens and _____ ones. _____ tens plus/minus _____ tens is equal to _____ tens. The tens column will increase/decrease by _____
Add ones across in a 3-digit number within and across and tens.	Children will use strategies and representations used in Year 2 for adding ones to a two-digit number. 243 + 5 = _____ 	_____ has _____ tens and_____ ones. The next 10 is _____ The bond to 10 is _____ I need to add _____ to _____ to get to the next multiple of ten.

Add up to 3-digit numbers *Mental strategies adjusting, redistribution and partitioning.*	35 + 49 = 30 + 40 + 5 + 9 = 70 + 14 = 84  370 + 260 = 37 tens + 26 tens = 63 tens = 630 370 + 260 = 300 + 200 + 70 + 60 = 500 + 130 = 630  
Add up to 3-digit numbers *Introduce columnar method*	    _____ ones plus _____ ones is equal to _____ ones. _____ tens plus _____ tens is equal to _____ tens. _____ hundreds plus _____ hundreds is equal to _____ hundreds. _____ hundreds, _____ tens and _____ ones is equal to _____
Add up to 3 digit numbers with regrouping. *Columnar method*	 265 + 164 429 1    ***'If the column sum is equal to ten or more, we must regroup.'***

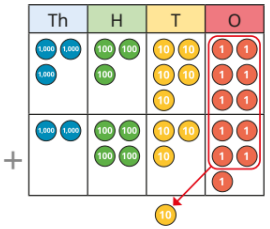
Addition

Year 4

Add ones, tens hundreds and thousands	      The next multiple of 10/100/1000 is… I can partition ___ into _____ and ___ because… The value of the ____ column will increase by ____ Children will explore using Place Value Charts to add ones, tens, hundreds and thousands to numbers.
Add up to 4 digits with no regrouping	    _____ ones added to _____ ones is equal to _____ ones. _____ added to _____ is equal to _____ I have _____ ones, so I do/do not need to make an exchange.

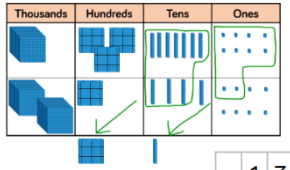
Add up to 4 digits with regrouping

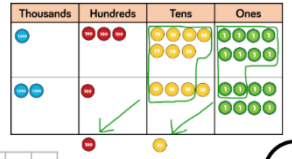
Start with one exchange and move onto more than one.



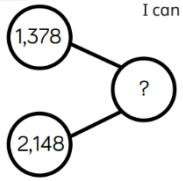
	Th	H	T	O
	3	3	5	6
+	2	4	3	5
	5	7	9	1
			1	

3,535	2,634





	1	3	7	8
+	2	1	4	8
	3	5	2	6
	1	1		



_____ ones added to _____ ones is equal to _____ ones.

_____ added to _____ is equal to _____

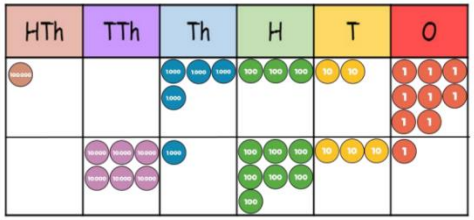
I have _____ hundreds, so I do/do not need to make an exchange.

I can exchange 10 _____ for 1 _____

Addition

Year 5/6

Add with more than 4 digits	At this stage children should use the above manipulatives and mental strategies to help support their understanding of adding with more than four digits. They will consolidate mental strategies for addition and they should have a secure understanding of regrouping and be able to make connections using a formal written method. Stem sentences should still be used to aid understanding.
Add with up to 3 decimal places. Children will start to add decimals within 1 and move through complements to 1 and beyond. They will first add decimals with the same number of places and move to adding numbers with different decimal places.	



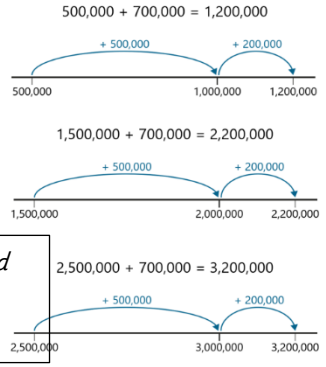
1	0	4	3	2	8
+	6	1	7	3	1
1	6	6	0	5	9

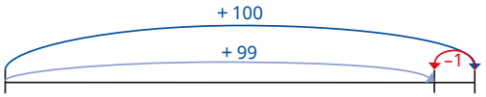
1

In column addition, we start from the place value column that has the _____ value.

The _____ is in the _____ column. It represents _____

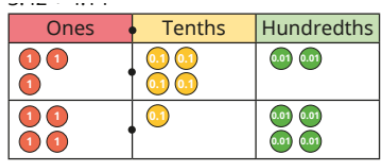
I can partition _____ into _____ and _____.
The next multiple of _____ is





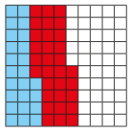
Children will use this adjusting strategy to add 999, 9999, etc.

First I will add____
Then I will subtract ___



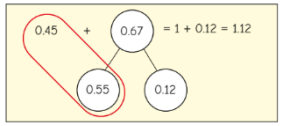
	3	⋅ 4	2
+	4	⋅ 1	4
		⋅	

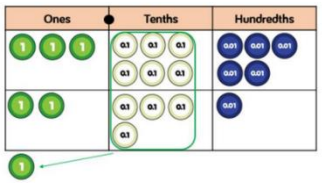
Each square in this hundred square represents one-hundredth of the whole.

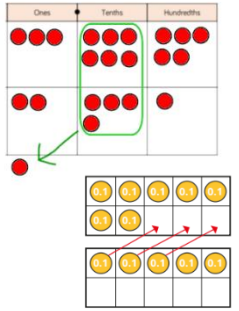


_____ hundredths + _____ hundredths = _____ hundredths

_____ + _____ = _____







_____ tenths = _____ hundredths

_____ ones + _____ ones = _____ ones,

so _____ tenths + _____ tenths = _____ tenths

$$\begin{array}{r} 3.65 \\ +\ 2.41 \\ \hline 6.06 \end{array}$$

0.7 + 0.3 = 1
1 + 0.2 = 1.2
0.7 + 0.5 = 1.2

Subtraction

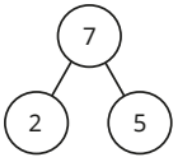
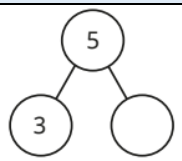
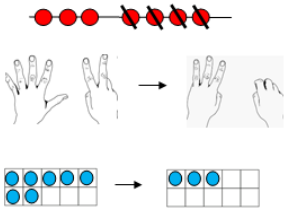
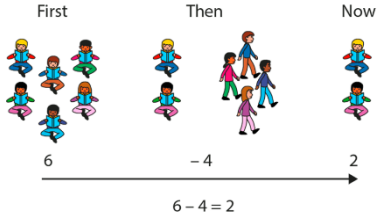
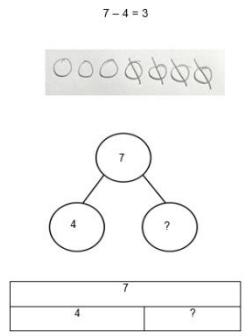
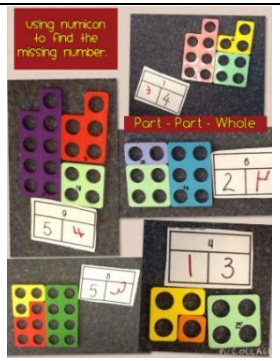
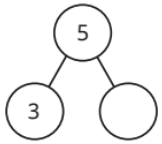
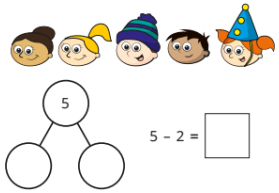
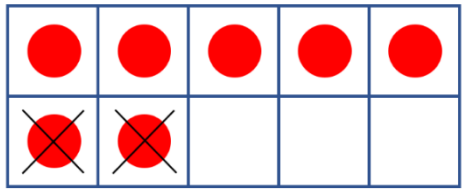
EYFS

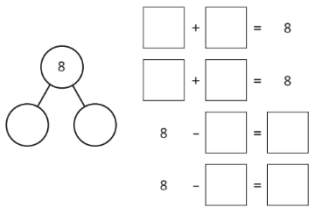
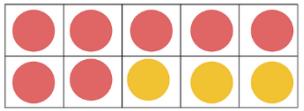
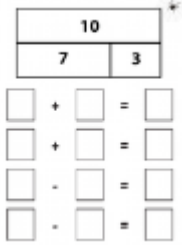
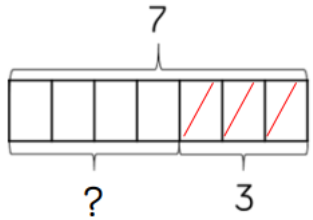
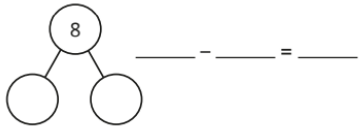
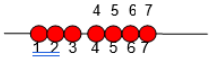
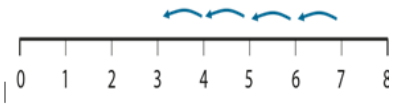
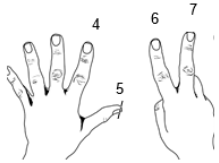
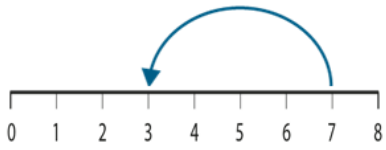
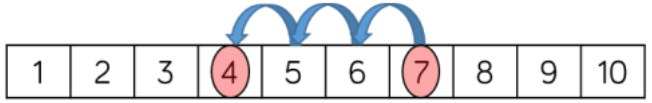
Subtract within 10 Nursery within 5	Subtraction within EYFS is taught within the 6 key areas of Early Mathematics Learning, with a focus on: Cardinality and Counting, Comparison, Composition. **See EYFS Addition statements to see how subtraction is linked to addition in the EYFS.** Children will explore subtraction through songs; for example, 'Five Currant Buns' – show that the whole is still five, but some are in the shop and some have been taken away; check throughout that there are still five currant buns Counting back: counting backwards, for example *number rhymes* Playing games such as skittles and looking at how many are standing. How many have fallen over? How many are left? How many are there altogether?

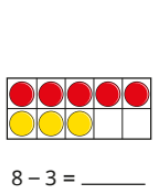
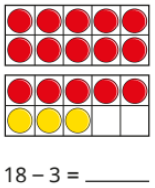
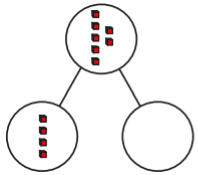
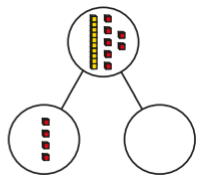
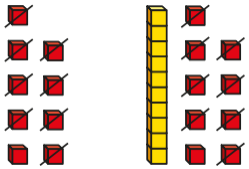
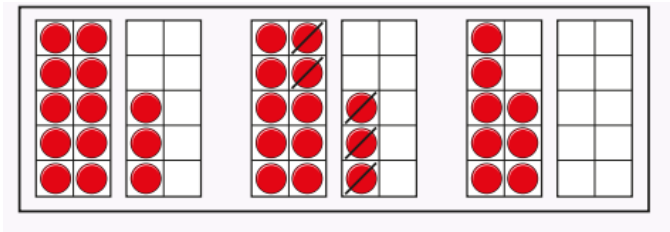
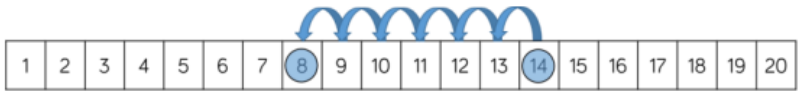
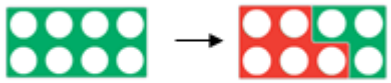
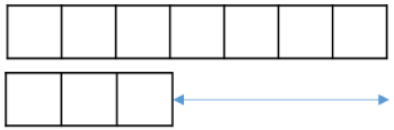
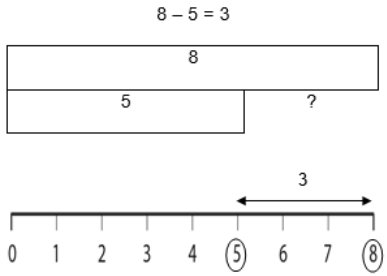
Subtraction

Year 1

In Year 1 the children will be formally introduced to the subtraction symbol.

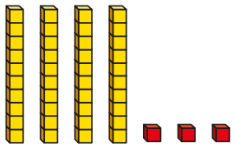
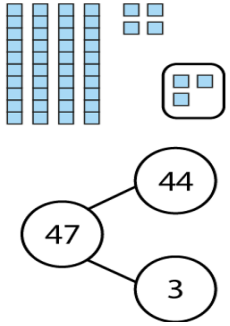
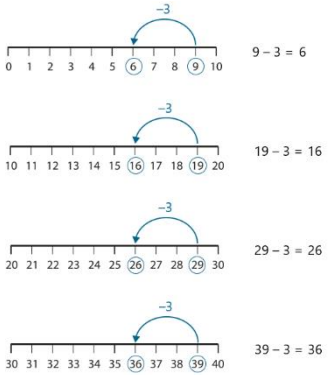
Partition a whole into two parts and express with a subtraction calculation.	 ▸ 7 – 2 = _____ ▸ 7 – 5 = _____  _____ – _____ = _____  ▸ 6 – 2 = _____ ▸ There are _____ ice creams that do not have flakes.   
Find a part within 10	  _____ – _____ = _____  If the whole is _____ and _____ is a part, then the other part is _____ _____ minus _____ is _____ _____ – _____ = _____ 

Fact families within 10 Children will start with finding four facts moving onto 8.	 Complete the part-whole model and the fact family.    _____ is a part, _____ is a part and _____ is the whole. _____ + _____ = _____ _____ – _____ = _____ I know I have found all the facts, because …  3 + 5 = 8 5 + 3 = 8 8 – 5 = 3 8 – 3 = 5 8 = 3 + 5 8 = 5 + 3 3 = 8 – 5 5 = 8 – 3
Subtraction by taking away and crossing out to 10 *Finding how many are left.*	7 – 4 = 3   4 – 2 = 2    _____ – _____ = _____ First there were _____ Then _____ were taken away. Now there are _____  First there were _____ apples. Then _____ of the apples were eaten. Now there are _____ apples.
Subtract two 1-digit numbers to 10 *Counting back* *On a number line*	7 – 4 = 3  7 – 4 = 3    *Count back 4 from 7.*  I need to start from _____ I need to make _____ jumps backwards. I land on _____ This means that _____ – _____ = _____

Subtract 1 and 2 digit numbers within 20 *Using number bonds*	 8 – 3 = _____  18 – 3 = _____    The number bond for _____ to _____ is _____ So the number bond for _____ to _____ is _____ There will be _____ ones and _____ ten, so the answer is _____ *I know 8 – 5 = 3* *So I know 18 – 5 = 13*
Subtract 1 digit numbers within 20 *Counting back*	   First there were _____ Then _____ were taken away. Now, there are _____ _____ subtract _____ is equal to _____
Find the difference	   8 – 5 = 3 *'The difference between 8 and 5 is 3.'* *'The difference between 5 and 8 is 3.'* *'3 is the difference between 8 and 5.'*

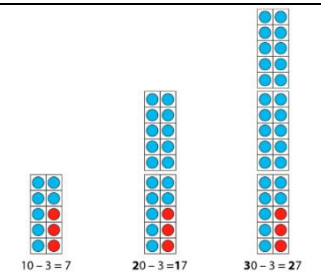
Subtraction

Year 2

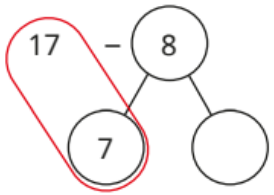
	Year two will continue to strengthen their understanding of subtraction through mental strategies taught in Year 1. They will continue to 'bridge ten' within 20. Children in Year 2 will not be taught a formal written method (columnar) for subtraction and will focus on efficient strategies below to calculate.
Subtract ones from a two digit number *not bridging ten*	 *43 subtract 2 is 41 because I know 3 - 2 is 1.*   _____ has _____ tens and _____ ones. _____ ones + _____ ones = _____ ones, so _____ + _____ = _____ To subtract _____ ones, I need to subtract 1 _____ times.

Subtract ones from a two-digit number

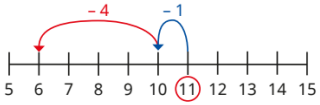
bridging ten

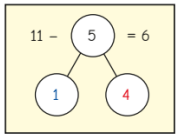


calculations: ***'I know that ten minus ___ is equal to ___, so I know that ___ minus ___ is equal to ___.'***

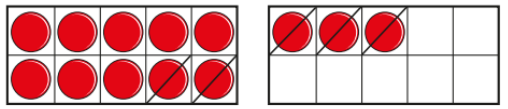


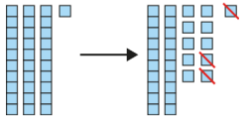
10 – ___ = ___



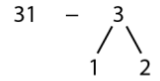


The counters show that 13 – 5 = 10 – 2





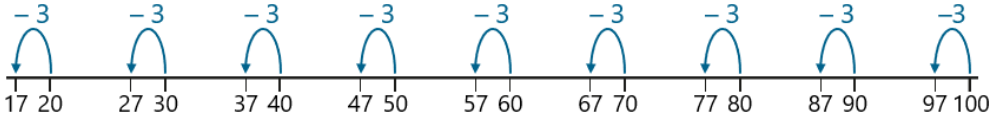
31 – 3 = 31 – 1 – 2
= 30 – 2
= 28



I need to subtract _____ to get to 10
I can partition _____ into _____ and _____
I need to subtract _____ more.
_____ less than _____ is _____

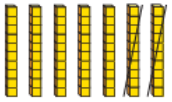
First, I partition the three into two and one.

Thirty-one minus one is thirty and thirty minus two is twenty eight.

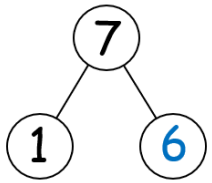


Subtract using related facts

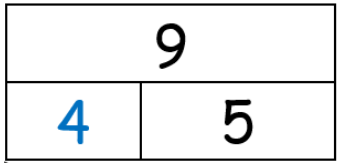
_____ ones – _____ ones = _____ ones
_____ – _____ = _____



_____ tens – _____ tens = _____ tens
_____ – _____ = _____

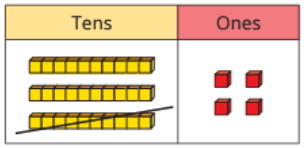
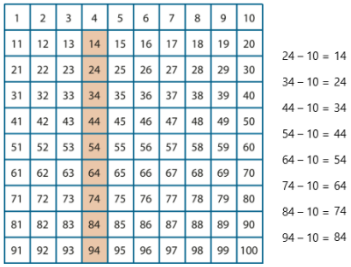
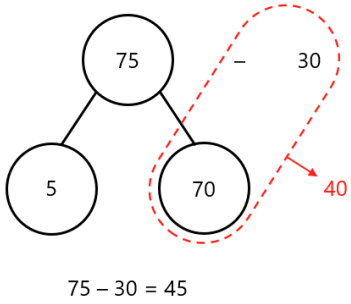
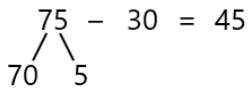
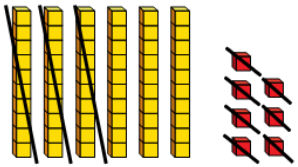
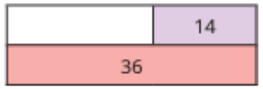
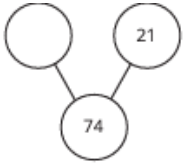
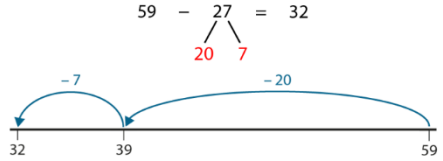
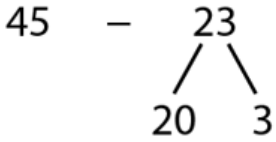


7 – 1 = 6
70 – 60 = 10
60 = 70 – 10
10 = 70 – 60



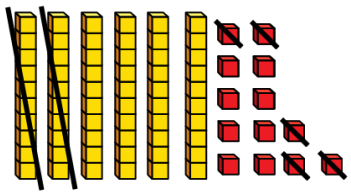
I know 9 – 5 = 4 so 90 – 50 = 40

_____ ones – _____ ones = _____ ones,
so _____ tens – _____ tens = _____ tens
This means that _____ – _____ = _____

Subtract ten and ten numbers from a two digit number.	   
Subtract two 2-digit numbers *not bridging ten*	 *67 – 37 =* *First I need to subtract 7 ones which leaves 0 ones.* *Then I need to subtract 3 tens which leaves 3 tens.* *Finally I recombine to get 37*     

Subtract two 2-digit numbers

bridging ten



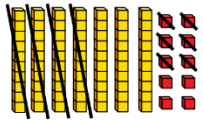
1 ten = 10 ones

13 ones − 5 ones = 8 ones

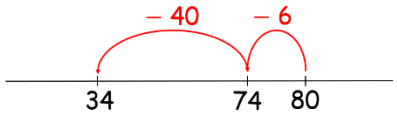
6 tens − 2 tens = 4 tens

73 − 25 = 48

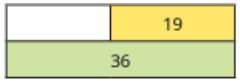
Calculate 80 − 46



80 − 46 = 34



First, I can partition forty into forty and six.
Then I can take away 6 to the previous multiple of ten.
Finally, I can take forty away.

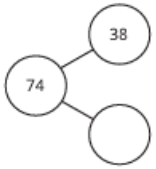


1 ten is equal to _____ ones.

I need to exchange _____ for _____

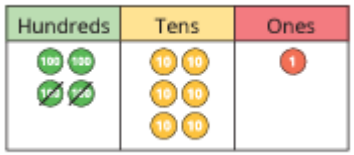
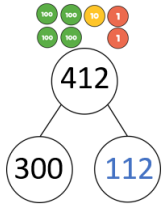
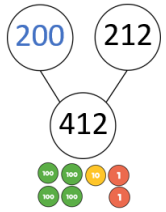
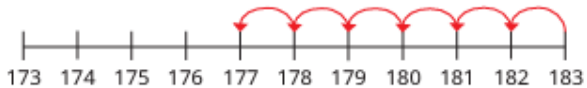
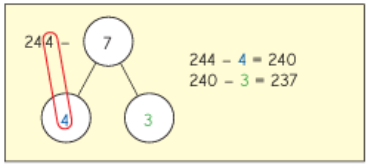
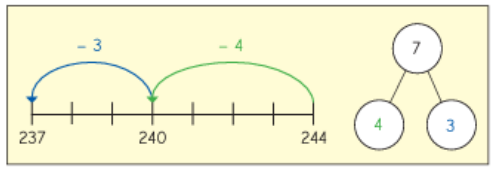
I know I need to make an exchange because ...

The difference between _____ and _____ is _____

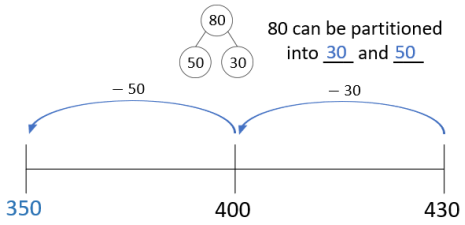


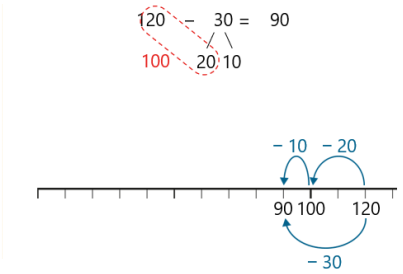
Subtraction

Year 3

	Year 3 children will consolidate subtraction calculation from methods taught in Year 2. A formal written method will be introduced in Year 3 alongside other efficient subtraction strategies used above.
Subtract 100s	   There are _____ hundreds, _____ tens and _____ ones. _____ hundreds plus/minus _____ hundreds is equal to _____ hundreds. The hundreds column will increase/decrease by _____ 
Subtract ones across a ten in a 3-digit number	   The next multiple of 10 after _____ is _____ _____ can be partitioned into _____ and _____ I need to add _____ to get to the next 10, and then add another _____

Subtract tens across one hundred





The multiple of 100 before _____ is _____

_____ can be partitioned into _____ and _____

I need to subtract _____ to get to the previous multiple of 100, then subtract _____ more.

120 − 30 = 90

12 tens − 3 tens = 9 tens

100 − 10 = 90 100 − 20 = 80 100 − 40 = 60

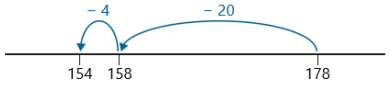
400 − 10 = 390 400 − 20 = 380 400 − 40 = 360

407 − 10 = 397 407 − 20 = 387 407 − 40 = 367

Subtract a 2 digit from a 3-digit number

Mental strategies including adjusting, redistribution and partitioning.

178 − 24 = 154



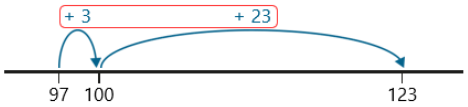
Partitioning

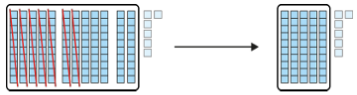
123 − 97 = 26

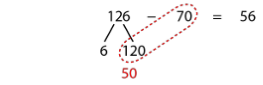
123 − 100 = 23

23 + 3

Adjusting







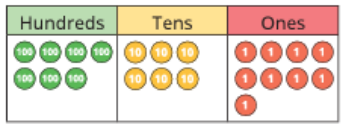
126 − 70 = 120 − 70 + 6

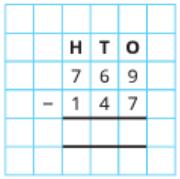
= 50 + 6

= 56

Subtract up to 3-digit numbers with no regrouping

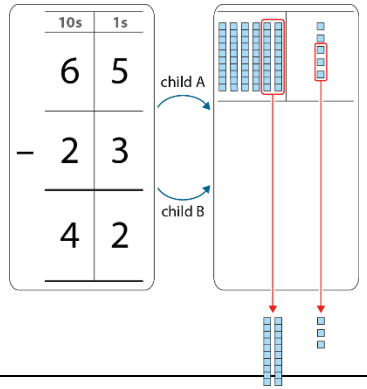
Introduce columnar method

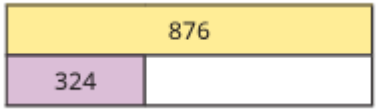




'The ones column represents ___ one(s) minus ___ one(s) is equal to ___ ones.'

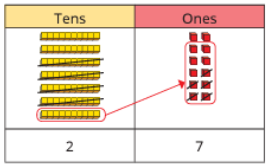
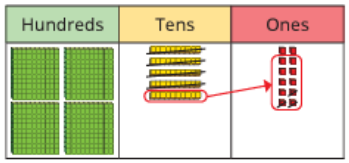
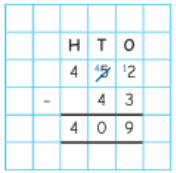
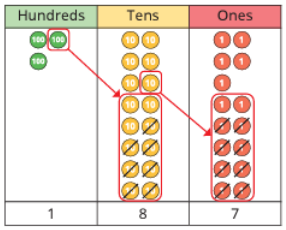
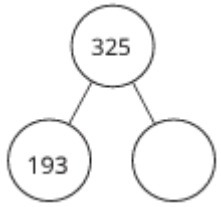
'The tens column represents ___ ten(s) minus ___ ten(s) is equal to ___ tens.'





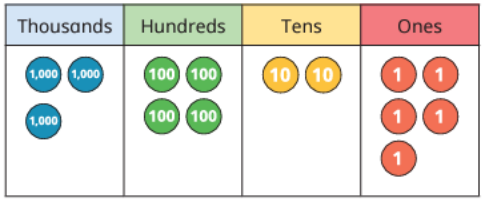
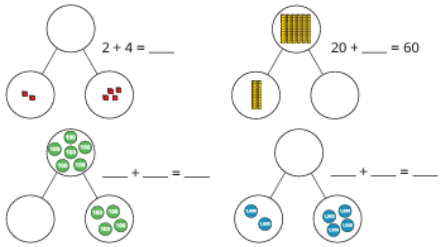
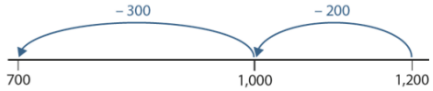
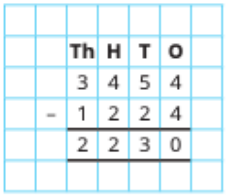
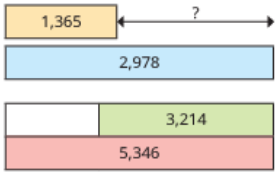
_____ ones/tens/hundreds minus _____ ones/tens/hundreds is equal to _____ ones/tens/hundreds.

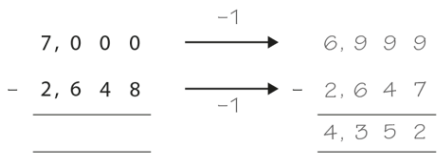
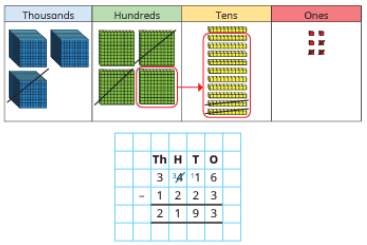
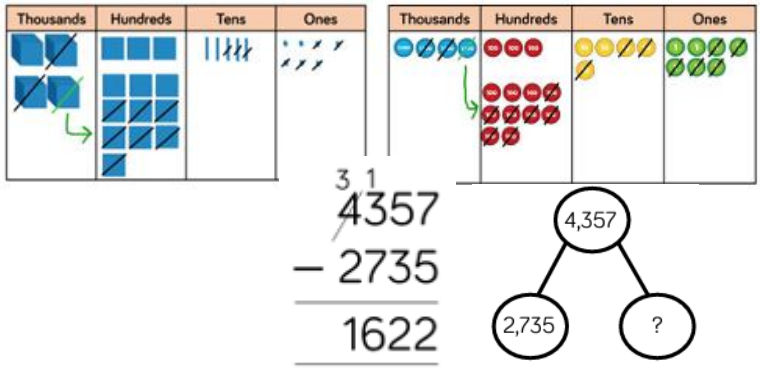
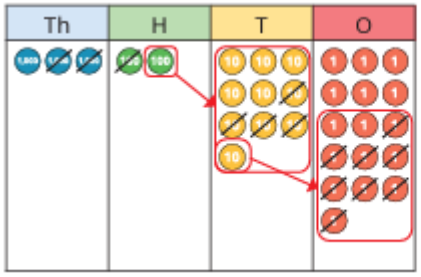
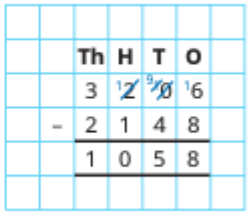
Now there are _____ hundreds, _____ tens and _____ ones.
The answer is _____

Subtract up to 3-digit numbers with regrouping *Introduce columnar method*	Children will begin to subtract up to three digits across a ten, moving through regrouping across a hundred.        _____ ones subtract _____ ones is equal to _____ ones. I will exchange 1 ten for _____ ones. Now I have _____ hundreds, _____ tens and _____ ones. The answer is _____ _____ tens subtract _____ tens is equal to _____ I will exchange 1 hundred to make _____ tens. Now there are _____ hundreds, _____ tens and _____ ones. The answer is _____

Subtraction

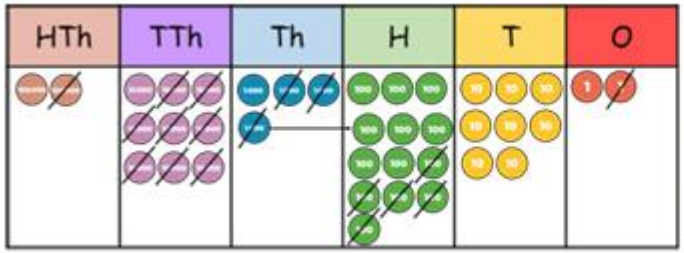
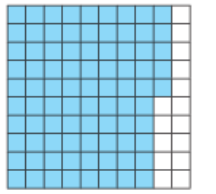
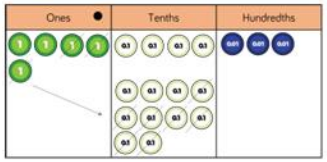
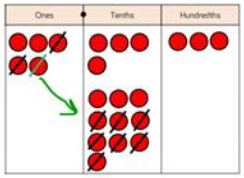
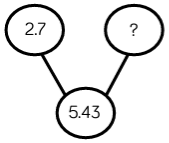
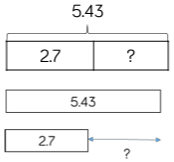
Year 4

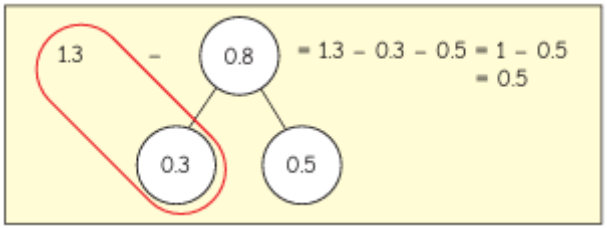
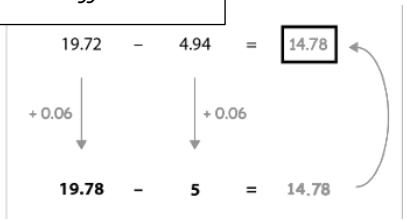
	Year 4 children will consolidate efficient subtraction calculation methods taught in Year 2 and 3.
Subtract ones, tens hundreds and thousands	Children will consolidate their understanding of subtracting ones, tens and hundreds from previous year groups and extend this to four digit numbers.  *If I subtract _____ ones/tens/hundreds/thousands I will have____ left.* *The ____ place changes* *The ____ places stay the same*  The next/previous multiple of 10/100/1,000 is _____ I can partition _____ into _____ and _____ because ... The value of the _____ column will increase/decrease by _____ 1,200 – 500= 700 
Subtract up to 4 digits with no regrouping	  Th H T O 3 4 5 4 – 1 2 2 4 2 2 3 0   _____ ones/tens/hundreds subtract _____ ones/tens/ hundreds is equal to _____ I can/cannot subtract _____ ones/tens/hundreds from _____ ones/tens/hundreds, so I do/do not need to make an exchange.

	  *Same difference* *subtractions involving four-digit numbers: 'So, if we subtract one from the minuend and one from the subtrahend the calculation seven thousand minus two thousand six hundred and forty-eight, we will keep the same difference.'*
Subtract up to 4 digits with regrouping *Start with one exchange and move onto more than one.*	  _____ ones/tens/hundreds subtract _____ ones/tens/ hundreds is equal to _____ I can/cannot subtract _____ ones/tens/hundreds from _____ ones/tens/hundreds, so I do/do not need to make an exchange.   _____ ones/tens/hundreds subtract _____ ones/tens/ hundreds is equal to _____ I can/cannot subtract _____ ones/tens/hundreds from _____ ones/tens/hundreds, so I do/do not need to make an exchange.

Subtraction

Year 5/6

	Children should now be confident using efficient subtraction methods. They will then apply this knowledge to the below procedures.
Subtract with more than 4 digits	 2 9 3 13 8 2 – 1 8 2 5 0 1 1 1 1 8 8 1 45,228 – 25,203 = 20,025 - 3 - 3 45,225 – 25,200 = 20,025 *Same difference* In column addition/subtraction, we start with the _____ place value column. The _____ is in the _____ column. It represents _____
Subtract with up to 3 decimal places Children will start to subtract decimals within 1 and move through complements to 1 and beyond.	0.85 – 0.12 =      4 1 5.43 – 2.7 2.73 _____ can be partitioned into _____ and _____ The first number is _____ away from 1 The second number can be partitioned into _____ and _____ The total is 1 + _____ = _____ I can subtract _____ to get to 1 and then subtract _____ from 1

They will first subtract decimals with the same number of places and move to subtracting numbers with different decimal places.		*Same difference* 	_____ ones/tenths subtract _____ ones/tenths is equal to _____ ones/tenths. I need to make an exchange because ... I need to exchange 1 _____ for 10 _____