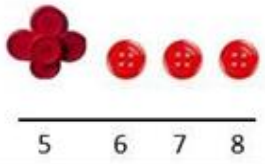
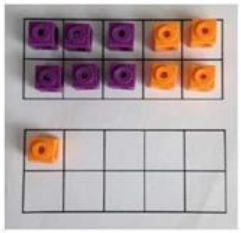
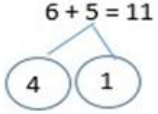
YEAR 1 — Calculating strand: ADDITION

Vocabulary	Key Questions
Addition, add, forwards, put together, more than, total, altogether, distance between, difference between, equals = same as, most, pattern, odd, even, digit, counting on, part, whole	How many altogether? How many more to make…? I add …more. What is the total? How many more is… than…? How much more is…? One more, two more, ten more… What can you see here? Is this true or false? What is the same? What is different?

Example Questions

Basic	Advancing	Deep
Use …and … in a number sentence. **Illustrate** the problem **Name** the number bonds **Memorise** the addition facts to … **Match** the answers to the number problems **Tell** a friend how you solved the problem	**Compare** which method you prefer to use **Identify** patterns in the number sentences **Modify** the numbers to change the answer **Organise** the numbers into a number sentence.	**Prove** how you know the answer is… **Investigate** how many different ways you can make …using addition. **Explain** you method **Create** two addition number sentences from the given numbers.

Counting	 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer. 	Use a number line to count on in ones. 	5 + 3 = 8 5 + 3 + 1 = □

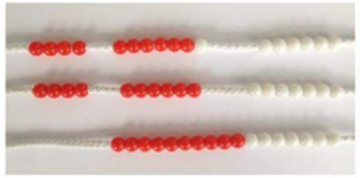
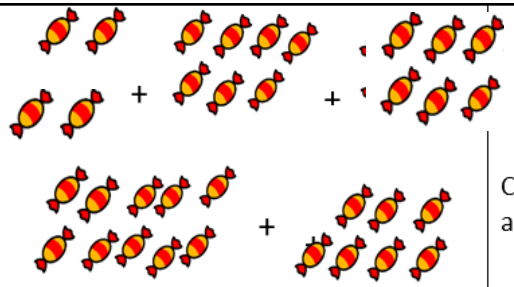
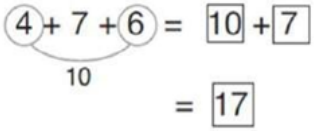
Regrouping to make 10			6 + 5 = 11
	 6 + 5 = 11 Start with the bigger number and use the smaller number to make 10.	6 + 5 = 11  6 + 4 =10 10 + 1 = 11	15 + 4 = □

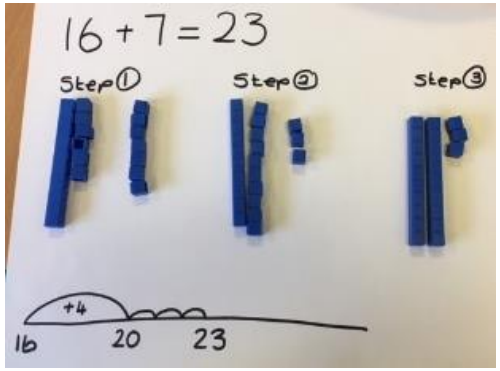
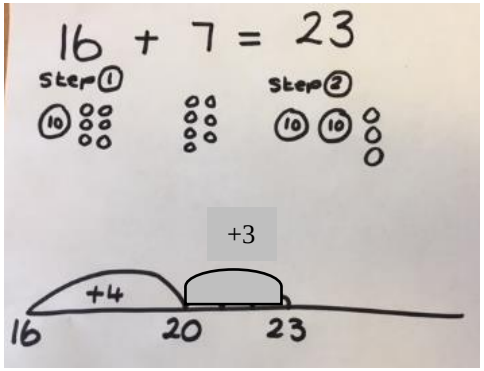
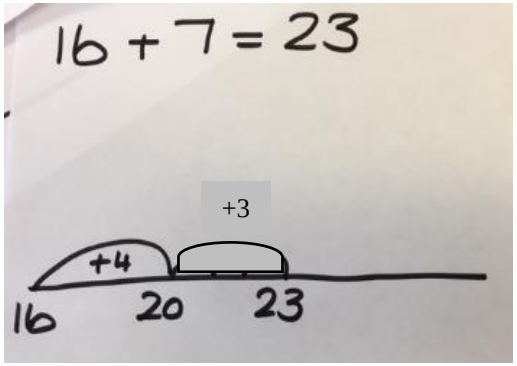
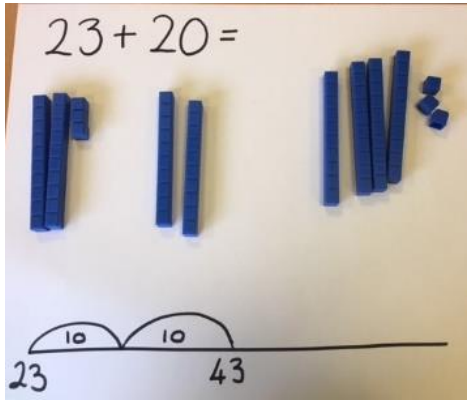
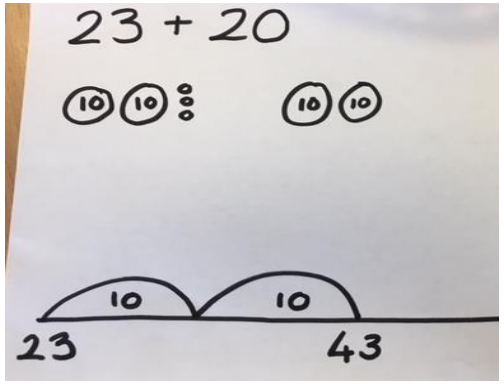
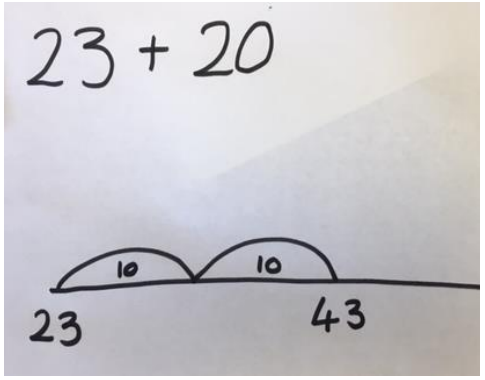
YEAR 2 — Calculating strand: ADDITION

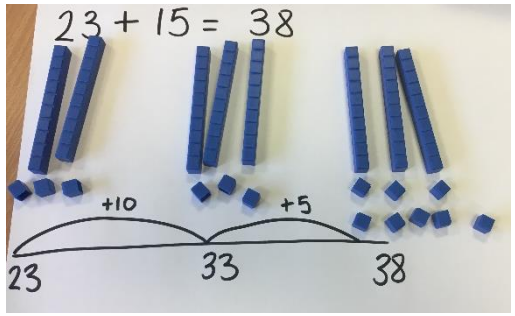
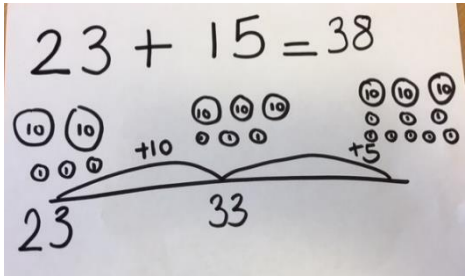
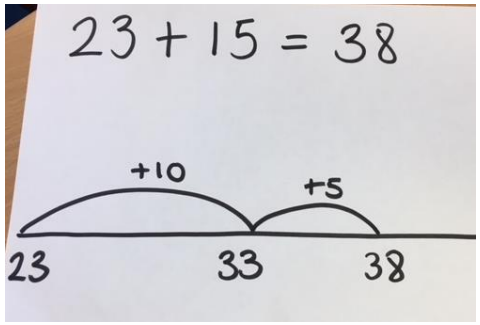
Vocabulary	Key Questions
+, add, addition, more, plus, make, total, altogether, how many more to make…? how many more is… than…? how much more is…? =, equals, sign, is the same as, Tens, ones, partition, near multiple of 10, tens boundary, More than, one more, two more… ten more… one hundred more, part, whole	How many altogether? How many more to make…? How many more is… than…? How much more is…? Is this true or false? If I know that 17 + 2 = 19, what else do I know? (e.g. 2 + 17 = 19; 19 – 17 = 2; 19 – 2 = 17; 190 – 20 = 170 etc). What do you notice? What patterns can you see?

Example Questions

Basic	Advancing	Deep
Use …and … in a number sentence. **Illustrate** the problem **Name** the number bonds **Memorise** the addition facts to … **Match** the answers to the number problems **Tell** a friend how you solved the problem	**Compare** which method you prefer to use **Identify** patterns in the number sentences **Modify** the numbers to change the answer **Organise** the numbers into a number sentence.	**Prove** how you know the answer is… **Investigate** how many different ways you can make …using addition. **Explain** you method **Create** two addition number sentences from the given numbers.

	Concrete	Pictorial	Abstract
Adding 3 single digit numbers	4 + 7 + 6= 17 Put 4 and 6 together to make 10. Add on 7.  Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.	 Add together three groups of objects. Draw a picture to recombine the groups to make 10.	 Combine the two numbers that make 10 and then add on the remainder.

Counting on			
Counting on (two digit and tens)			

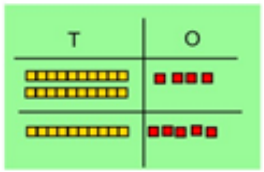
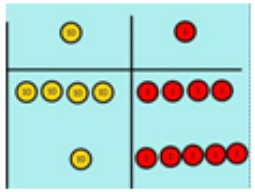
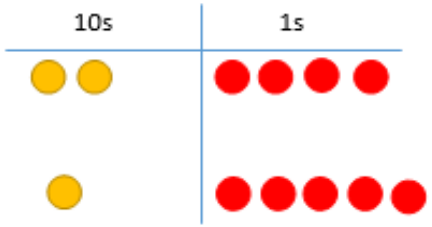
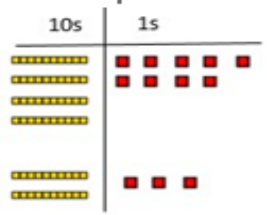
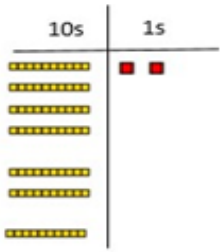
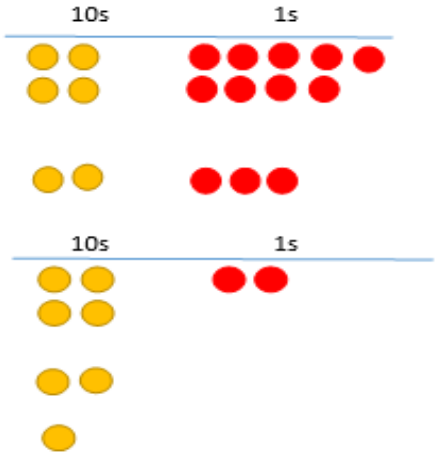
Counting on (two 2-digit numbers)			

Addition of two 2-digit numbers should move onto examples with crossing 10 - as shown in the Interim framework 2018/2019

Only move children on to using the column methods once they have become secure in the use of number lines.

Ensure you follow the CPA approach to support this new strategy.

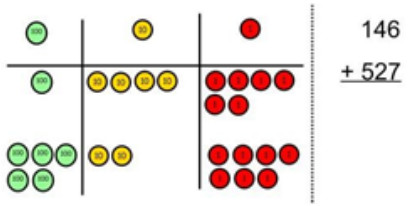
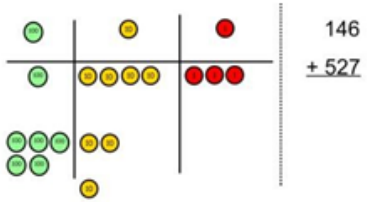
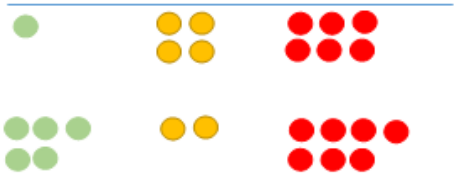
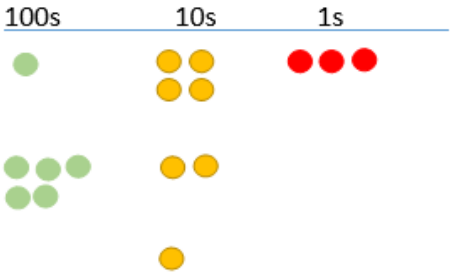
Use part/whole model to support the variation.

Column method without regrouping	Add together the ones first, then add the tens. Use the Base 10 blocks first before moving onto place value counters. 24 + 15 =  44 + 15 = 	After physically using the base 10 blocks and place value counters, children can draw the counters to help them to solve additions.  	:
Column method with regrouping	Make both numbers on a place value  grid. Add up the units and exchange 10 ones for 1 ten.  	Using place value counters, children can draw the counters to help them to solve additions.  	

YEARS 3 & 4	Calculating strand: ADDITION		
Vocabulary Year 3	**Vocabulary Year 4**	Key Questions YEAR 3	Key Questions Year 4
Hundreds, tens, ones, estimate, partition, recombine, difference, decrease, near multiple of 10 and 100, inverse, rounding, column subtraction, part, whole, exchange See also Y1 and Y2	add, addition, sum, more, plus, increase, total, altogether, double, near double, how many more to make..? How much more? ones boundary, tens boundary, hundreds boundary, thousands boundary, tenths boundary, hundredths boundary, inverse, how many more/fewer? Equals sign, is the same as, part, whole,	What do you notice? What patterns can you see? When comparing two methods alongside each other: What's the same? What's different? Look at this number in the formal method; can you see where it is in the expanded method / on the number line?	What do you notice? What's the same? What's different? Can you convince me? How do you know?

Example Questions Years 3 and 4

Basic	Advancing	Deep
Use …and … in a number sentence to make a 3 digit number answer **Arrange** your addition calculation in a different order **Use** a different addition method to solve the calculation. **Describe** your method of addition to a partner. **Tell** a friend how you solved the problem	**Organise** your calculation as a written method. **Explain** your method **Estimate** the answer **Compare** two written methods and **explain** which one is your preferred method. **Apply** your written method to solve.	**Prove** you are correct **Create** a word problem **Create** a help sheet to explain the written method that you have used. **Investigate** the total journey time/distance.

Objective	Concrete	Pictorial	Abstract
Column method with regrouping	Make both numbers on a place value grid.  146 + 527 Add up the units and exchange 10 ones for 1 ten.  146 + 527 As children move on to decimals, money and decimal place value counters can be used to support learning. **NB** By Year 4 children will progress on to adding four digit numbers.	100s 10s 1s  100s 10s 1s  Children can draw a pictoral representation of the columns and place value counters to further support their learning and understanding. **NB** Addition of money needs to have £ and p added separately.	146 + 527 673 1 As the children move on, introduce decimals with the same number of decimal places and different. Money can be used here.

YEARS 5 & 6	Calculating strand: ADDITION

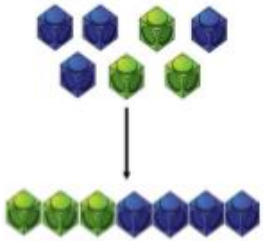
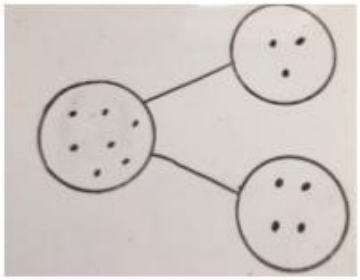
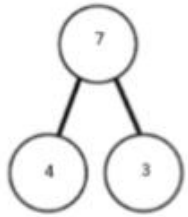
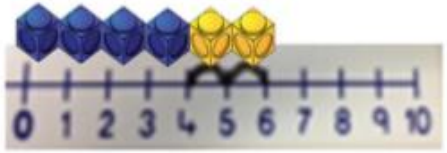
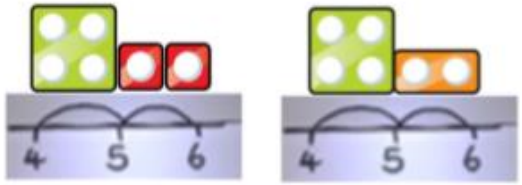
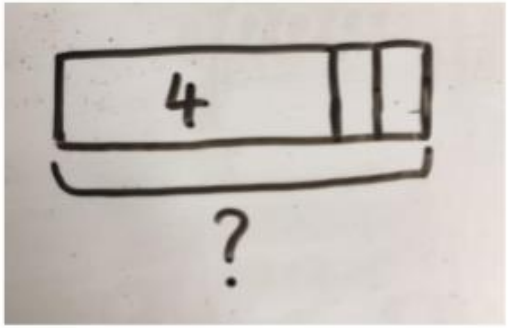
Vocabulary	Key Questions
tens of thousands boundary, Also see previous years	What do you notice? What's the same? What's different? Can you convince me? How do you know?

Example Questions

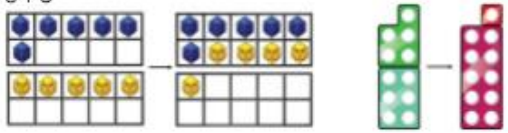
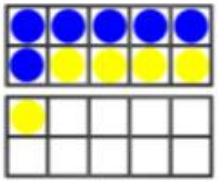
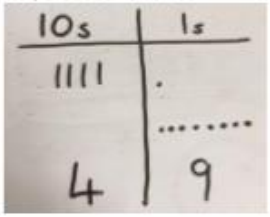
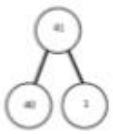
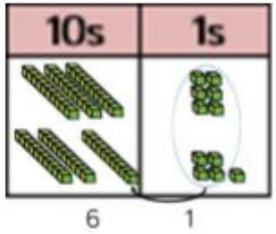
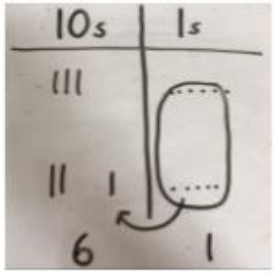
Basic	Advancing	Deep
Use column addition to add… **List** all the different vocabulary for addition **Tell** me the method you have used to find the total **Find** the pattern and repeat it.	**Predict** if x + y would total an odd or an even number. **Estimate** the answer to ..., work out the answer to check your estimation. **Explain** your method. **Organise** your calculation	**Create** your own word problem. **Design** your own menu/bedroom purchasing food/objects with a given amount to spend. **Investigate** distances travelled on a map.

Consolidate understanding using numbers with more than 4 digit numbers and extend by adding numbers with up to 3 decimal places (including where the decimal numbers have a different number of decimal places)

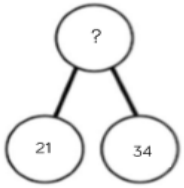
ENSURE YOU USE A VARIETY OF APPLICATION METHODS FOR ADDITION

Concrete	Pictorial	Abstract
Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears, cars). 	Children to represent the cubes using dots or crosses. They could put each part on a part whole model too. 	4 + 3 = 7 Four is a part, 3 is a part and the whole is seven. 
Counting on using number lines using cubes or Numicon.  	A bar model which encourages the children to count on, rather than count all. 	The abstract number line: What is 2 more than 4? What is the sum of 2 and 4? What is the total of 4 and 2? 4 + 2 

THE NEW GUILD TRUST

Regrouping to make 10; using ten frames and counters/cubes or using Numicon. 6 + 5 	Children to draw the ten frame and counters/cubes. 	Children to develop an understanding of equality e.g. 6 + □ = 11 6 + 5 = 5 + □ 6 + 5 = □ + 4
TO + O using base 10. Continue to develop understanding of partitioning and place value. 41 + 8 	Children to represent the base 10 e.g. lines for tens and dot/crosses for ones. 	41 + 8  1 + 8 = 9 40 + 9 = 49 4 1 + 8 4 9
TO + TO using base 10. Continue to develop understanding of partitioning and place value. 36 + 25 	Chidlren to represent the base 10 in a place value chart. 	Looking for ways to make 10. 36 + 25= 1 5 30 + 20 = 50 5 + 5 = 10 50 + 10 + 1 = 61 Formal method: 36 +25 61 1

Conceptual variation; different ways to ask children to solve 21 + 34



?	
21	34

Word problems:
In year 3, there are 21 children and in year 4, there are 34 children.
How many children in total?

21 + 34 = 55. Prove it

21
+34
___

21 + 34 =

□ = 21 + 34

Calculate the sum of twenty-one and thirty-four.

Missing digit problems:

10s	1s
	?
?	5