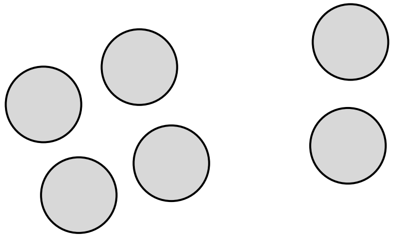
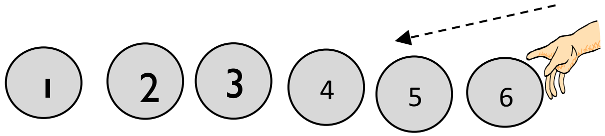
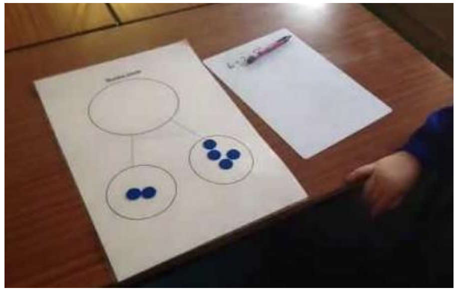
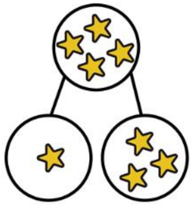
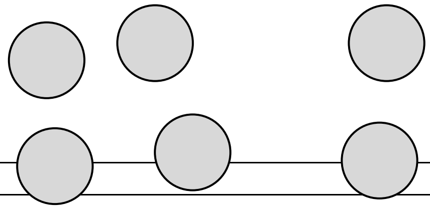
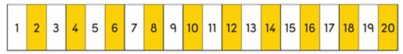
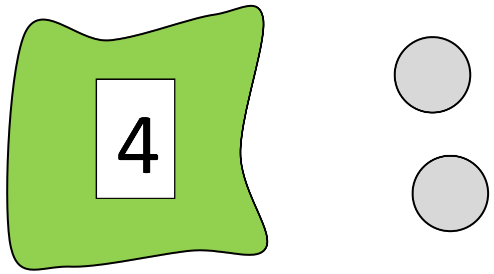
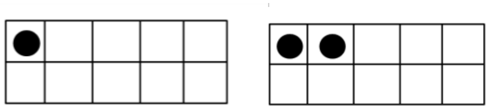
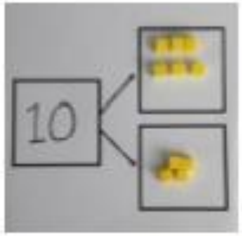
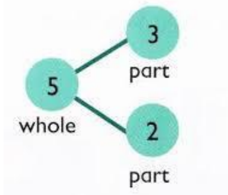
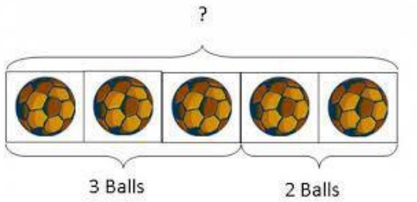
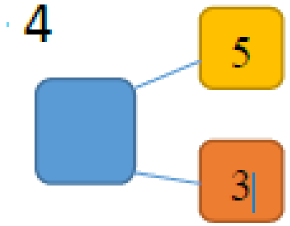
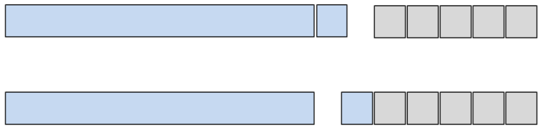
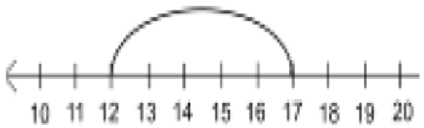
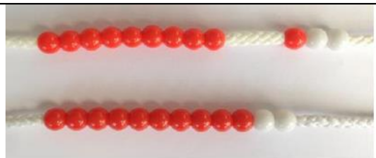
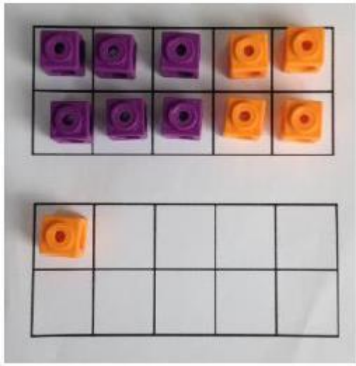
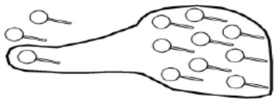
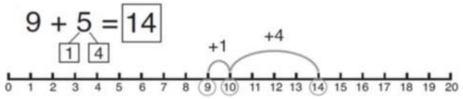
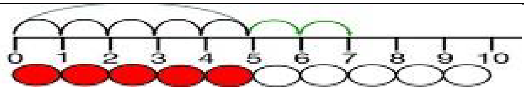
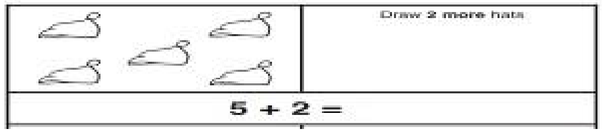
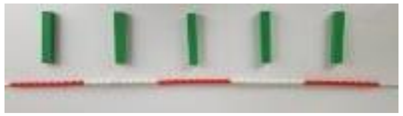
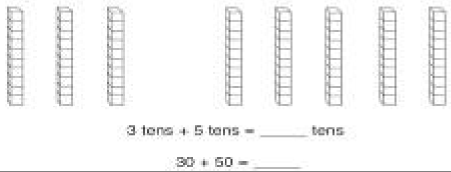
Mathematics Addition Calculations Policy 2022- 2023

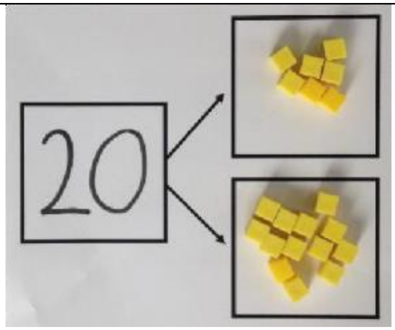
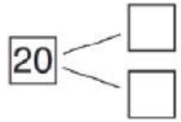
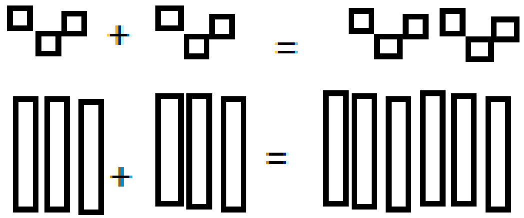
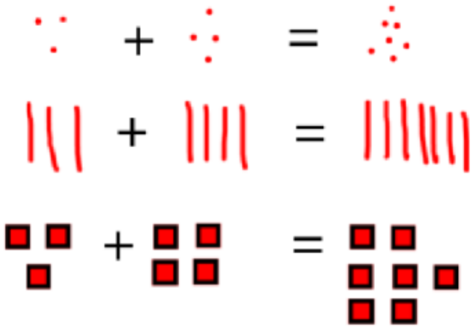
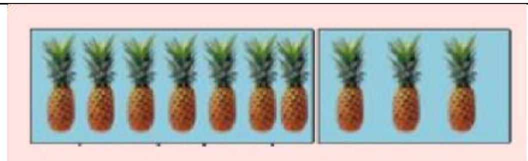
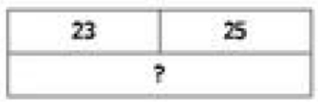
'Working together to achieve success'

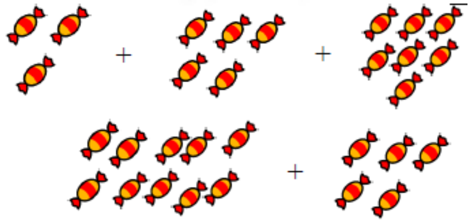
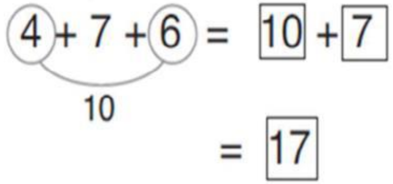
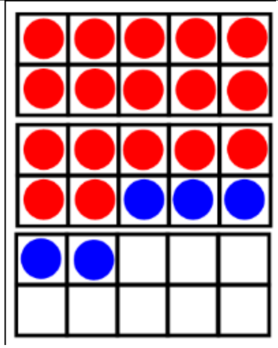
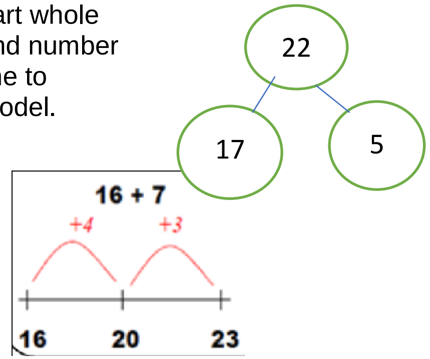
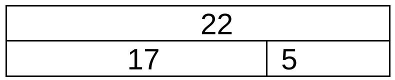
	Concrete	Pictorial	Abstract
Reception Addition			
Counting all method	Children will begin to develop their ability to add by using practical equipment to count out the correct amount for each number in the calculation and then combine them to find the total. For example, when calculating 4 + 2, they are encouraged to count out four counters and count out two counters.  To find how many altogether, touch and drag them into a line one at a time whilst counting.  	Children will learn that when we ask how many are there altogether they need to count continuously from one part to the next part, counting all the objects/pictures  	Being able to respond to questions like: How many would 3 and 2 be altogether? What are the number pairs for 5? (without concrete or Pictor ial aids)
Counting on method	To support children in moving from a counting all strategy to one involving counting on, children should still have two groups of objects but one should be covered so that it cannot be counted. For example, when calculating 4 + 2, count out the two groups of counters as before. 	Looking at pictures where they can use subitising and asking how many altogether?	Using a number line to count on – often we do this when calculating the class Team Points e.g. Green Team have 6 points and now 2 more need to be added. How many do they have now? 

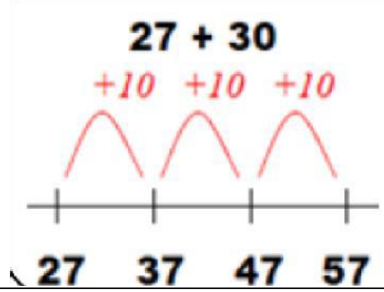
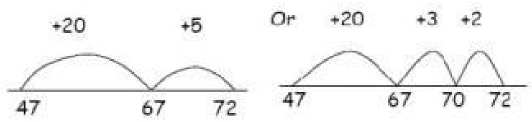
	then cover up the larger group with a cloth.  For most children, it is beneficial to place the digit card on top of the cloth to remind the children of the number of counters underneath. They can then start their count at 4, and touch count 5 and 6 in the same way as before, rather than having to count all of the counters separately as before.	Children begin to learn to count on from the larger amount.  **4**…5, 6  **2**…3	

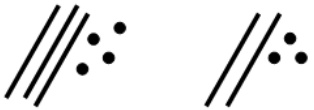
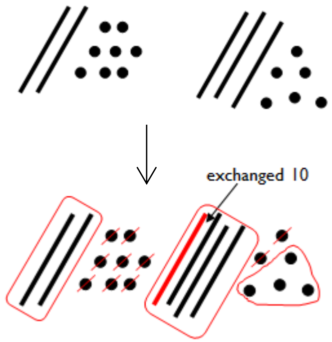
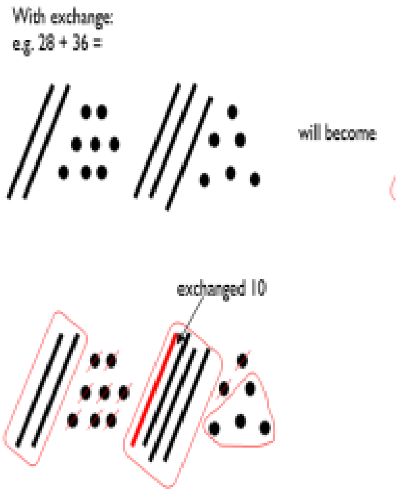
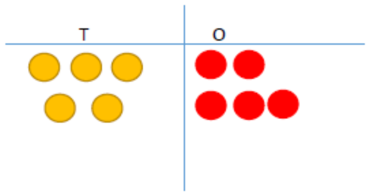
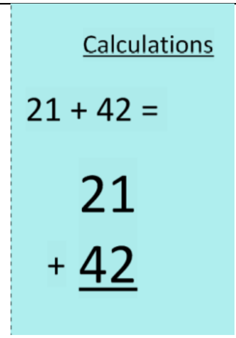
Year 1 Addition			
Combining two parts to make a whole: part-whole model	   Use cubes to add two numbers together as a group or in a bar. 	  Use pictures to add two numbers together as a group or in a bar.	4 + 3 = 7 10= 6 + 4 Use the part-part whole diagram as shown above to move into the abstract. 
Starting at the bigger number and counting on	11 + 5 = 16 11 cubes are lined up (1 ten and 1 unit/one). 5 cubes are added to the line of 11 giving a total of 16.   Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.	12 + 5 = 17  Start at the larger number on the number line and count on in ones or in one jump to find the answer.	12 + 5 = 17 Put the larger number in your head and count on the smaller number to find your answer.

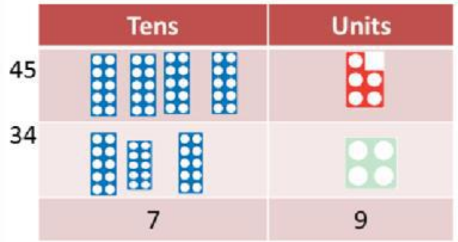
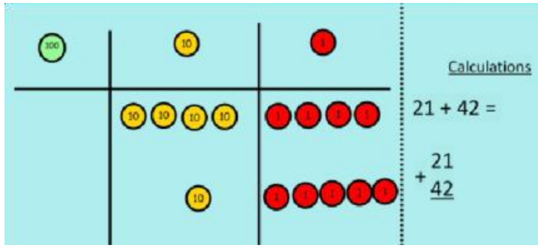
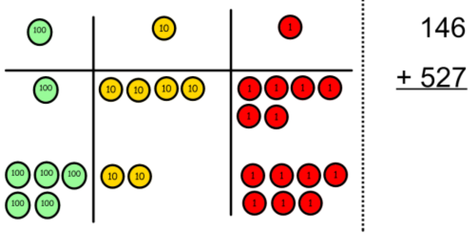
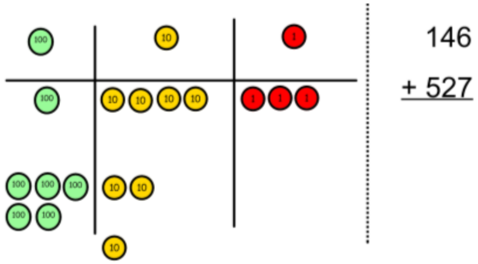
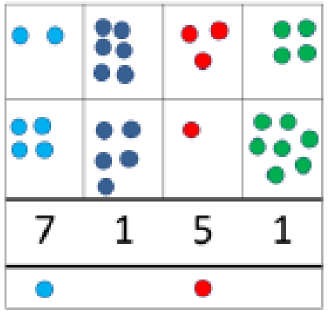
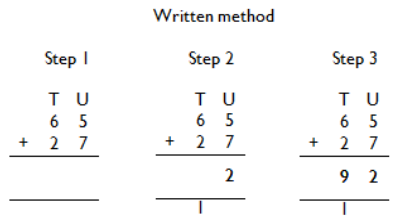
Regrouping to make 10. **(This is essential skill for column addition)**	 6 + 5 = 11 Start with the bigger number and use the smaller number to make 10.  Base 10 also used.	 3 + 9 = Use pictures or a number line. Regroup or partition the smaller number to make 10.  	7 + 4= 11 If I am at seven, how many more do I need to make 10. How many more do I add on now? 7 + 4 = 10 / \ 3 1 7 + 3 = 10 10 + 1 = 11
Represent & use number bonds and related subtraction facts within 20	 2 more than 5.	  	Emphasis should be on the language '1 more than 5 is equal to 6.' *'2 more than 5 is 7.'* *'8 is 3 more than 5.'*
Year 2 Addition			
Adding multiples of ten	30 + 20 =50  Model using base 10 and numberline beads	 	20 + 30 = 50 70 = 50 + 20 40 + □ = 60

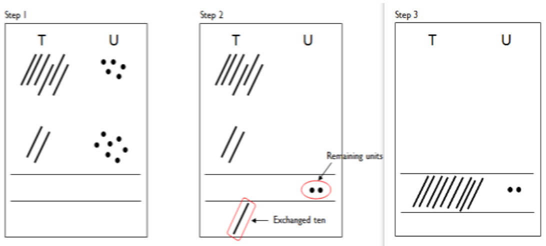
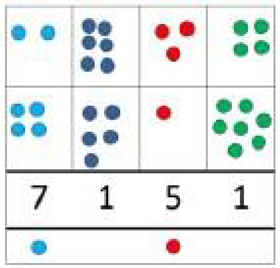
		Use representations for base 10	
Use known number facts **Part, Part whole**	 Children explore ways of making numbers within 20	 $\square + \square = 20$ $20 - \square = \square$ $\square + \square = 20$ $20 - \square = \square$	$\square + 1 = 16$ $16 - 1 = \square$ $1 + \square = 16$ $16 - \square = 1$ If 3 + 6 = 9, then we also know that: ___ + ___ = 9 ___ - 3 = _6_ ___ - 6 = _3_ "When we have a total and take away a part, then we are left with the other part".
Using known facts			6 + 3 = 9 6 + 13 = 19 If 4 + 5 = 9 Then 14 + 5 = 19 3 + 4 = 7 *leads to* 30 + 40 = 70 *leads to* 300 + 400 = 700
Bar Model	 3 + 4 = 7	 7 + 3 = 10	

Adding three single digits	4 + 7 + 6= 17  Use base 10 and place value counters to exchange ten ones for a ten. 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.
Add a 2-digit number and ones	 17 + 5 = 22 Explore patterns 17 + 5 = 22 27 + 5 = 32	Use part part whole and number line to model.  17 + 5 = 22	17 + 5 = 22 Explore related facts 17 + 5 = 22 5 + 17 = 22 22—17 = 5 22—5 = 17 

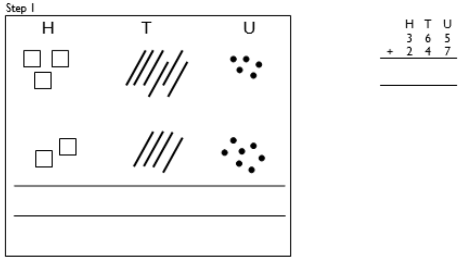
Add a 2-digit number and tens	 25 + 10 = 35 Explore that the ones digit does not change		27 + 10 = 37 27 + 20 = 47 27 + □ = 57
Add two 2-digit numbers	 Model using dienes , straws, place value counters and numicon	 Use number line and bridge ten using part whole if necessary.	25 + 47 20 + 5 40 + 7 20 + 40 = 60 5+ 7 =12 60 + 12 = 72

Year 3 Addition			
Addition using exchanging	Children continue to use the Base 10 equipment to support their calculations, including exchanging 10 units/ones for 1 ten when the total of the units/ones is 10 or more. They will record their own drawings of the Base 10 equipment, using lines for 10 rods and dots for the unit blocks. 34 + 23 = ? The units/ones are added first 4 + 3 = 7 The tens are added next 30 + 20 = 50 Both answers are put together 50 + 7 = 57  28 + 36 = ? The units/ones are added first 8 + 6 = 14 with ten units/ones exchanged for 1 ten. A ring is put around the units/ones not exchanged – this is the units part of the answer. The tens are then added, including the exchanged ten, to complete the sum. 	Children can draw the rods and dots or place value counters to represent the calculation. 	28 + 36 =
Add two or three 2- or 3-digit numbers	Add together the ones first then add the tens. Use the Base 10 blocks first before moving onto place value counters.		

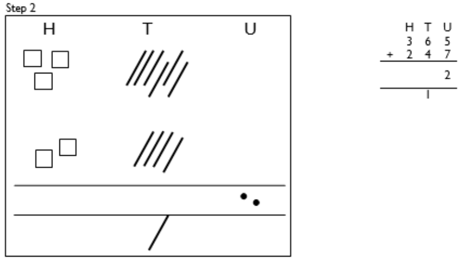
	 		2 2 3 + 1 1 4 3 3 7
Column method-regrouping	Make both numbers on a place value grid.  Add up the units and exchange 10 ones for one 10.  Add up the rest of the columns, exchanging the 10 counters from one column for the next place value column until every column has been added.	Children can draw a pictorial representation of the columns and place value counters to further support their learning and understanding. Children could also draw base 10 rods and dots. 	Start by partitioning the numbers before moving on to clearly show the exchange below the addition. 20 + 5 40 + 8 60 + 13 = 73 

	This can also be done with Base 10 to help children clearly see that 10 ones equal 1 ten and 10 tens equal 100. As children move on to decimals, money and decimal place value counters can be used to support learning. 		321 + 7 + 48 376 1
Year 4 Addition			
Add numbers up to 4 digits and decimals with one decimal place	Children will move to year 4 using whichever method they were using as they transitioned from year 3.	 Draw representations	3517 + 396 3913 1 1

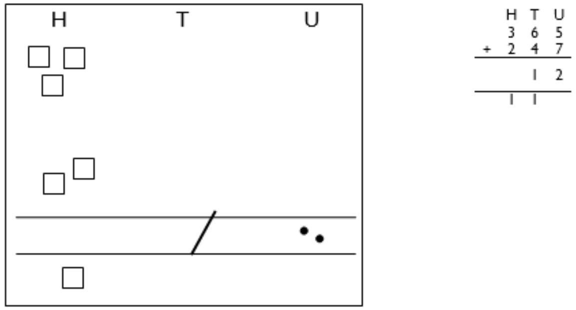
Step 1



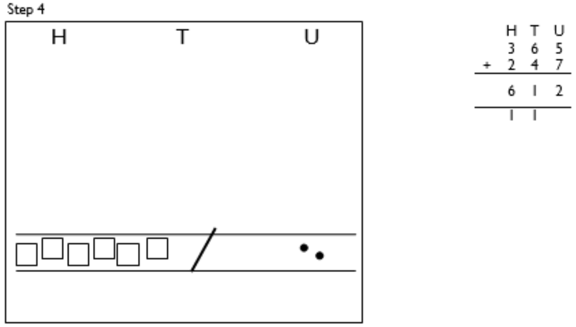
Step 2

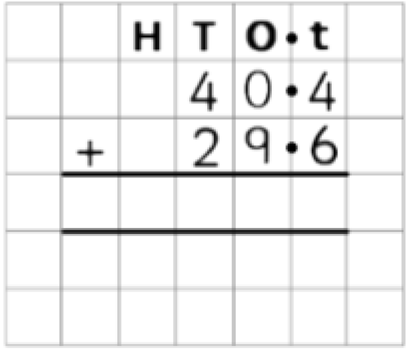


Step 3



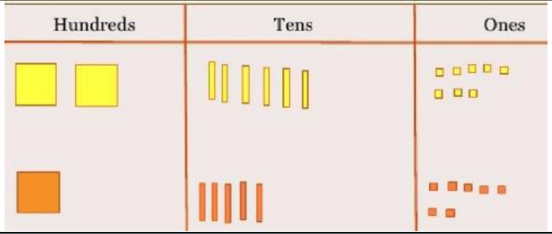
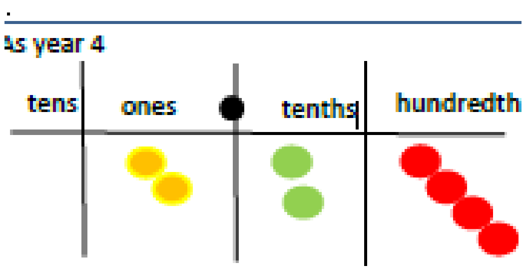
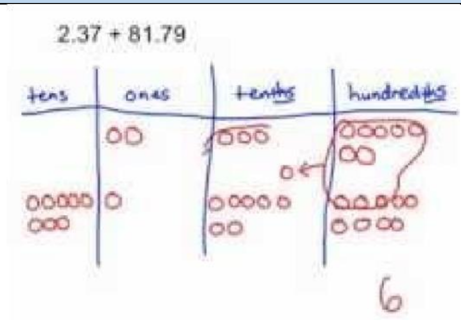
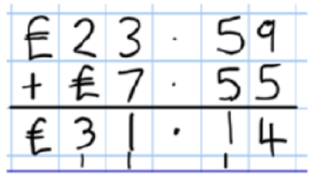
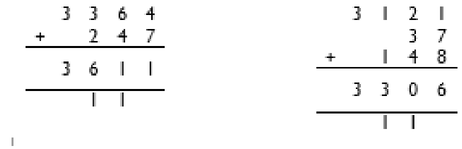
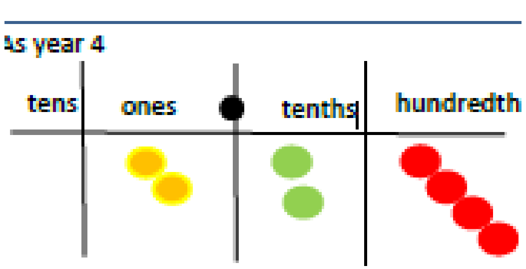
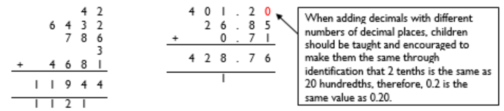
Step 4





continue from previous work to carry hundreds as well as tens.

Relate to money and measures

			
Year 5 Addition			
Add numbers with more than 4 digits **Add decimals with 2 decimal places, including money**	 Introduce decimal place value counters and model exchange for addition		
Year 6 Addition			
add several numbers of increasing complexity **Including adding money, measure and decimals with different numbers of decimal points**	As year 5  Decimal counters are demarcated with their value.	As year 5	 Insert zeros for place holders. They will also be adding: • several numbers with different numbers of digits, understanding the place value; • *decimals with up to two decimal places (with mixed numbers of decimal places), knowing that the decimal points line up under one another.* • amounts of money and measures, including those where they have to initially convert from one unit to another.