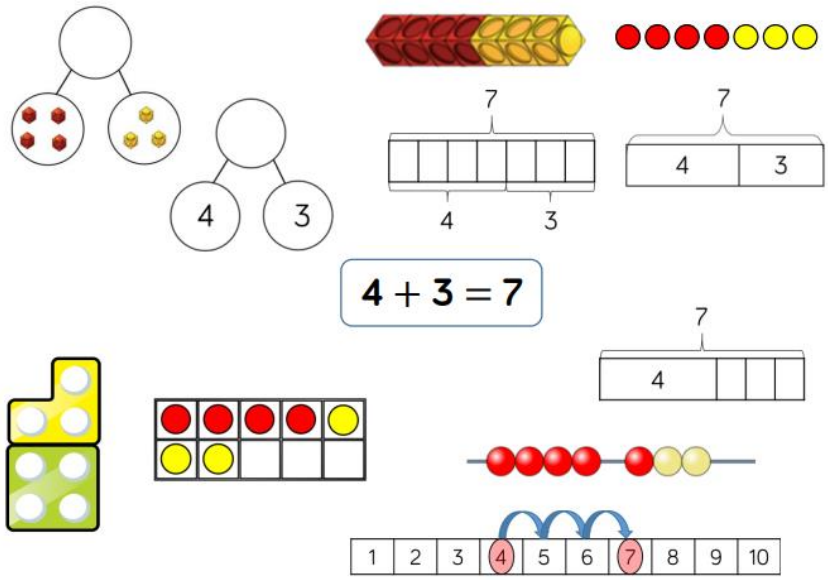
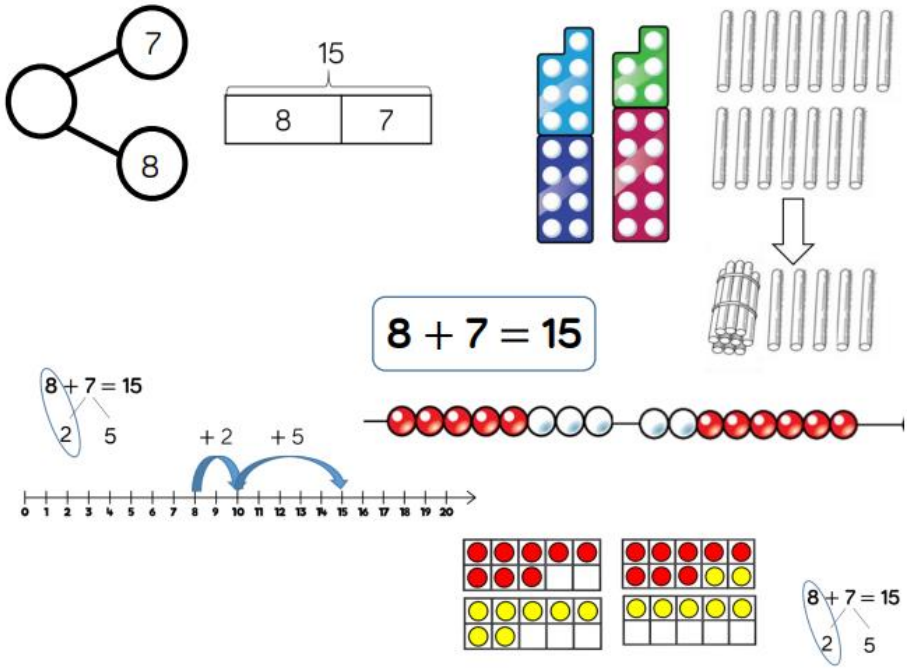
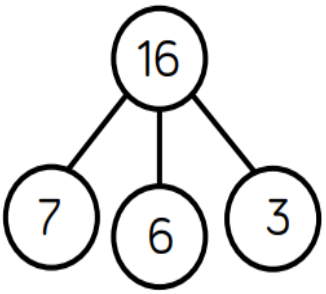
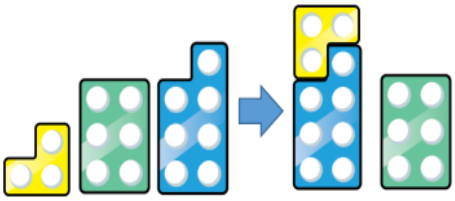
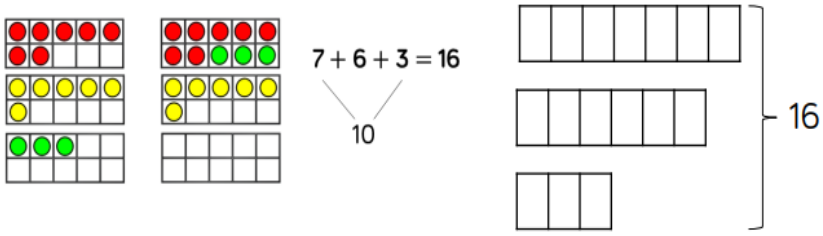
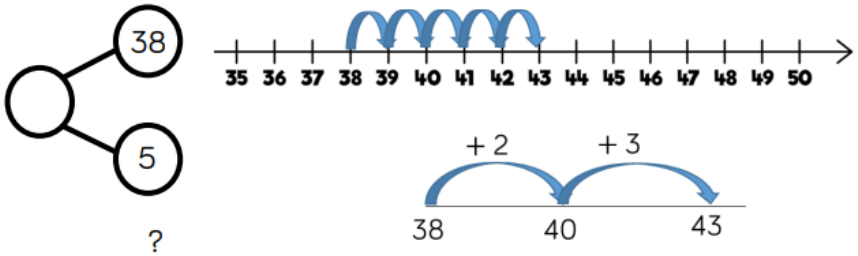
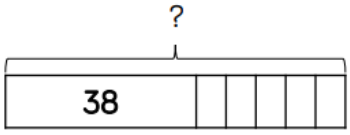
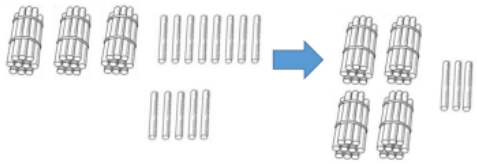
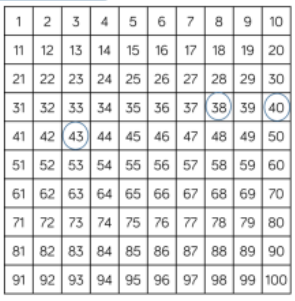
CPA Approach – Calculation Policy (Addition and Subtraction)

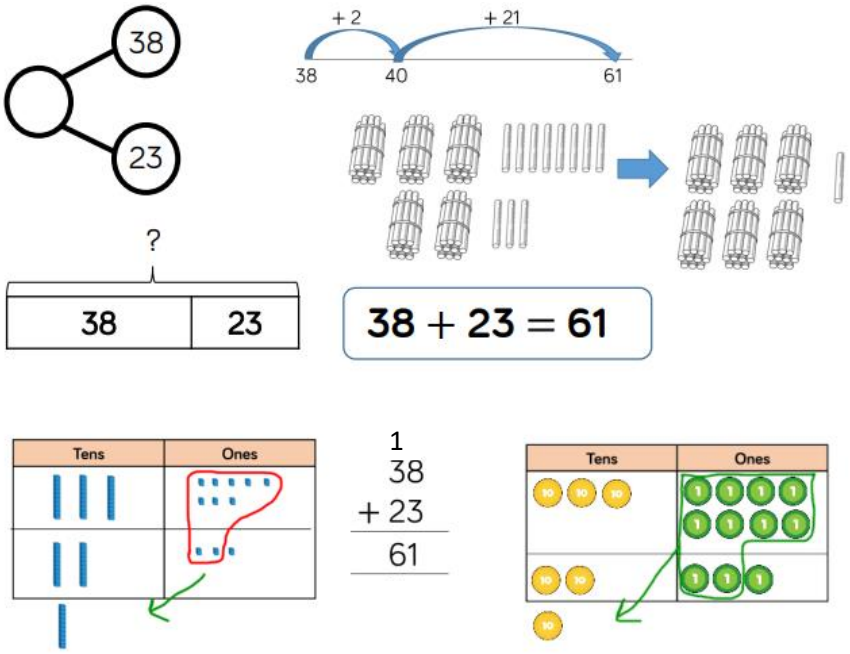
Addition

Skill: Add 1-digit numbers within 10	Year 1
	When adding numbers to 10, children can explore both **aggregation** and **augmentation**. The part-whole model, discrete and continuous bar model, number shapes and ten frame support aggregation. The combination bar model, ten frame, bead string and number track all support augmentation.
Skill: Add 1 and 2-digit numbers to 20	**Year 1/2**
	When adding one - digit numbers that cross 10, it is important to highlight the importance of ten ones equalling one ten. In Year 1, this is only done just by counting on. From Year 2, different manipulatives can be used to represent this exchange alongside number lines (later in the year) to support children in understanding how to partition their jumps. It is important to highlight the link to number bonds.

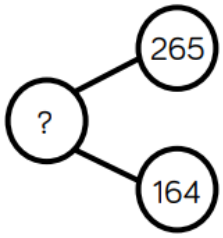
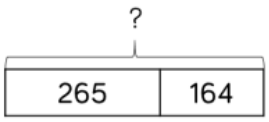
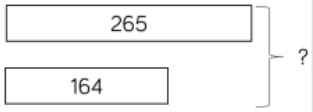
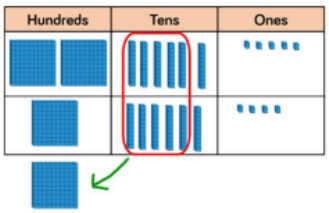
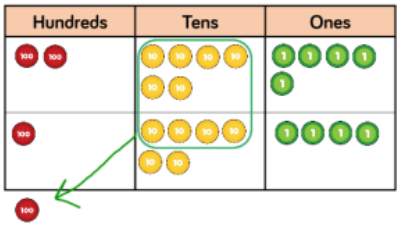
CPA Approach – Calculation Policy (Addition and Subtraction)

Skill: Add three 1-digit numbers	Year 2
  $7 + 6 + 3 = 16$ 	When adding three 1 - digit numbers, children should be encouraged to look for number bonds to 10 or doubles to add the numbers more efficiently. This supports children in their understanding of commutativity. Manipulatives that highlight number bonds to 10 are effective when adding three 1-digit numbers.
Skill: Add 1-digit and 2-digit numbers to 100	Year 2/3
  $38 + 5 = 43$  	When adding single digits to a two-digit number, children should be encouraged to count on from the larger number. They should also apply their knowledge of number bonds to add more efficiently e.g. 8 + 5 = 13 so 38 + 5 = 43 or 38 + 2 = 40 and 40 + 3 = 43. Continue to reinforce and recap part-whole relationships (e.g.: 5 = 2 + 3) to promote automaticity and confidence when

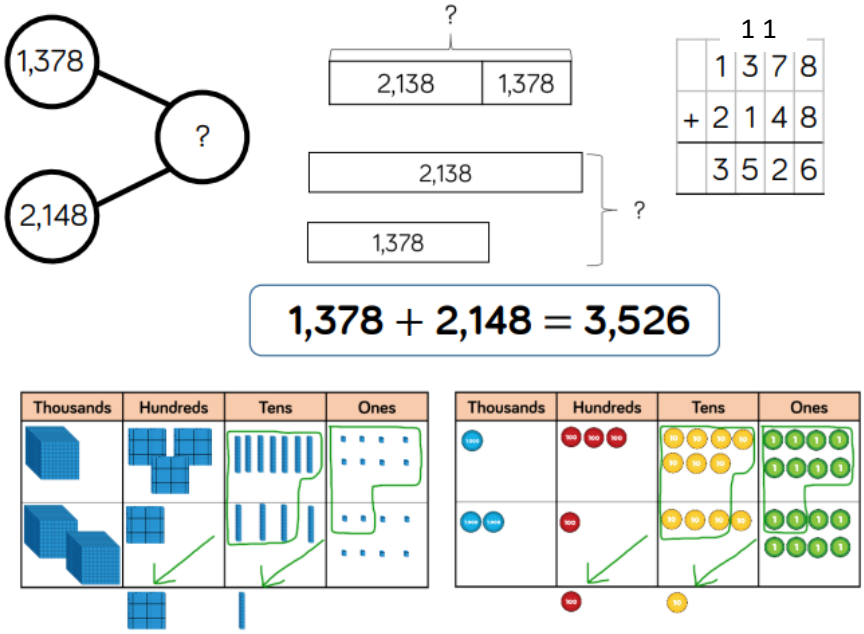
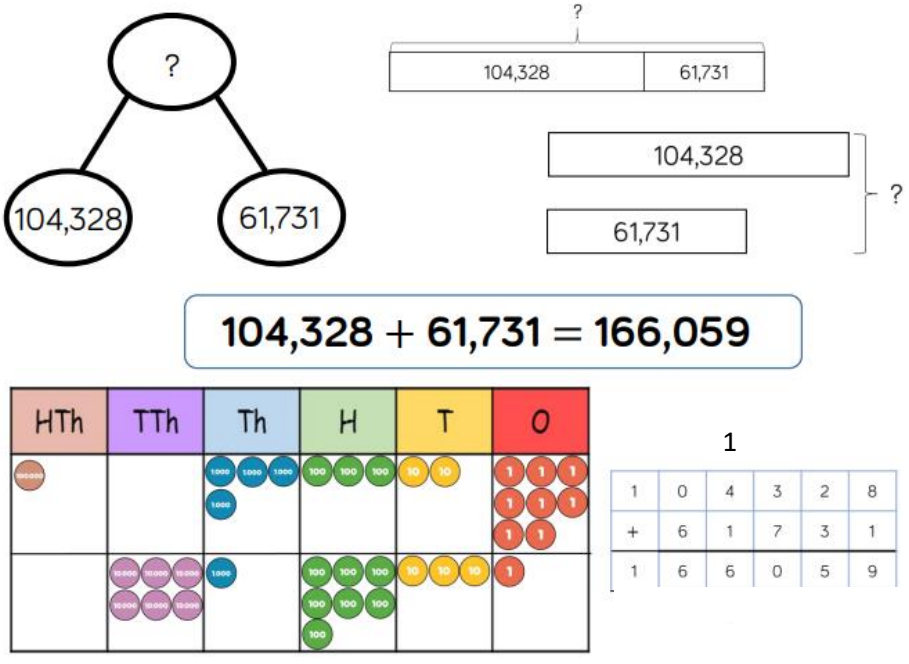
CPA Approach – Calculation Policy (Addition and Subtraction)

	manipulating numbers. Hundred squares and straws can support children to find the number bond to 10.
Skill: Add two 2-digit numbers to 100	Year 2/3
	Children can use a blank number line and other representations to count on to find the total. Encourage them to jump to multiples of 10 to become more efficient. From Year 3, encourage children to use the formal column method when calculating alongside straws, dienes or place value counters. As numbers become larger, straws become less efficient.

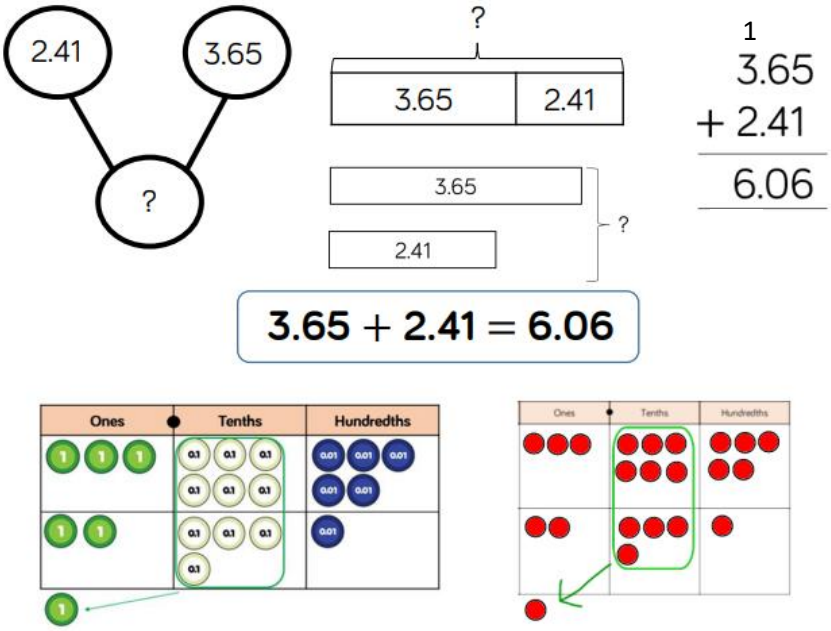
CPA Approach – Calculation Policy (Addition and Subtraction)

Skill: Add numbers with up to 3 digits	Year 3
   $265 + 164 = 429$  1 265 + 164 429 	Dienes and place value counters are the most effective manipulatives when adding numbers with up to 3 digits. Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method. Plain counters on a place value grid can also be used to support learning. Children may need to be reminded of and practise the concept of exchanging (e.g.: 10 tens for 1 hundred), outside of column method first (e.g.: playing banker).

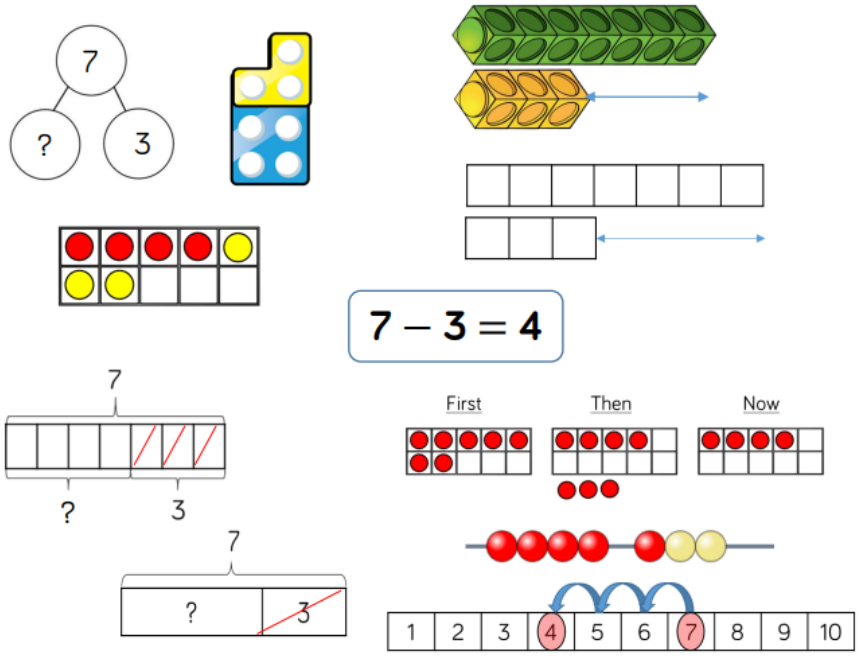
CPA Approach – Calculation Policy (Addition and Subtraction)

Skill: Add numbers with up to 4 digits	Year 4
	Dienes and place value counters are the most effective manipulatives when adding numbers with up to 4 digits. Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method. Plain counters on a place value grid can also be used to support learning.
Skill: Add numbers with more than 4 digits	**Year 5/6**
	Place value counters or plain counters on a place value grid are the most effective concrete resources when adding numbers with more than 4 digits. At this stage, children should be encouraged to work mostly in the abstract, using the column method to add larger numbers efficiently.

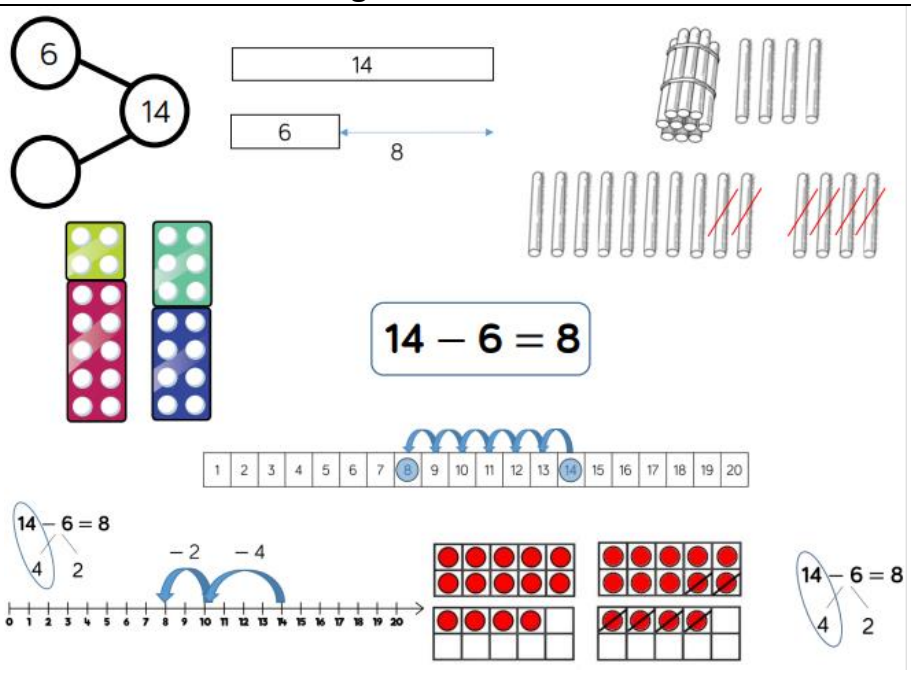
CPA Approach – Calculation Policy (Addition and Subtraction)

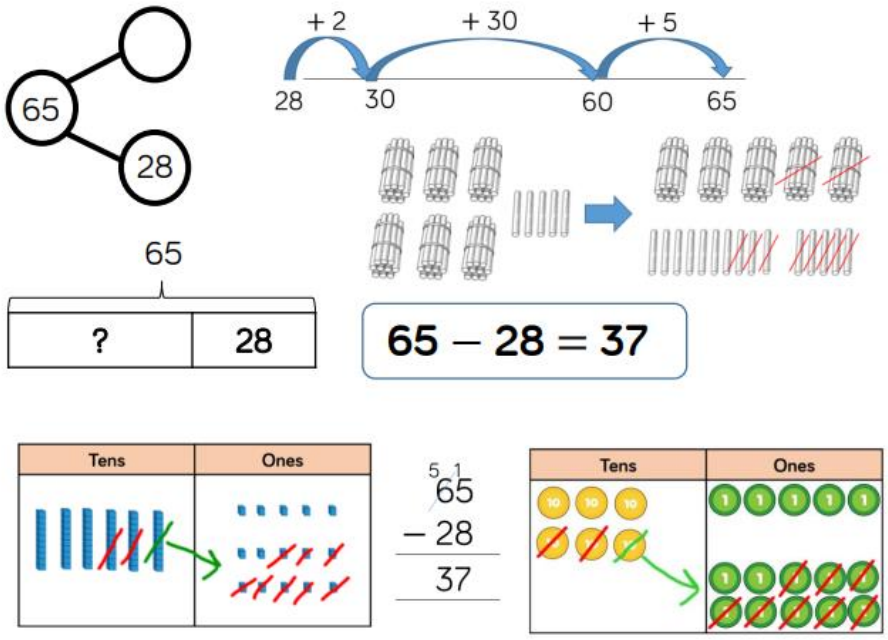
Skill: Add with up to 3 decimal places	Year 5
	Place value counters and plain counters on a place value grid are the most effective manipulatives when adding decimals with 1, 2 and then 3 decimal places. Ensure children have experience of adding decimals with a variety of decimal places. This includes putting this into context when adding money and other measures.

Subtraction

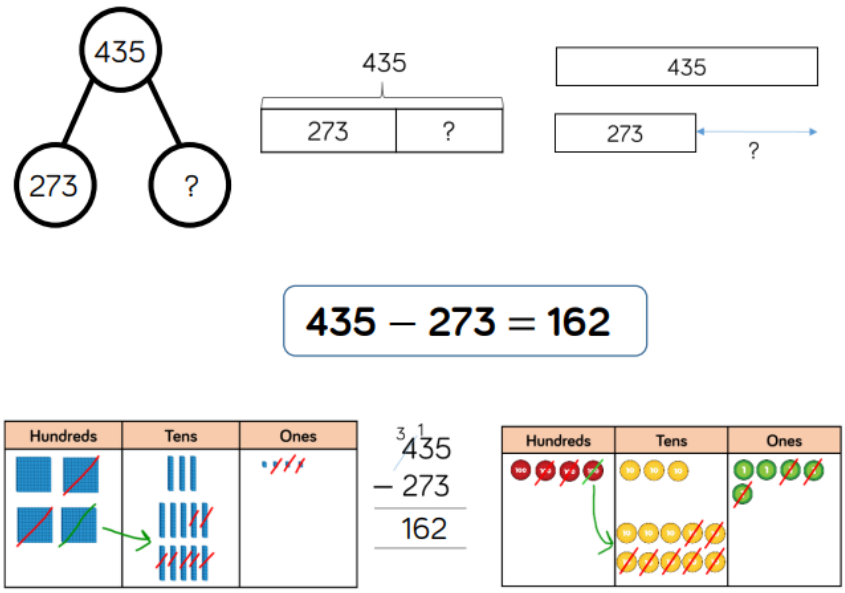
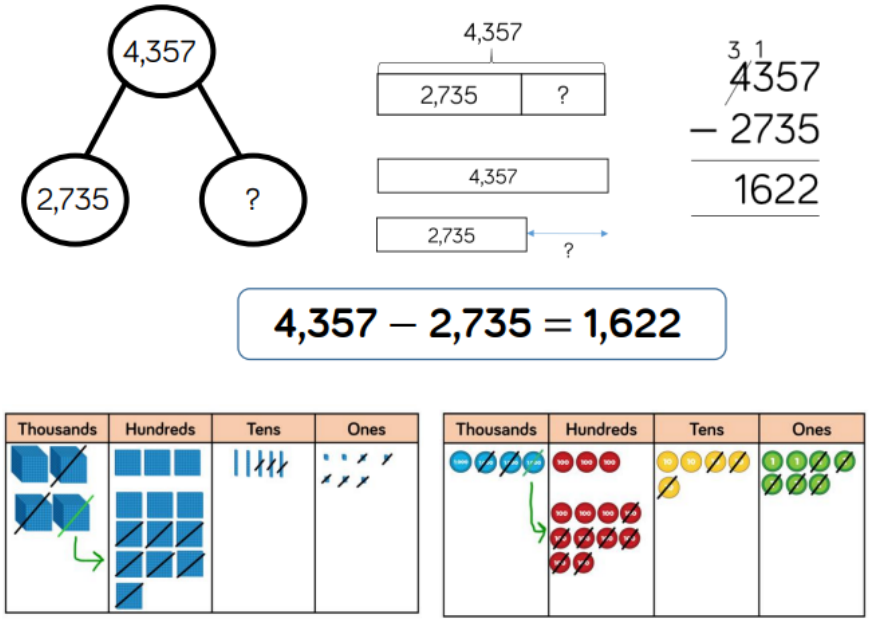
Skill: Subtract 1-digit numbers within 10	Year 1
	Part-whole models, bar models, ten frames and number shapes support **partitioning**. Ten frames, number tracks, single bar models and bead strings support **reduction**. Cubes and bar models with two bars can support finding the **difference**.

CPA Approach – Calculation Policy (Addition and Subtraction)

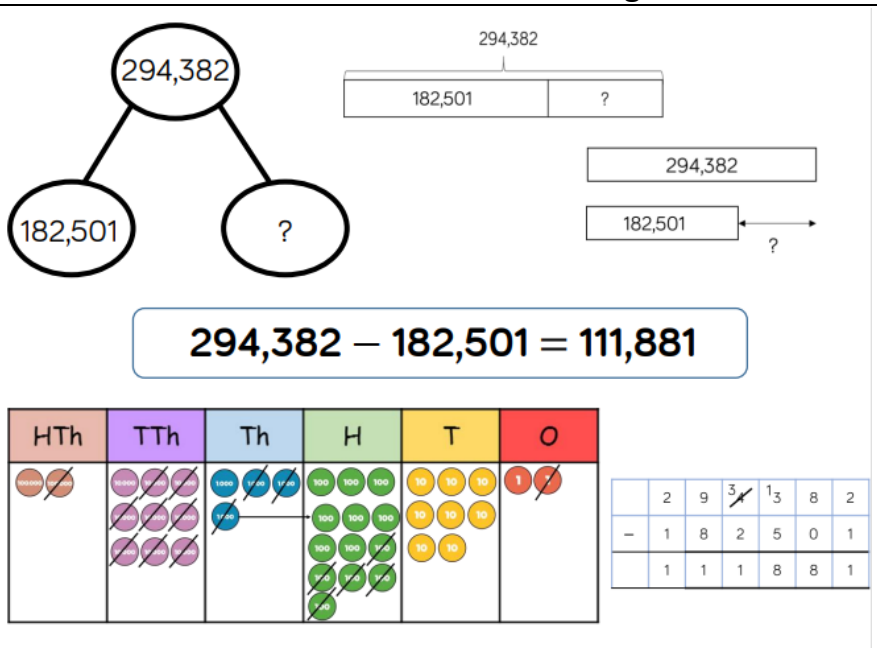
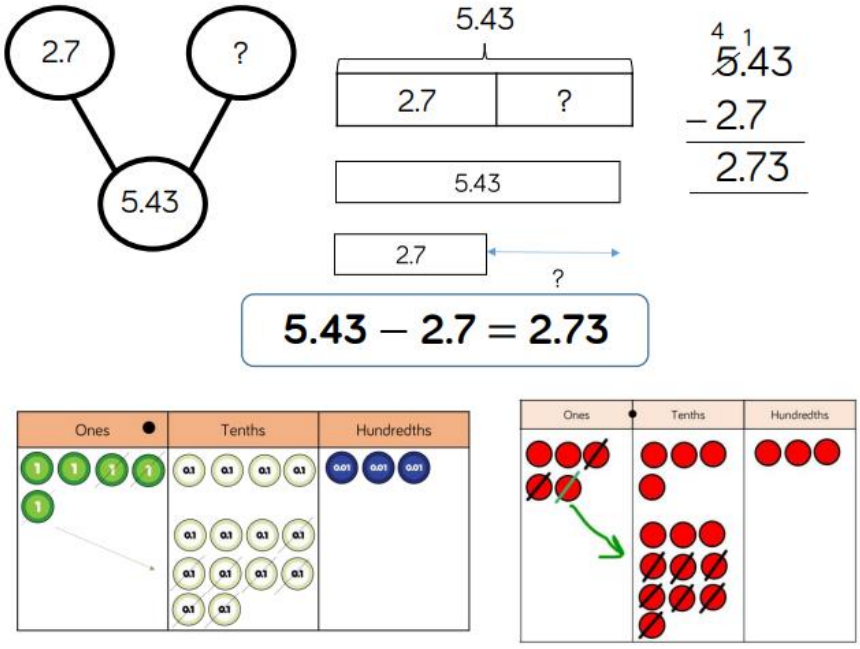
Skill: Subtract 1 and 2-digit numbers to 20	Year 1/2
	In Year 1, subtracting one-digit numbers that cross 10 is done by counting back, using objects, number tracks and number lines. From Year 2, children should be encouraged to find the number bond to 10 when partitioning the subtracted number. Ten frames, number shapes and number lines are particularly useful for this. Greater care should be taken when using number lines as it is more abstract.

Skill: Subtract 1 and 2-digit numbers to 100	Year 2/3
	Children can also use a blank number line to count back to find the difference. Encourage them to jump to multiples of 10 to become more efficient. From Year 3, encourage children to use the formal column method when calculating alongside straws, dienes or place value counters. As numbers become larger, straws become less efficient.

CPA Approach – Calculation Policy (Addition and Subtraction)

Skill: Subtract numbers with up to 3 digits	Year 3
	Dienes and place value counters are the most effective manipulative when subtracting numbers with up to 3 digits. Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method. Plain counters on a place value grid can also be used to support learning.
Skill: Subtract numbers with up to 4 digits	**Year 4**
	Dienes and place value counters are the most effective manipulatives when subtracting numbers with up to 4 digits. Ensure children write out their calculation alongside any concrete resources so they can see the links to the written column method. Plain counters on a place value grid can also be used to support learning.

CPA Approach – Calculation Policy (Addition and Subtraction)

Skill: Subtract numbers with more than 4 digits	Year 5/6
	Place value counters or plain counters on a place value grid are the most effective concrete resource when subtracting numbers with more than 4 digits. At this stage, children should be encouraged to work mostly in the abstract, using column method to subtract larger numbers efficiently.
Skill: Subtract with up to 3 decimal places	**Year 5/6**
	Place value counters and plain counters on a place value grid are the most effective manipulative when subtracting decimals with 1, 2 and then 3 decimal places. Ensure children have experience of subtracting decimals with a variety of decimal places. This includes putting this into context when subtracting money and other measures.