Year 1 — Calculating strand: SUBTRACTION

Vocabulary

Subtraction, subtract, take away, distance between, difference between, more than, minus, less than, equals = same as, most, least, pattern, odd, even, digit,

Key Questions

How many more to make…? How many more is… than…? How much more is…? How many are left/left over? How many have gone? One less, two less, ten less… How many fewer is… than…? How much less is…? What can you see here? Is this true or false?
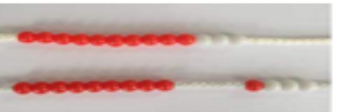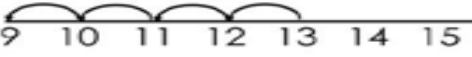
Example Questions

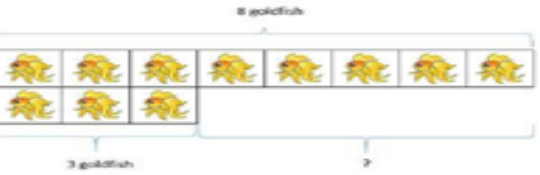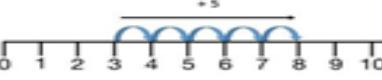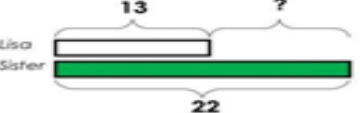| Basic	Advancing	Deep
Use …and … in a number sentence. **Illustrate** the problem **Name** the number bonds **Memorise** the subtraction facts to … **Match** the answers to the number problems **Tell** a friend how you solved the problem	**Compare** which method you prefer to use **Identify** patterns 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 subtraction. **Explain** you method **Create** two subtraction number sentences from the given numbers.

	Objective	Concrete	Pictorial	Abstract
Year 1	Taking away ones	Use physical objects, counters, cubes etc. to show how objects can be taken away. $4 - 2 = 2$	Cross out drawn objects to show what has been taken away. $4 - 2 = 2$	$4 - 2 = 2$
	Counting back	Make the larger number in your subtraction. Move the beads along your bead string as you count backwards in ones. $13 - 4 = 9$	Count back on a number line or number track 9 10 11 12 13 14 15 Start at the bigger number and count back the smaller number, showing the jumps on the number line.	Put 13 in your head, count back 4. What number are you at? Use your fingers to help.
	Find the difference	Compare amounts and objects to find the difference. 8 goldfish 3 goldfish Use cubes to build towers or make bars to find the difference. Use basic bar models with items to find the difference.	Count on to find the difference. 0 1 2 3 4 5 6 7 8 9 10 Count on to find the difference. Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them. 13 ? Lisa Sister 22 Draw bars to find the difference between 2 numbers.	Hannah has 8 goldfish. Helen has 3 goldfish. Find the difference between the number of goldfish the girls have.

Year 2	Calculating strand: SUBTRACTION

Vocabulary	Key Questions
Subtraction, subtract, take away, difference, difference between, minus, tens, ones, partition, near multiple of 10, tens boundary, Less than, one less, two less… ten less… one hundred less, more, one more, two more... ten more... one hundred more	How many more to make…? How many more is… than…? How much more is…? How many are left/left over? How many fewer is… than…? How much less is…? Is this true or false? If I know that 7 + 2 = 9, what else do I know? (e.g. 2 + 7 = 9; 9 – 7 = 2; 9 – 2 = 7; 90 – 20 = 70 etc). What do you notice? What patterns can you see?

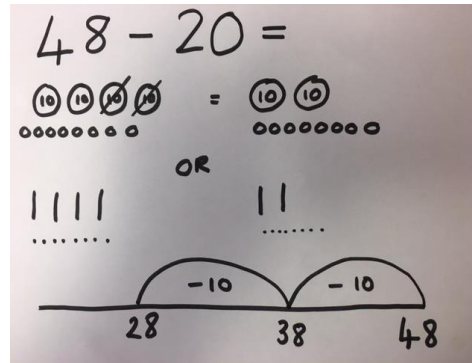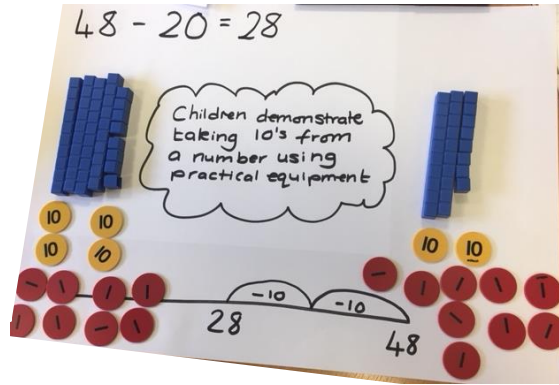| Example Questions		
Basic	Advancing	Deep
Use …and … in a number sentence. **Illustrate** the problem **Name** the number bonds **Memorise** the subtraction facts to … **Match** the answers to the number problems **Tell** a friend how you solved the problem	**Compare** which method you prefer to use **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 subtraction. **Explain** you method **Create** two subtraction number sentences from the given numbers.

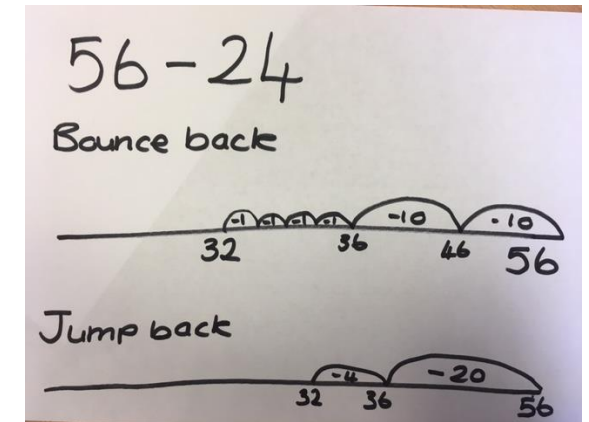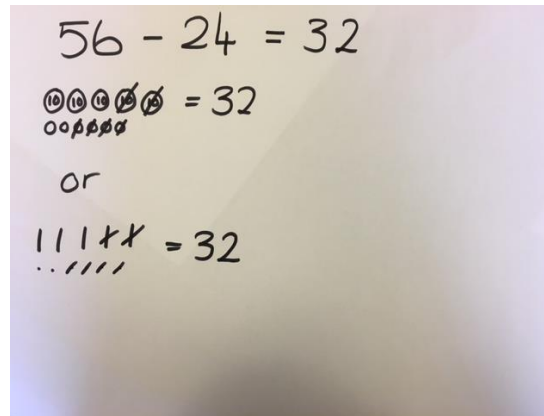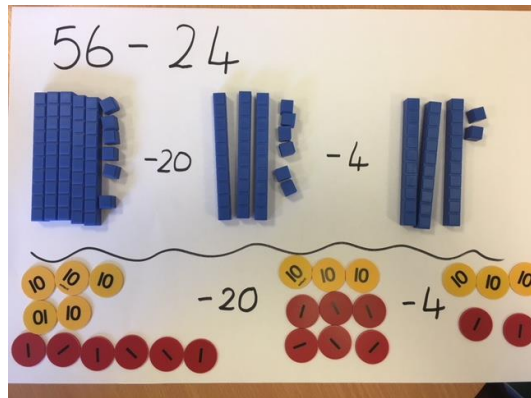|			
Counting back	See year one for concrete approach to counting back	See year one appraoches for pictorial representation.	
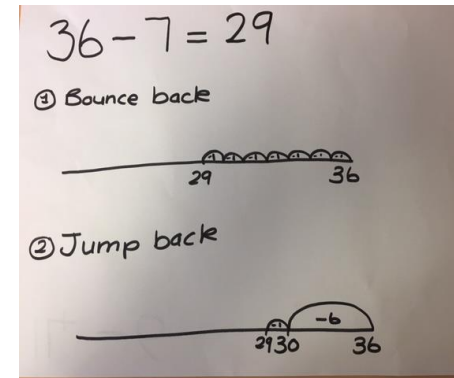
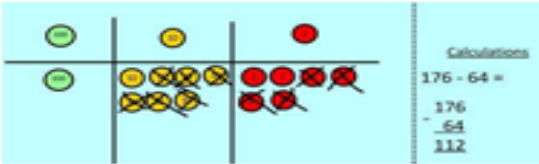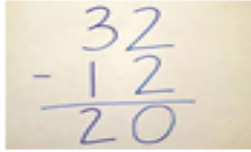|			
Counting back (two digit and tens)			$48 - 20 = 28$
Counting back (two 2-digit numbers)			
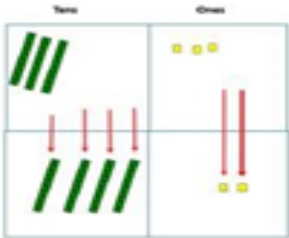
Subtraction of two 2-digit numbers should move onto examples with crossing 10 - as shown in the Interim framework 2018/2019

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.

Objective	Concrete	Pictorial	Abstract
Column method without regrouping	75 – 42 = 33 **Use Base 10 to make the bigger number then take the smaller number away.** Show how you partition numbers to subtract. **Again make the larger number first.**	Draw the Base 10 or place value counters alongside the written calculation to help to show working.	$47 - 24 = 23$ $$-\frac{40 + 7}{20 + 4}$$ $$\overline{20 + 3}$$ This will lead to a clear written column subtraction.

Year 3	Calculating strand: SUBTRACTION

Vocabulary	Key Questions
Hundreds, tens, ones, estimate, partition, recombine, difference, decrease, near multiple of 10 and 100, inverse, rounding, column subtraction, exchange See also Y1 and Y2	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
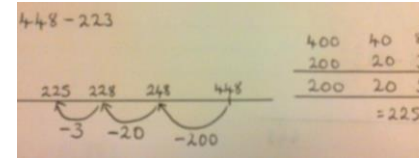
Example Questions

Basic	Advancing	Deep
Arrange your subtraction calculation in a different order **Describe** your method of subtraction 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 difference in journey time/distance.

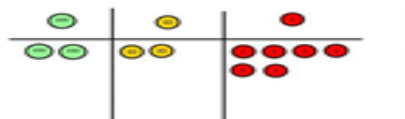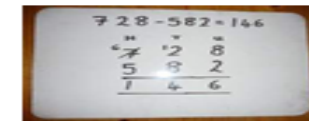|	Objective	Concrete	Pictorial	Abstract
Year 3 onwards	Column method with regrouping	Use Base 10 to start with before moving on to place value counters. Start with one exchange before moving onto subtractions with 2 exchanges. Make the larger number with the place value counters Calculations 234 - 88 Start with the ones, can I take away 8 from 4 easily? I need to exchange 1 of my tens for 10 ones. Calculations 234 - 88 Now I can subtract my ones. Calculations 234 - 88	Draw the counters onto a place value grid and show what you have taken away by crossing the counters out as well as clearly showing the exchanges you make. When confident, children can find their own way to record the exchange/regrouping. Just writing the numbers as shown here shows that the child understands the method and knows when to exchange/regroup. 42 – 18 = 24	836 – 254 = 582 Children can start their formal written method by partitioning the number into clear place value columns. 728 – 582 = 146 Moving forward the children use a more compact method.
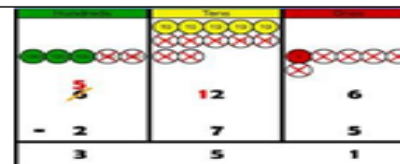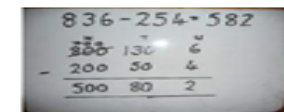
Year 4	Calculating strand: SUBTRACTION

Vocabulary	Key Questions
add, addition, sum, more, plus, increase, sum, 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.	What do you notice? What's the same? What's different? Can you convince me? How do you know?

Example Questions

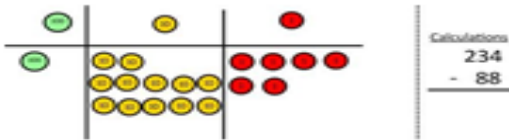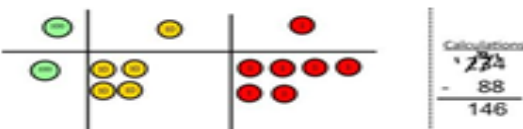| Basic	Advancing	Deep
Arrange your subtraction calculation in a different order **Use** a different addition method to solve the calculation. **Describe** your method of subtraction to a partner. **Tell** a friend how you solved the problem	**Organise** your calculation as a written method. **Explain** 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 difference between journey time/distance.

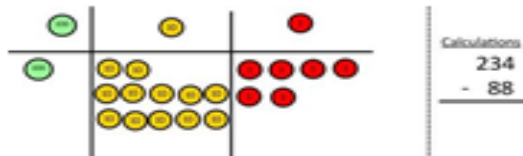| Objective	Concrete	Pictorial	Abstract
Column method with regrouping	Now look at the tens, can I take away 8 tens easily? I need to exchange 1 hundred for 10 tens. Calculations 234 - 88 Now I can take away 8 tens and complete my subtraction. Calculations 234 - 88 146 Show children how the concrete method links to the written method alongside your working. Cross out the numbers when exchanging and show where we write our new amount.		This will lead to an understanding of subtracting any number including decimals. $$\begin{array}{ccccc} & 5 & 12 & & 1 \\ 2 & \not{6} & \not{3} & . & 0 \\ - & 2 & 6 & . & 5 \\ \hline 2 & 3 & 6 & . & 5 \end{array}$$
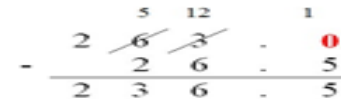
Year 5	Calculating strand: SUBTRACTION

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

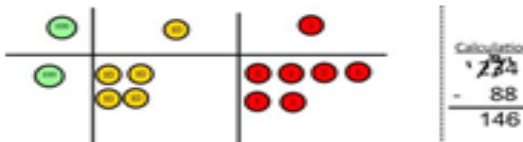| Basic	Advancing	Deep
Use column subtraction to find how many more… **List** all the different vocabulary for subtraction. **Tell** me the method you have used to find the difference. **Find** the pattern and repeat it.	**Predict** if x - y would total an odd or an even number. **Estimate** the answer 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 working out how much spare money will be left over. **Investigate** differences between distances travelled on a map.

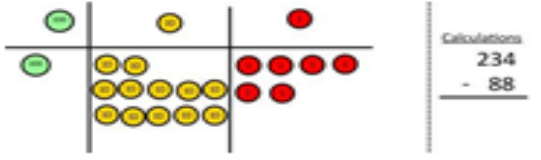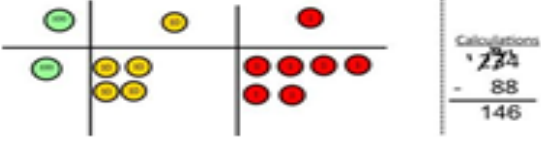| Objective	Concrete	Pictorial	Abstract
Column method with regrouping	Now look at the tens, can I take away 8 tens easily? I need to exchange 1 hundred for 10 tens. Calculations 234 - 88 Now I can take away 8 tens and complete my subtraction. Calculations 234 - 88 146 Show children how the concrete method links to the written method alongside your working. Cross out the numbers when exchanging and show where we write our new amount.		Solve these problems. Remember, its always a good idea to estimate your answer first. 136.04 + 102.27 ⟶ 136.04 +102.27 238.31 Write in vertical column, aligning the decimal points. Add each column, starting on the right. Regrouping digits where needed. 2.37 - 0.031 ⟶ 2.370 - 0.031 2.339 Write in vertical column, aligning the decimal points. Subtract each column, starting on the right and working left. Exchanging as needed.

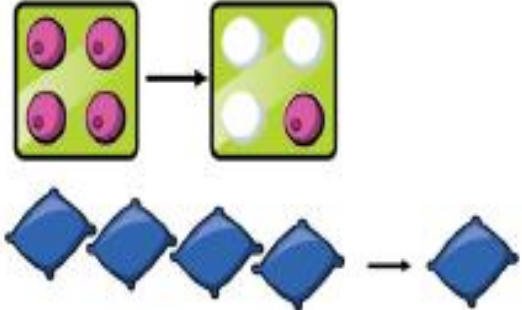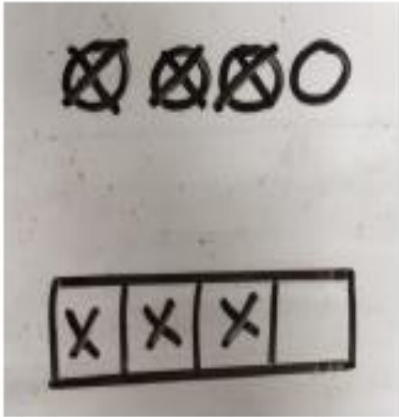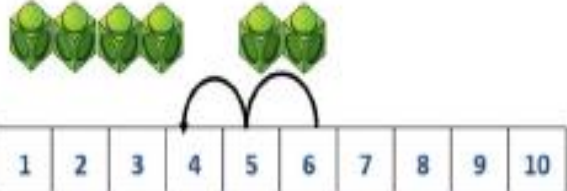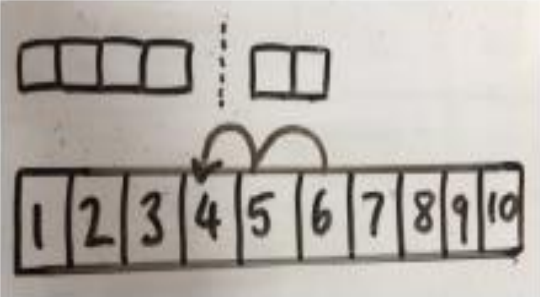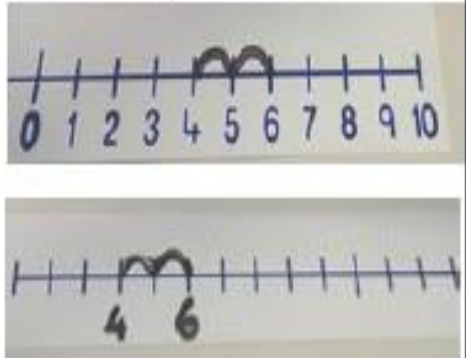| Year 6	Calculating strand: SUBTRACTION
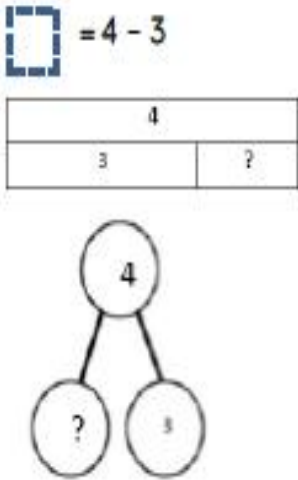
Vocabulary	Key Questions
See previous years	What do you notice? What's the same? What's different? Can you convince me? How do you know?

Example Questions

| Basic	Advancing	Deep
Use column subtraction to find how many more… **List** all the different vocabulary for subtraction. **Tell** me the method you have used to find the difference. **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 working out how much spare money will be left over. **Investigate** differences between distances travelled on a map.

| Objective	Concrete	Pictorial	Abstract
Column method with regrouping	Now look at the tens, can I take away 8 tens easily? I need to exchange 1 hundred for 10 tens. Calculations 234 - 88 Now I can take away 8 tens and complete my subtraction. Calculations 234 - 88 146 Show children how the concrete method links to the written method alongside your working. Cross out the numbers when exchanging and show where we write our new amount.		

Further Subtraction Support.

Concrete	Pictorial	Abstract
Physically taking away and removing objects from a whole (ten frames, Numicon, cubes and other items such as beanbags could be used). 4 − 3 = 1	Children to draw the concrete resources they are using and cross out the correct amount. The bar model can also be used.	4 − 3 = $\square$ = 4 − 3
Counting back (using number lines or number tracks) children start with 6 and count back 2. 6 − 2 = 4	Children to represent what they see pictorially e.g.	Children to represent the calculation on a number line or number track and show their jumps. Encourage children to use an empty number line

| Finding the difference (using cubes, Numicon or Cuisenaire rods, other objects can also be used).

Calculate the difference between 8 and 5.
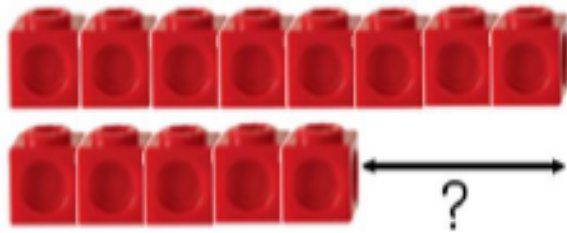
? | Children to draw the cubes/other concrete objects which they have used or use the bar model to illustrate what they need to calculate.
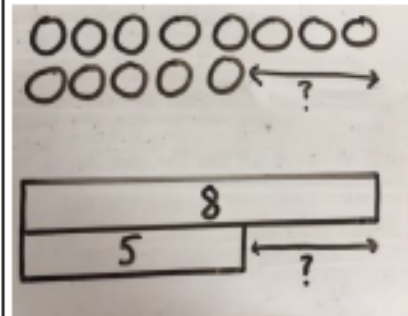
 | Find the difference between 8 and 5.

8 – 5, the difference is ☐

Children to explore why
9 - 6 = 8 – 5 = 7 – 4 have the same difference. |
| Making 10 using ten frames.
14 – 5
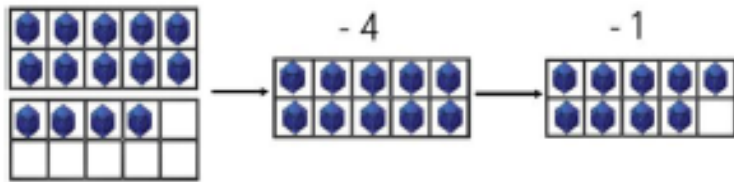
 | Children to present the ten frame pictorially and discuss what they did to make 10.

 | Children to show how they can make 10 by partitioning the subtrahend.

$14 - 5 = 9$
／＼
4　　1

14 – 4 = 10
10 – 1 = 9 |
| Column method using base 10.
48-7
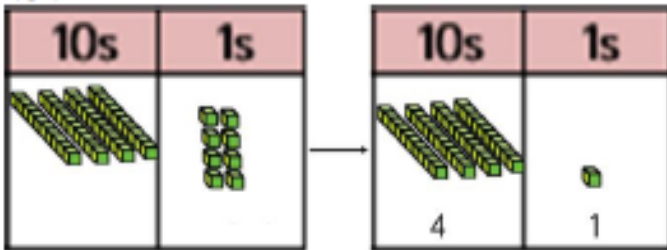
 | Children to represent the base 10 pictorially.
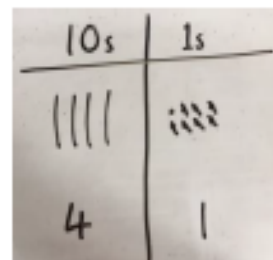
 | Column method or children could count back 7.
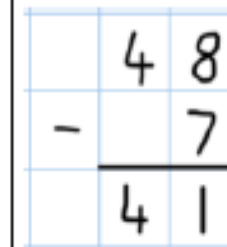
　　4 8
－　　7
──────
　　4 1 |

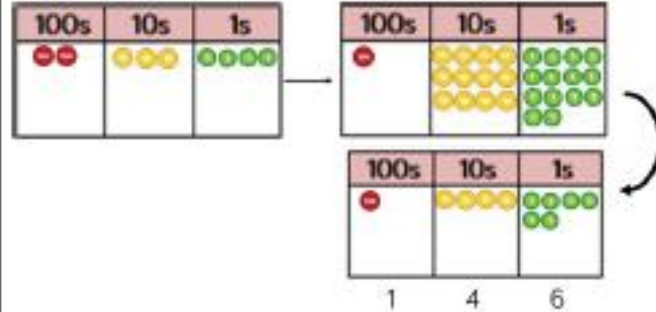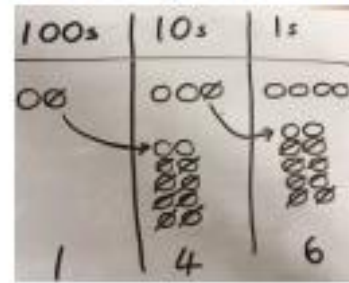| Column method using base 10 and having to exchange. 41 – 26 | Represent the base 10 pictorially, remembering to show the exchange. | Formal column method. Children must understand that when they have exchanged the 10 they still have 41 because 41 = 30 + 11. |
| Column method using place value counters. 234 – 88 | Represent the place value counters pictorially; remembering to show what has been exchanged. | Formal colum method. Children must understand what has happened when they have crossed out digits. |
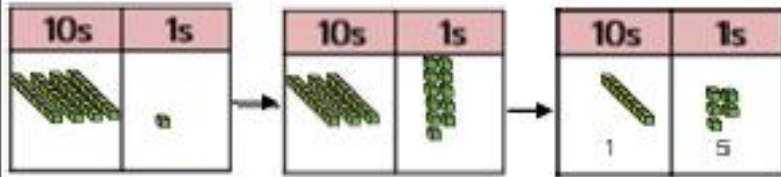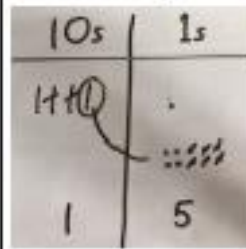
Conceptual variation; different ways to ask children to solve 391 - 186
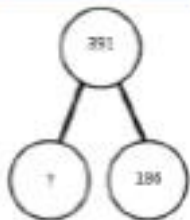
| | Raj spent £391, Timmy spent £186. How much more did Raj spend?

 Calculate the difference between 391 and 186. | $\square$ = 391 – 186

 391
 -186
 ⎯⎯⎯

 What is 186 less than 391? | Missing digit calculations |