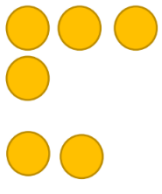
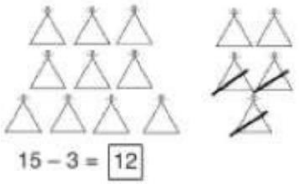
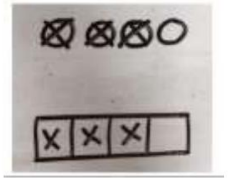
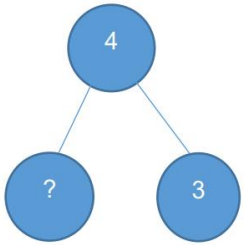
Coppice Valley Primary School
Calculation procedure

Subtraction
Key vocabulary: take away, less than, the difference, subtract, minus, fewer, decrease, subtrahend, minuend, wholes and parts

Objective and strategy	Concrete	Pictorial	Abstract
Taking away ones Physically taking away and removing objects from a whole Suggested year group(s): Rec, Year 1	Use physical objects e.g. ten frames, Numicon, cubes and other items such as beanbags could be used.  6 – 2 = 4   Subtraction as 'chopping off'	Children to draw the concrete resources they are using and cross out the correct amount. The bar model can also be used.     	Year 1 upwards: 18 – 3 = Minuend – subtrahend = Difference  = 18 – 3

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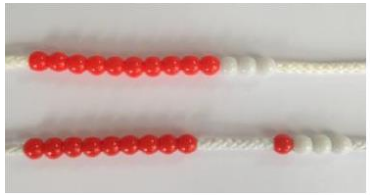
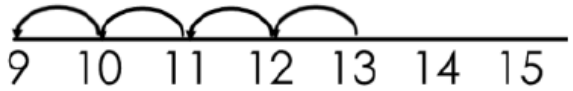
Counting back Suggested year group(s): Rec	Make the larger number in your subtraction. Move the beads along your bead string as you count backwards in ones.  Use counters and move them away from the group as you take them away counting backwards as you go. 	Children to represent the calculation on a number line or number track and show their jumps. A hundred square can also be used.  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. Encourage the use of an empty number line.

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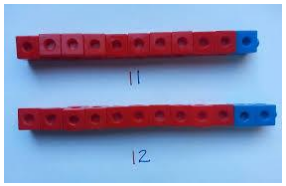
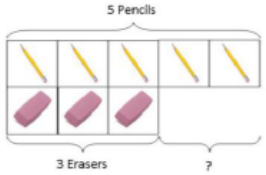
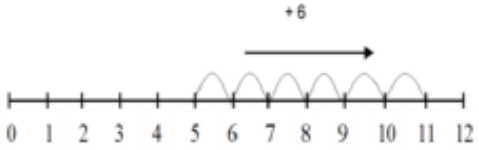
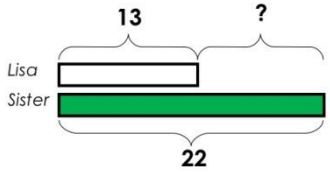
Finding the difference	Compare amounts and objects to find the difference.	Count on to find the difference.	Find the difference between 8 and 5.
Suggested year group(s): Year 1 upwards	 Use cubes to build towers or make bars to find the difference.  Use basic bar models with items to find the difference	 Year 2 & Year 3  87 - 23 = 64 **Comparison Bar Models** *Lisa is 13 years old. Her sister is 22 years old.* *Find the difference in age between them.*  Draw bars to find the difference 2 numbers. Cuisenaire rods are excellent.	8 – 5, the difference is Children to explore why 9 – 6 = 8 – 5 = 7 – 4 = have the same difference. Word Problems: Hannah has 23 sandwiches; Helen has 15 sandwiches. Find the difference between the number of sandwiches they have.

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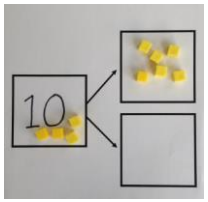
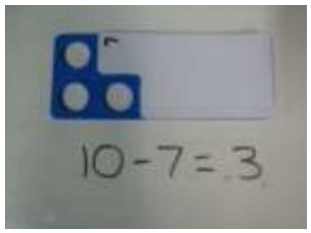
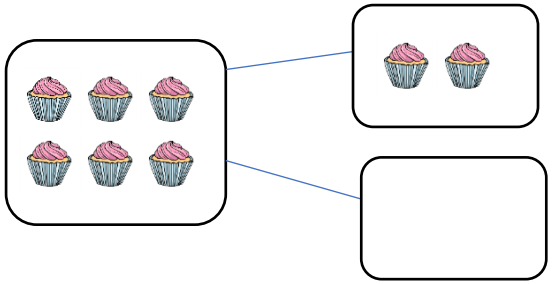
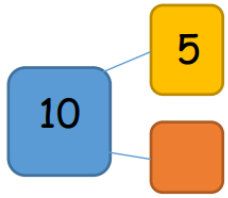
Part-part whole model Suggested year group(s): Rec, Year 1, Year 2	Link to addition - use the part whole model to help explain the inverse between addition and subtraction.  *If 10 is the whole and 7 is one of the parts. What is the other part?* 10 – 7 =  	Use a pictorial representation of objects to show the part-part whole model. 	Move to using numbers within the part whole model. 

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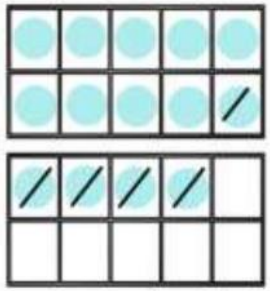
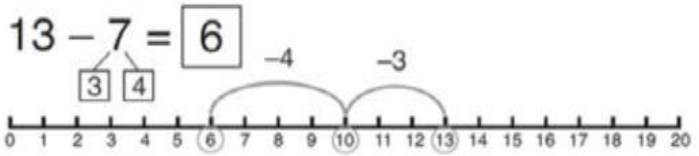
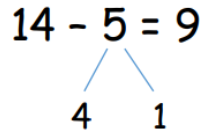
Making 10 Suggested year group(s): Year 2, Year 3, Year 4	14 – 9 =  *Make 14 on the ten frame. Take away the four first to make 10 and then take away one more so you have taken away 5. You are left with the answer of 9.*	Children to represent the ten frame pictorially and discuss what they did to make 10.   Start at 13. Take away 3 to reach 10. Then take away the remaining 4 so you have taken away 7 altogether. You have reached your answer.	Children to show how they can make 10 by partitioning the subtrahend.  14 – 4 = 10 10 – 1 = 9 *How many do we take off to reach the next 10?* *How many do we have left to take off?*

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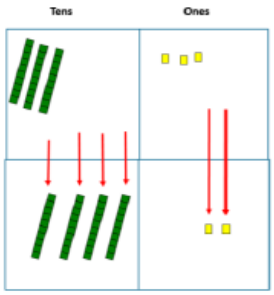
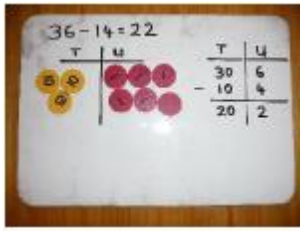
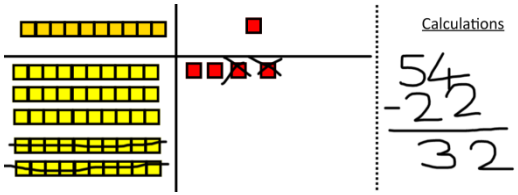
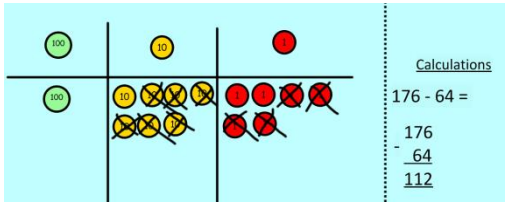
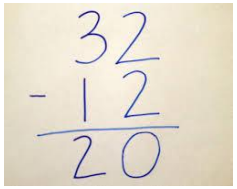
Column method – without regrouping Suggested year group(s): Year 4	Use Base 10 to make the bigger number then take the smaller number away.  Show how you partition numbers to subtract. Again, make the larger number first.  	Draw the Base 10 or place value counters alongside the written calculation to help to show working.   The Base 10 can also be represented pictorially using lines for tens and dots or crosses for ones.	This will lead to a clear written column subtraction. 

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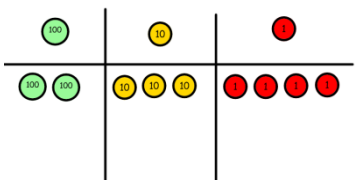
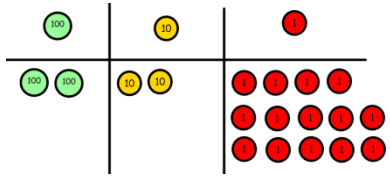
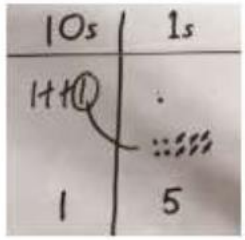
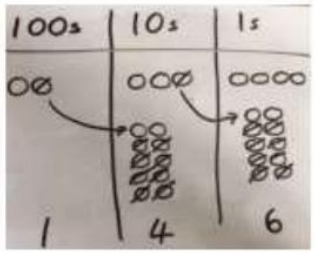
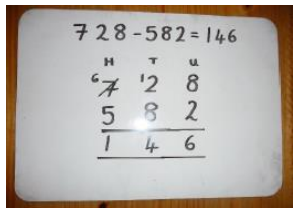
Column method – with regrouping Suggested year group(s): Year 4, Year 5, Year 6	Use Base 10 to start with before moving on to place value counters. Start with one exchange before moving onto subtractions with 2 exchanges. Make the larger number with the place value counters.  Calculations 234 - 88 Start with the ones, can I take away 8 from 4 easily? I need to exchange one of my tens for ten ones.  Calculations 234 - 88 Now I can subtract my ones.	Represent the Base 10 pictorially, remembering to show the exchange.  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.	Children can start their formal written method by partitioning the number into clear place value columns.  Moving forward the children use a more compact method. This will lead to an understanding of subtracting any number including decimals. 5 12 1 2 6 3 . 0 - 2 6 . 5 2 3 6 . 5

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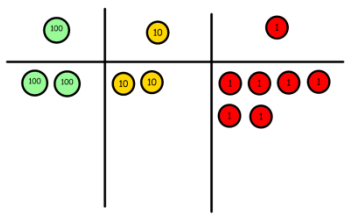
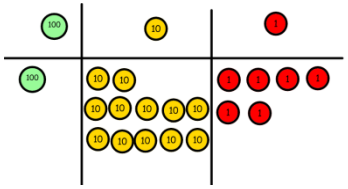


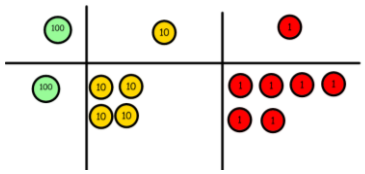
Calculations
234
- 88

Now look at the tens, can I take away 8 tens easily? I need to exchange one hundred for ten tens.

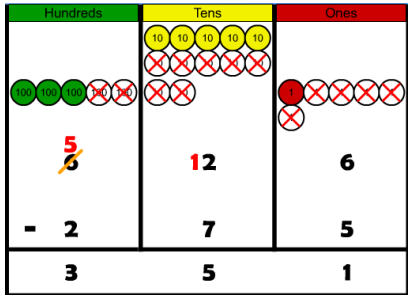


Calculations
234
- 88

Now I can take away eight tens and complete my subtraction.

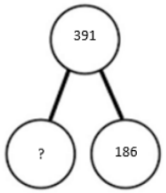


Calculations
~~2~~ 234
- 88
146



Just writing the numbers as shown here shows that the child understands the method and knows when to exchange/regroup.

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.



391	
186	?

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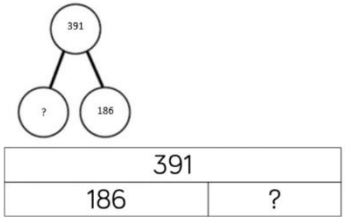
	Show children how the concrete method links to the written method alongside your working. Cross out the numbers when exchanging and show where we write our new amount.		
Conceptual variation; different ways to ask children to solve 391 - 186			
	Raj spent £391and Timmy spent £186. How much more did Raj spend? Calculate the difference between 391 and 186.	What is 186 less than 391? $\square = 391 - 186$ 391 -186 ___	Missing digit calculations 3 9 □ - □ □ 6 □ 0 5