
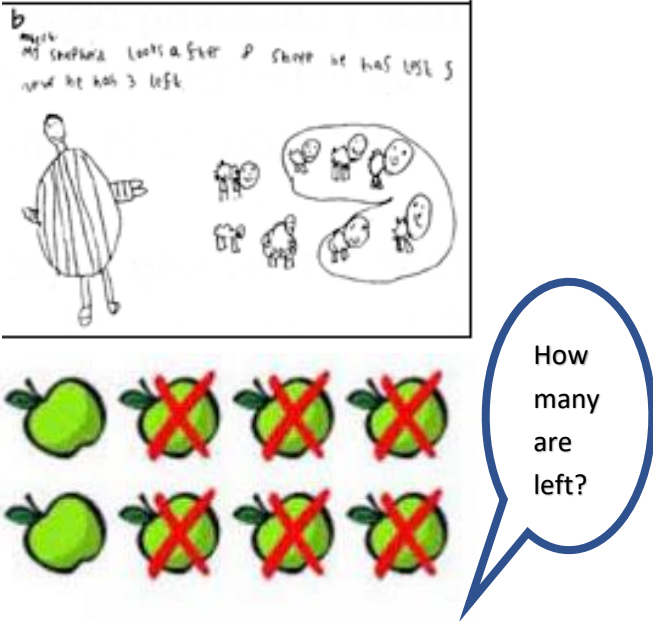

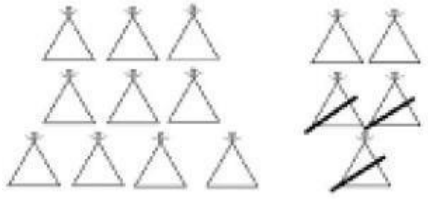
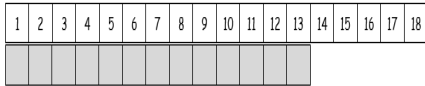


	Concrete	Pictorial	Abstract
<b>Reception Subtraction</b>			
	<p>Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They should experience practical calculation opportunities using a wide variety of equipment, e.g. small world play, role play, counters, cubes etc. They develop ways of recording calculations using pictures, etc.</p> 		
<b>Year 1 Subtraction</b>			
<b>Taking away ones</b>	$6 - 4 = 2$ 	<p>Cross out drawn objects</p>  $15 - 3 = \boxed{12}$	$7 - 4 = 3$ $16 - 9 = 7$

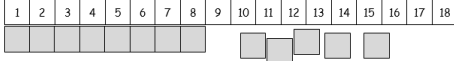
## Counting back

Children will use practical equipment for subtraction by taking away (counting back).

13 - 5 =



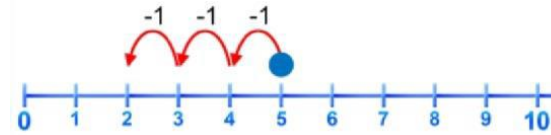
Count out 13 cubes along the number track followed by removal of 5 cubes to give answer:



13 - 5 = 8 It is important that children keep track of how many have been removed.



Move the beads along the bead string as you count backwards.



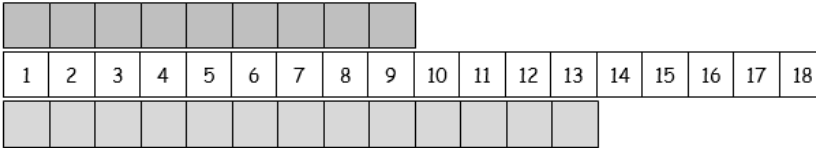
Count back in ones using a number line.

Put 13 in your head and count back 4. What number are you on?

## Find the difference

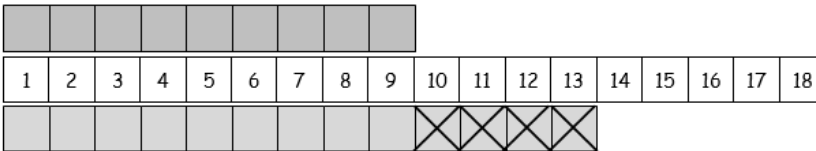
In preparation for understanding how to find the difference by counting up, children should be shown that finding the difference is linked to subtraction and the teacher should ensure the children know that it is an appropriate strategy to use when the numbers are close together.

e.g.  $13 - 9$




Children should use the Base 10 unit cubes and count out the correct amounts, placing one set above the number track and one below.

To find the difference, children need to identify how to make the two amounts the same. This should begin by removing cubes from the larger amount, one at a time, until it is the same size as the smaller amount. As each cube is removed the children count how many are being removed.



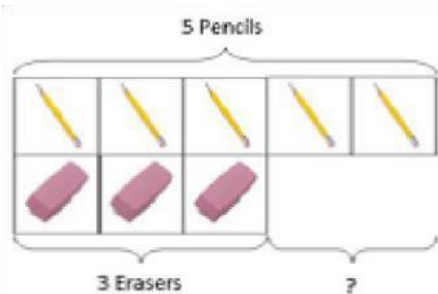
Children should understand that this calculation is  $13 - 9 = 4$

## Compare objecta and amounts

 7 'Seven is 3 more than four'

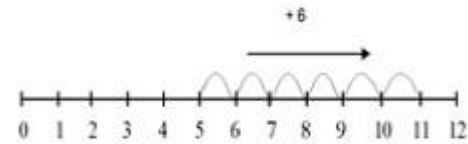
 4

'I am 2 years older than my sister'

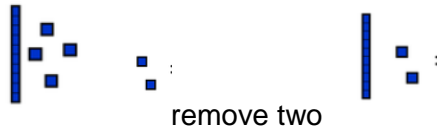
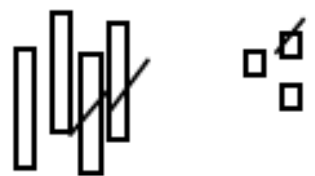


Lay objects to represent the bar model

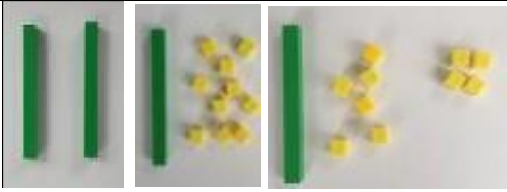



## Count on using a bead line or numberline

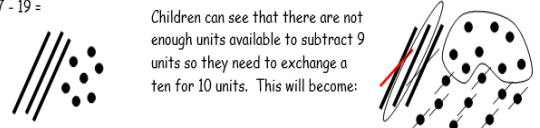
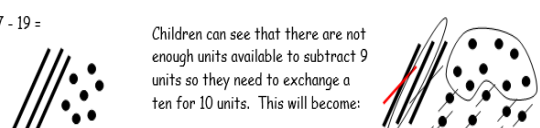
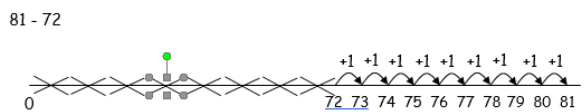
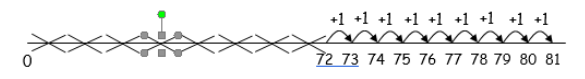
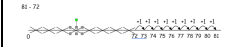
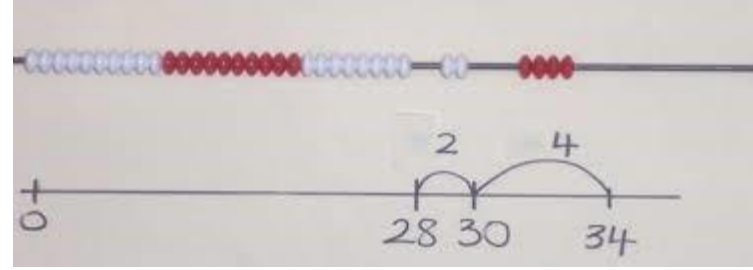
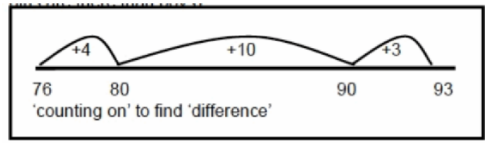


Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister.?

<p><b>Partitioning to subtract without regrouping</b></p>	<p><math>14 - 2 =</math></p>  <p>remove two</p> <p>Use Dienes to show how to partition the number when subtracting without regrouping.</p>	<p>Children draw representations of Dienes and cross off.</p>  <p><math>43 - 21 = 22</math></p>	<p><math>43 - 21 = 22</math></p>
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**Year 2 Subtraction**

<p><b>Regroup a ten into ten ones</b></p>	 <p>Use base 10 to show how to change a ten into ten ones using term exchange</p> <p>Children will use the Base 10 equipment to support their calculations. They need to understand that the number being subtracted does not appear as an amount on its own, but rather as part of the larger amount.</p> <p><math>39 - 17 =</math></p>  <p>Children would count out 39 using the Base 10 equipment (3 tens and 9 units) and would remove 7 units and then one ten, counting up the answer of 2 tens and 2 units to give 22.</p> <p>Circling the tens and units that remain will be modelled by the teacher but does not have to be written by pupil in their answer.</p>	 <p><math>20 - 4 =</math></p> <p><math>39 - 17 =</math></p>  <p>Children would count out 39 using the Base 10 equipment (3 tens and 9 units) and would remove 7 units and then one ten, counting up the answer of 2 tens and 2 units to give 22.</p> <p>Circling the tens and units that remain will be modelled by the teacher but does not have to be written by pupil in their answer.</p>	<p><math>20 - 4 =</math> <math>16</math></p>
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<p><b>With exchanging</b></p>	<p>When exchange is required:</p> <p>37 - 19 =</p>  <p>Children can see that there are not enough units available to subtract 9 units so they need to exchange a ten for 10 units. This will become:</p> <p>Children would count out how many tens and units are left to give the answer (18).</p> <p>At the end of Y2, children will be encouraged to record this by drawing representations of the Base 10 material and crossing out those pieces that they are subtracting. If children are representing exchange, they should be encouraged to cross out a 10 rod line in a different colour (red in the example above, to avoid confusion between the exchange and the subtraction) and replace with 10 unit dots.</p>	<p>When exchange is required:</p> <p>37 - 19 =</p>  <p>Children can see that there are not enough units available to subtract 9 units so they need to exchange a ten for 10 units. This will become:</p> <p>Children would count out how many tens and units are left to give the answer (18).</p> <p>At the end of Y2, children will be encouraged to record this by drawing representations of the Base 10 material and crossing out those pieces that they are subtracting. If children are representing exchange, they should be encouraged to cross out a 10 rod line in a different colour (red in the example above, to avoid confusion between the exchange and the subtraction) and replace with 10 unit dots.</p>	<p>37 - 19 =</p>
<p><b>Finding the difference</b></p>	<p>If the numbers involved in the calculation are close together or near to multiples of 10, 100 etc., children should be encouraged to recognise that it is more efficient to find the difference by counting up using a number line to support the mental calculation. Initially, 0 should be included on the number line to demonstrate that this portion (from 0-72) has been removed, which is similar to the process of taking away.</p> <p>e.g. 81 - 72 =</p> 	<p>81 - 72</p>  <p><b>Help children to become more efficient with counting on by:</b></p> <ul style="list-style-type: none"> <li>Subtracting the units in one jump.</li> </ul>	<p>81 - 72 =</p> 
<p><b>Make 10 strategy</b></p>	 <p>34 - 28</p>	 <p>Use a number line to count on to next ten and then the rest.</p>	<p>93 - 76 = 17</p>

	Use a bead bar or bead strings to model counting to next ten and the rest.		
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**Year 3 Subtraction**

**Column subtraction without exchanging**

Children should begin the method of expanded decomposition with, initially, TU – TU calculations. This process should be demonstrated using arrow cards to show the partitioning and Base 10 materials to show the decomposition of the number.

When solving the calculation  $89 - 57$ , children need to understand that the number being subtracted (57) does not appear as an amount on its own, but rather as part of the larger amount. Therefore, when using Base 10 materials, children would need to count out only the 89.

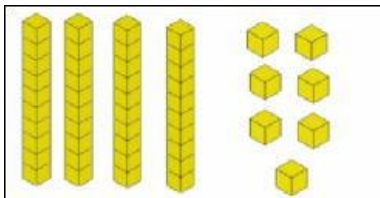
$$\begin{array}{r} 89 = 80 \rightarrow 9 \\ - 57 = 50 \rightarrow 7 \\ \hline 30 \rightarrow 2 = 32 \end{array}$$

The calculation should be read as subtract 7 from 9 or 9 subtract 7.

Children should use the Base 10 materials to represent the first number and remove the units and tens as appropriate (as with the more informal method in Y2).

*Initially, the children will be taught using examples that do not need the children to exchange. Emphasise that the bottom number is being subtracted from the top number rather than the smaller number from the bigger.*

$47 - 32 =$

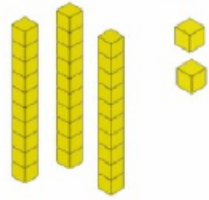


$$\begin{array}{r} 89 = 80 \rightarrow 9 \\ - 57 = 50 \rightarrow 7 \\ \hline 30 \rightarrow 2 = 32 \end{array}$$

The calculation should be read as subtract 7 from 9 or 9 subtract 7.

$$47 - 24 = 23$$

$$\begin{array}{r} 40 + 7 \\ - 20 + 4 \\ \hline 20 + 3 \end{array}$$



**Column subtraction with regrouping**

$$\begin{array}{r} 71 \\ - 46 \\ \hline \end{array}$$

Step 1

$$\begin{array}{r} \text{////} \quad \cdot \\ 70 \rightarrow 1 \\ - 40 \rightarrow 6 \\ \hline \end{array}$$

The calculation should be read as subtract 6 from 1 or 1 subtract 6.

Children can see that there are not enough units to subtract 6 units so they need to exchange a ten for ten units. This will become:

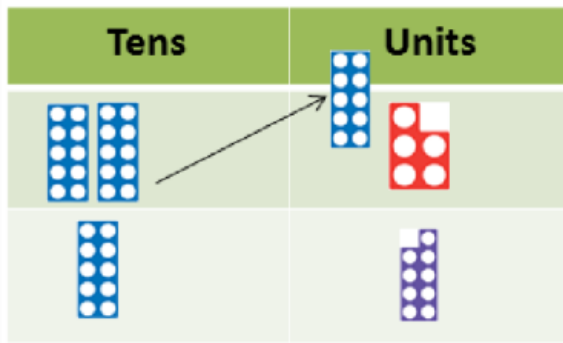
Step 2

$$\begin{array}{r} \text{////} \quad \cdot \\ 60 \rightarrow 11 \\ - 40 \rightarrow 6 \\ 20 \rightarrow 5 = 25 \end{array}$$

This would be recorded by the children as

$$\begin{array}{r} 60 \\ \cancel{70} \rightarrow 11 \\ - 40 \rightarrow 6 \\ 20 \rightarrow 5 = \underline{25} \end{array}$$

Children should know that units line up under units, tens under tens, and so on.



$$\begin{array}{r} 71 \\ - 46 \\ \hline \end{array}$$

Step 1

$$\begin{array}{r} \text{////} \quad \cdot \\ 70 \rightarrow 1 \\ - 40 \rightarrow 6 \end{array}$$

The calculation should be read as subtract 6 from 1 or 1 subtract 6.

Children can see that there are not enough units to subtract 6 units so they need to exchange a ten for ten units. This will become:

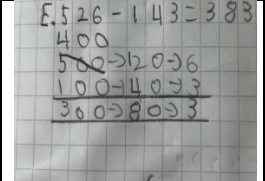
Step 2

$$\begin{array}{r} \text{////} \quad \cdot \\ 60 \rightarrow 11 \\ - 40 \rightarrow 6 \\ 20 \rightarrow 5 = 25 \end{array}$$

This would be recorded by the children as

$$\begin{array}{r} 60 \\ \cancel{70} \rightarrow 11 \\ - 40 \rightarrow 6 \\ 20 \rightarrow 5 = \underline{25} \end{array}$$

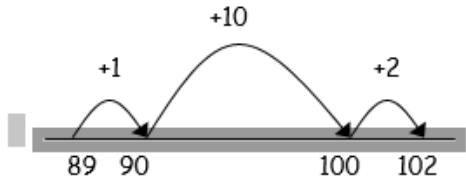
Children should know that units line up under units, tens under tens, and so on.



### Finding the Difference

If the numbers involved in the calculation are close together or near to multiples of 10, 100 etc., children should be encouraged to recognise that it is more efficient to find the difference by counting up using a number line to support the mental calculation.

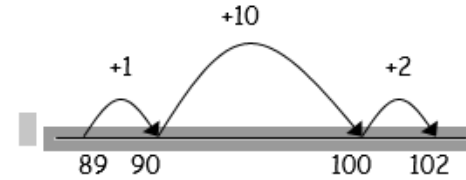
e.g.  $102 - 89 = 13$



**Help children to become more efficient with counting on**

- Subtracting the units in one jump;
- Subtracting the tens in one jump and the units in one jump.

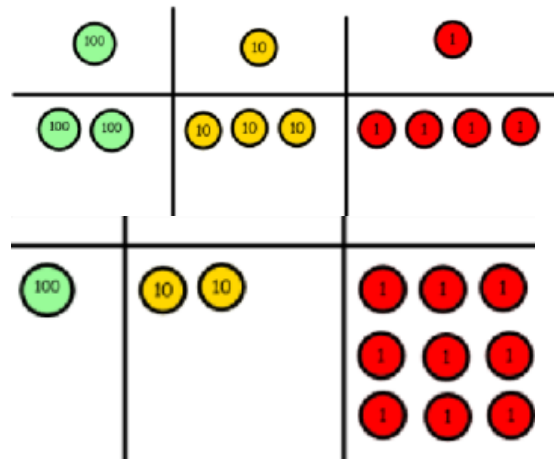
e.g.  $102 - 89 = 13$



$102 - 89 =$

### Year 4 Subtraction

#### Column subtraction and decimals with one decimal place



Use place value counters / base 10 to complete subtraction

754

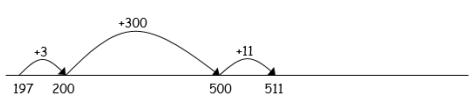
- 86

When children are ready, this leads on to the compact method of decomposition:

$$\begin{array}{r} 614 \phantom{0} \\ 754 \\ - 86 \\ \hline 668 \end{array}$$



		<p>Step 1 <math>700 \rightarrow 50 \rightarrow 4</math>  <math display="block">\begin{array}{r} 700 \\ - 80 \\ \hline \end{array}</math></p> <p>Step 2 <math>700 \rightarrow 40 \rightarrow 14</math> <i>(adjust from T to U)</i>  <math display="block">\begin{array}{r} 700 \\ - 80 \\ \hline \end{array}</math></p> <p>Step 3 <math>600 \rightarrow 140 \rightarrow 14</math> <i>(adjust from H to T)</i>  <math display="block">\begin{array}{r} 600 \\ - 80 \\ \hline 600 \rightarrow 60 \rightarrow 8 = 668 \end{array}</math></p> <p>This would be recorded by the children as</p> $\begin{array}{r} 600 \\ \cancel{700} \rightarrow \cancel{50} \rightarrow 14 \\ - 80 \\ \hline 600 \rightarrow 60 \rightarrow 8 = 668 \end{array}$ <p>When children are ready, this leads on to the compact method of decomposition:</p> $\begin{array}{r} 6141 \\ \cancel{7}84 \\ - 86 \\ \hline 668 \end{array}$	
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<p><b>Finding the difference</b></p>		<p>If the numbers involved in the calculation are close together or near to multiples of 10, 100 etc, children should be encouraged to recognise that it is more efficient to find the difference by counting up using a number line to support the mental calculation.</p> <p><math>511 - 197 = 314</math></p>  <p><b>Help children to become more efficient with counting on by:</b></p> <ul style="list-style-type: none"> <li>• Subtracting the units in one jump;</li> <li>• Subtracting the tens in one jump and the units in one jump;</li> <li>• Subtracting the hundreds in one jump, the tens in one jump and the units in one jump.</li> </ul>	<p><math>511 - 197 = 314</math></p>
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Column subtraction including decimals /money/measures	As year 4	Children may use base 10 jottings to calculate	$\begin{array}{r} 28'10'8'6 \\ - 2128 \\ \hline 28,928 \end{array}$ $\begin{array}{r} 7'16'9'0 \\ - 372'5 \\ \hline 6796'5 \end{array}$
<b>Year 6 Subtraction</b>			
Column subtraction	As year 4	Children may use base 10 jottings to calculate.	$\begin{array}{r} 8'10'6'9'9 \\ - 89'949 \\ \hline 60,750 \end{array}$
Decimal subtraction including money / measures	As year 4		$\begin{array}{r} 10'5'1'9 \text{ kg} \\ - 36'080 \text{ kg} \\ \hline 69'339 \text{ kg} \end{array}$

# Subtraction

lower decrease  
difference between reduce  
take away  
subtract  
take from minus