


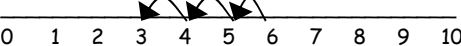
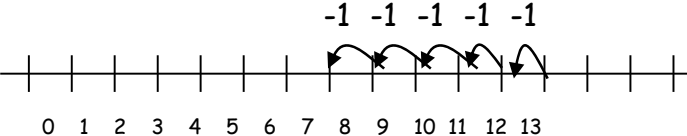

Essex Primary school          Subtraction calculation policy

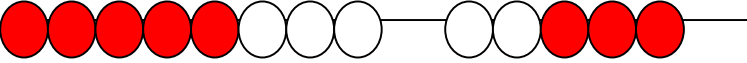
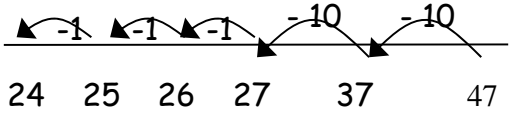
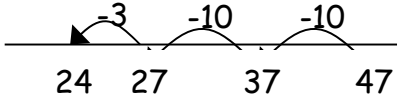
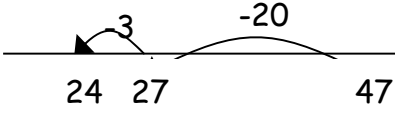
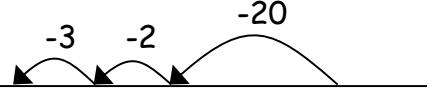
By the end of year 6, children will have a range of calculation methods, mental and written. Selection will depend upon the numbers involved.

Children should not be made to go onto the next stage if:

- 1) they are not ready.
- 2) they are not confident.

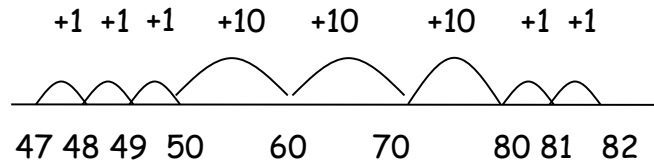
Children should be encouraged to **approximate** their answers before calculating.  
 Children should be encouraged to **check their answers** after calculation using an appropriate strategy.  
 Children should be encouraged to **consider if a mental calculation would be appropriate** before using written methods, e.g counting on

Yr	strategy	Exemplar	Resource
1	Mental images of number system to calculate and record	<p>Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They develop ways of recording calculations using pictures etc.</p> 	Counters
1	Counting back                Difference between.	<p>They use number lines and practical resources to support calculation. Teachers <i>demonstrate</i> the use of the number line.</p> $6 - 3 = 3 \quad -1 \quad -1 \quad -1$  <p>Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones.</p> $13 - 5 = 8$  <p>The numberline should also be used to show that 6 - 3 means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart.</p> 	Number line  Hundred square

	<p>Bridging through 10.</p>	<p>0 1 2 3 4 5 6 7 8</p> <p>Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones.</p> <p>Bead strings or bead bars can be used to illustrate subtraction including bridging through ten by counting back 3 then counting back 2.</p> <p><math>13 - 5 = 8</math></p>  <p>Children will begin to use empty number lines to support calculations.</p> <p>✓ First counting back in tens and ones.</p> <p><math>47 - 23 = 24</math></p>  <p>✓ Then helping children to become more efficient by subtracting the units in one jump (by using the known fact <math>7 - 3 = 4</math>).</p> <p><math>47 - 23 = 24</math></p>  <p>✓ Subtracting the tens in one jump and the units in one jump.</p> <p><math>47 - 23 = 24</math></p>  <p>✓ Bridging through ten can help children become more efficient.</p> <p><math>42 - 25 = 17</math></p>  <p>If the numbers involved in the calculation are close together or near to multiples of 10, 100 etc, it can be more efficient to count on.</p> <p>Count up from 47 to 82 in jumps of 10 and jumps of 1.</p> <p>The number line should still show 0 so children can cross out the section from</p>	<p>Beads</p> <p>Empty number line</p>
2	Counting back		
	Counting back and bridging through 10		

0 to the smallest number. They then associate this method with 'taking away'.

$$82 - 47$$



Help children to become more efficient with counting on by:

- ✓ Subtracting the units in one jump;
- ✓ Subtracting the tens in one jump and the units in one jump;
- ✓ Bridging through ten.

Children will continue to use empty number lines with increasingly large numbers.

Children will begin to use **informal pencil and paper methods (jottings)** to support, record and explain partial mental methods building on existing mental strategies.

**Partitioning and decomposition**

This process should be demonstrated using arrow cards to show the partitioning and base 10 materials to show the decomposition of the number.

**NOTE** When solving the calculation  $89 - 57$ , children should know that 57 **does NOT EXIST AS AN AMOUNT** it is what you are subtracting from the other number. Therefore, when using base 10 materials, children would need to count out only the 89.

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

*Initially, the children will be taught using examples that do not need the children to exchange.*

**From this the children will begin to exchange.**

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

The calculation should be read as e.g. take 6 from 1.

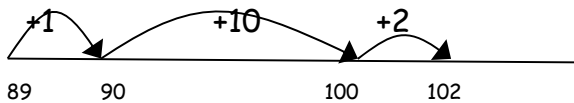
Step 1

$$\begin{array}{r} 70 + 1 \\ - 40 + 6 \\ \hline \end{array}$$

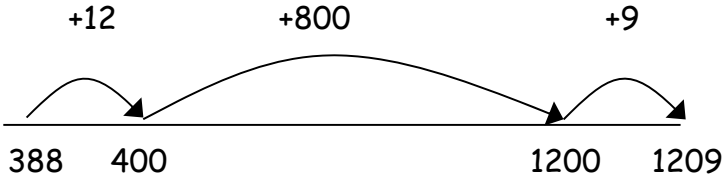
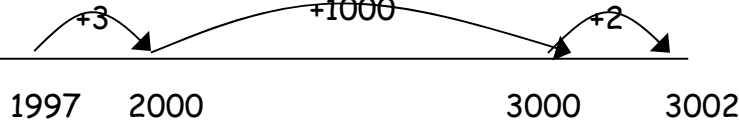
Step 2

$$\begin{array}{r} 60 + 11 \\ - 40 + 6 \\ \hline 20 + 5 = 25 \end{array}$$

This would be recorded by the children as

	Counting on	$\begin{array}{r} 60 \\ 70 + 1 \\ - 40 + 6 \\ \hline 20 + 5 = 25 \end{array}$ <p>Children should know that units line up under units, tens under tens, and so on. Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used. <math>102 - 89 = 13</math></p> 	Empty Number line
4	Partitioning and decomposition	$\begin{array}{r} 754 \\ - 86 \\ \hline \end{array} =$ <p>Step 1 <math>700 + 50 + 4</math>  <math>- \quad \quad \quad 80 + 6</math></p> <p>Step 2 <math>700 + 40 + 14</math> (<i>adjust from T to U</i>)  <math>- \quad \quad \quad 80 + 6</math></p> <p>Step 3 <math>600 + 140 + 14</math> (<i>adjust from H to T</i>)  <math>- \quad \quad \quad 80 + 6</math></p> $600 + 60 + 8 = 668$ <p>This would be recorded by the children as</p> $\begin{array}{r} 600 \quad 140 \\ 700 + 50 + 4 \\ - \quad \quad 80 + 6 \\ \hline 600 + 60 + 8 = 668 \end{array}$ <p>Decomposition</p> $\begin{array}{r} 6141 \\ 754 \\ - 86 \\ \hline 668 \end{array}$ <p>Children should:</p> <ul style="list-style-type: none"> <li>✓ be able to subtract numbers with different numbers of digits;</li> <li>✓ using this method, children should also begin to find the difference between two three-digit sums of money, with or without 'adjustment' from the pence to the pounds;</li> </ul> <p>For example:</p> $\begin{array}{r} \pounds 8.95 \\ - \pounds 4.38 \\ \hline \end{array} = \begin{array}{r} 8 + 0.9 + 0.05 \\ 4 + 0.3 + 0.08 \\ \hline \end{array}$ $= \begin{array}{r} 8 + 0.8 + 0.15 \\ - 4 + 0.3 + 0.08 \\ \hline \end{array} \quad \begin{array}{r} 8.85 \\ - 4.38 \\ \hline \end{array} \quad \begin{array}{r} 1 \\ \text{(adjust from T to U)} \end{array}$	

	Counting on Counting on	$4 + 0.5 + 0.07$ $= \text{£}4.57$ <p>Alternatively, children can set the amounts to whole numbers, i.e. <math>895 - 438</math> and convert to pounds after the calculation.</p> <p><b>NB</b> <i>If your children have reached the concise stage they will then continue this method through into years 5 and 6. They will not go back to using the expanded methods.</i></p> <p>Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used.</p> <p><math>511 - 197 = 314</math></p>	
5	Partitioning and decomposition         Decomposition	<p>Step 1</p> $\begin{array}{r} 754 \\ - 286 \\ \hline \end{array} = \begin{array}{r} 700 + 50 + 4 \\ 200 + 80 + 6 \end{array}$ <p>Step 2</p> $\begin{array}{r} 700 + 40 + 14 \\ - 200 + 80 + 6 \end{array} \quad (\text{adjust from T to U})$ <p>Step 3</p> $\begin{array}{r} 600 + 140 + 14 \\ - 200 + 80 + 6 \\ \hline 400 + 60 + 8 = 468 \end{array} \quad (\text{adjust from H to T})$ <p>This would be recorded by the children as</p> $\begin{array}{r} \phantom{600} + \phantom{140} \\ 700 + 50 + 14 \\ - 200 + 80 + 6 \\ \hline 400 + 60 + 8 = 468 \end{array}$ $\begin{array}{r} \phantom{6} \phantom{1} \phantom{4} \\ 754 \\ - 286 \\ \hline 468 \end{array}$ <p>Children should:</p> <ul style="list-style-type: none"> <li>✓ <i>be able to subtract numbers with different numbers of digits;</i></li> <li>✓ <i>begin to find the difference between two decimal fractions with up to three digits and the same number of decimal places;</i></li> <li>✓ <i>know that decimal points should line up under each other.</i></li> </ul> <p><b>NB</b> <i>If your children have reached the concise stage they will then continue this method through into year 6. They will not go back to using</i></p>	

	Counting on	<p><i>the expanded methods.</i></p> <p>Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used.</p> <p>209 - 388 = 821</p> 	Empty number line
6	Decomposition	$  \begin{array}{r}  5 \ 13 \ 1 \\  6467 \\  - 2684 \\  \hline  3783  \end{array}  $ <p><i>Children should:</i></p> <ul style="list-style-type: none"> <li>✓ <i>be able to subtract numbers with different numbers of digits;</i></li> <li>✓ <i>be able to subtract two or more decimal fractions with up to three digits and either one or two decimal places;</i></li> <li>✓ <i>know that decimal points should line up under each other.</i></li> </ul> <p>Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used.</p> <p>Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used.</p> <p>3002 - 1997 = 1005</p> 	Empty number line