

Subtraction

The following methods of subtraction are those that the majority of children in each year group should be using. Children may use different strategies if they are not secure in previously taught strategies. If children are able and confident mathematicians they may be introduced to some of the strategies earlier.

Y1

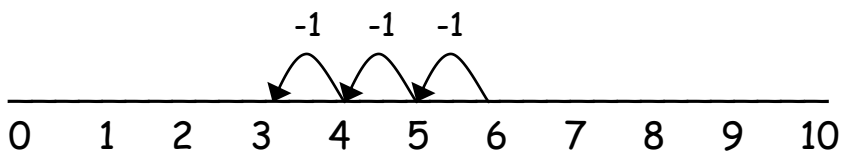
Children should use practical apparatus to count out an amount of objects and 'take away' a given quantity. They should work out the answers to subtraction by counting remaining objects and then by counting back as each object is taken.

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.

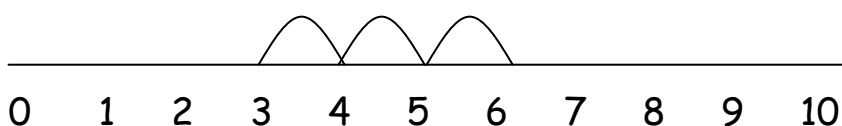


They use numberlines and practical resources to support calculation. Teachers *demonstrate* the use of the numberline.

$$6 - 3 = 3$$

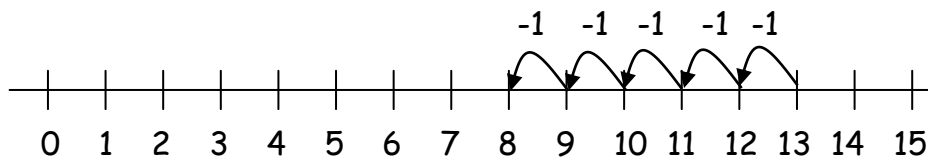


The numberline should also be used to show that $6 - 3$ means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart.



Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones.

$$13 - 5 = 8$$



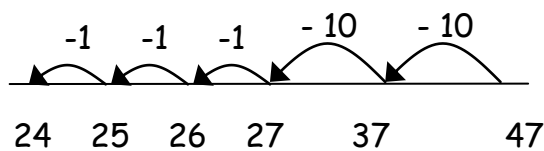
Y2

Children will experience seeing subtraction presented both horizontally and vertically. Children will begin to use empty number lines to support calculations.

Counting back

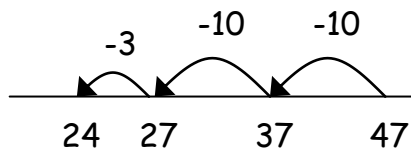
- First counting back in ones to subtract a one digit number, then by tens to subtract a multiple of ten.
- Next counting back in tens and ones.

$$47 - 23 = 24$$



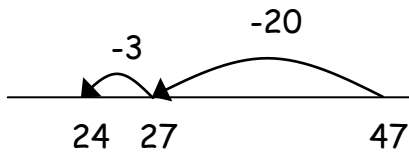
- Then helping children to become more efficient by subtracting the units in one jump (by using the known fact $7 - 3 = 4$).

$$47 - 23 = 24$$



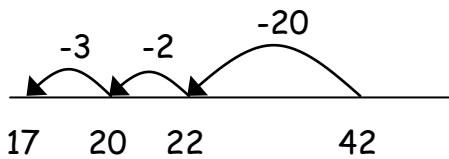
- Subtracting the tens in one jump and the units in one jump.

$$47 - 23 = 24$$



- Bridging through ten can help children become more efficient.

$$42 - 25 = 17$$



Counting on

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 to find the difference.

Count up from 78 to 82 in jumps of 1.

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.

Y3

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

Children will begin to use column subtraction with numbers containing up to 3 digits

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.

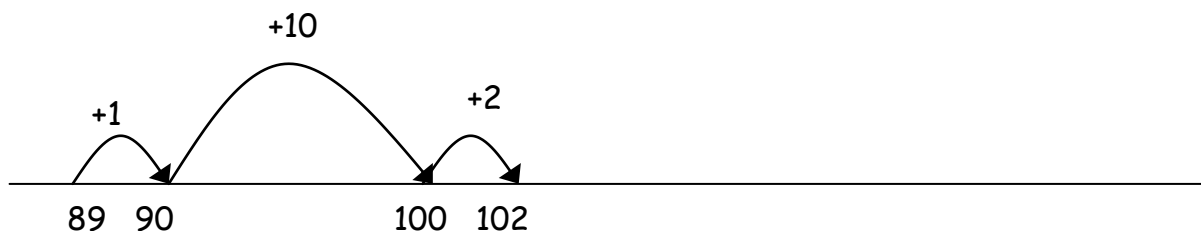
NOTE When solving the calculation $89 - 57$, children should know that 57 **does NOT EXIST AS AN AMOUNT** it is what you are subtracting from the other number. Therefore, when using base 10 materials, children would need to count out only the 89.

$$\begin{array}{r} 89 \\ - 57 \\ \hline \end{array} = \begin{array}{r} 80 + 9 \\ 50 + 7 \\ \hline 30 + 2 = 32 \end{array} \quad - \quad \begin{array}{r} 83 = \overset{70+13}{\cancel{80} + \cancel{3}} \\ - 57 \\ \hline 20 + 6 = 26 \end{array}$$

The children will be taught this method using examples that do not need the children to exchange.

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.

$$102 - 89 = 13$$



Y4

Children will be taught column subtraction with numbers containing up to 4 digits involving exchanging

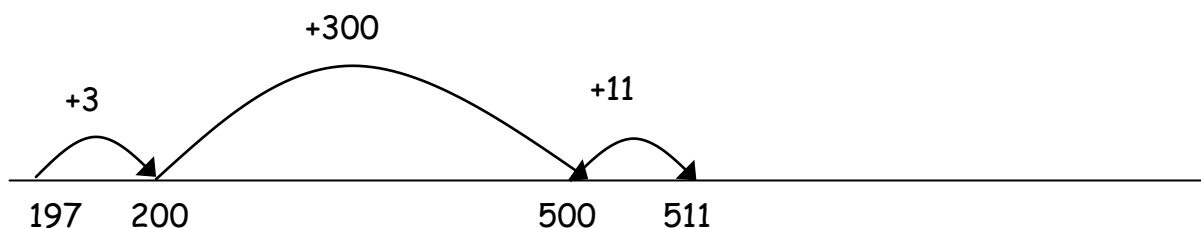
$$\begin{array}{r} 614 \text{ 1} \\ 7\cancel{8}4 \\ - \quad 86 \\ \hline 668 \end{array}$$

Children should:

- *be able to subtract numbers with different numbers of digits;*
- *know that decimal points should line up under each other.*

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.

$$511 - 197 = 314$$



Y5

Children will continue to use column subtraction involving exchanging using numbers with more than 4 digits, including decimals

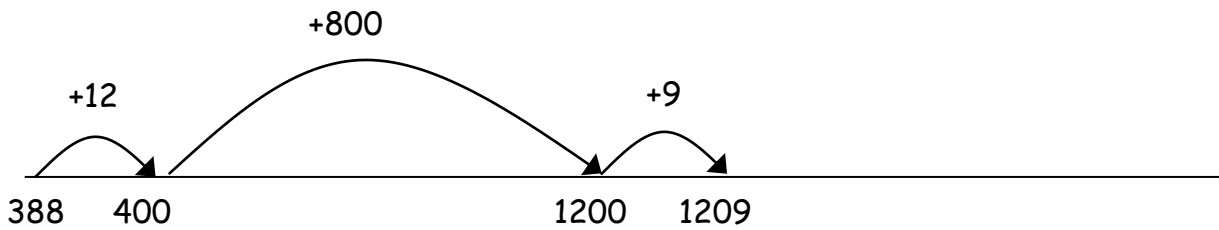
$$\begin{array}{r} 614 \text{ 1} \\ 7\cancel{8}4 \\ - 286 \\ \hline 468 \end{array}$$

Children should:

- *be able to subtract numbers with different numbers of digits;*
- *know that decimal points should line up under each other.*

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.

$$1209 - 388 = 821$$



Y6

Children should continue to use column subtraction with increasing large numbers including decimals.

$$\begin{array}{r} ^5 ^{13} ^1 \\ 6467 \\ - 2684 \\ \hline 3783 \end{array}$$

Children should:

- be able to subtract numbers with different numbers of digits;
- know that decimal points should line up under each other.

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.

$$3002 - 1997 = 1005$$

