

Information for Parents



Subtraction

Calculations at Tonacliffe - Subtraction Progression

This leaflet will show you the main steps your child will go through while learning how to do subtraction calculations at Tonacliffe Primary School.

When children are confident and secure at a step, they will move on to the next one.

Step 1

First steps are done practically with apparatus. For example with toy dinosaurs, counters etc. It is essential that children are fully confident in subtracting with apparatus before they move on.

Step 2

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.

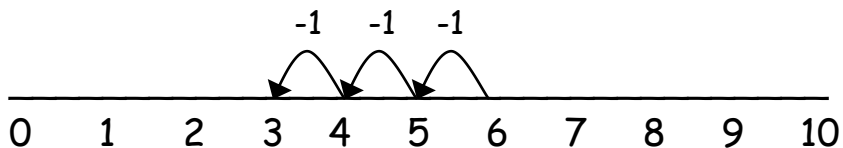


$$5 - 2 = 3$$

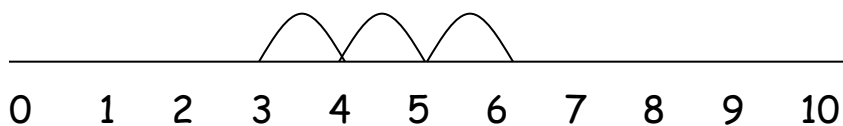
Step 3

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

$$6 - 3 = 3$$

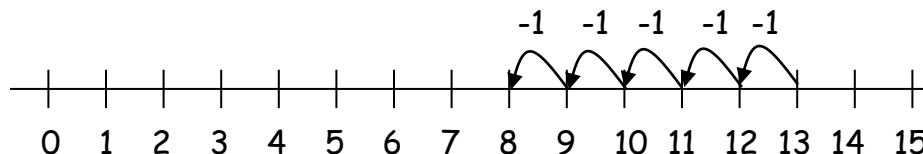


The numberline should also be used to show that $6 - 3$ means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart. Children can find the difference by counting on as well as counting back.



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

$$13 - 5 = 8$$



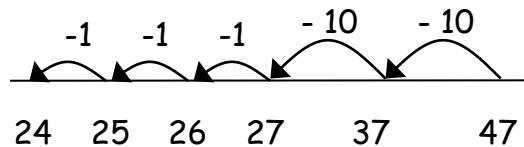
Step 4

Children will begin to use empty number lines to support calculations.

Counting back

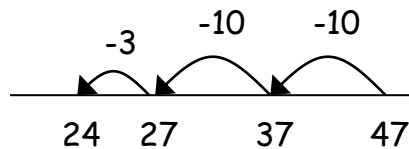
☺ First counting back in tens and ones.

$$47 - 23 = 24$$



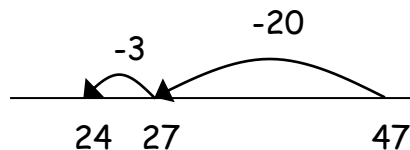
☺ Then helping children to become more efficient by subtracting the units in one jump (by using the known fact $7 - 3 = 4$).

$$47 - 23 = 24$$



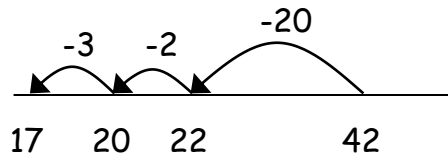
☺ Subtracting the tens in one jump and the units in one jump.

$$47 - 23 = 24$$



☺ Bridging through ten can help children become more efficient.

$$42 - 25 = 17$$



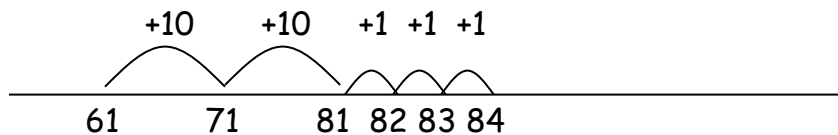
Step 5

Counting on

If the numbers involved in the calculation are close together it can be more efficient to count on.

Count up from 61 to 84 in jumps of 10 and jumps of 1.

$$84 - 61 = 23$$



Children will 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 use empty number lines with increasingly large numbers.

Step 6

Partitioning

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

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

Initially, the children will be taught using examples that do not need the children to exchange (also known as borrowing).

From this the children will begin to exchange (borrow).

Step 1

$$\begin{array}{r} 71 \\ - 46 \\ \hline \end{array} = \begin{array}{r} 70 \rightarrow 1 \\ \underline{40 \rightarrow 6} \end{array}$$

Step 2 - After exchanging this will look like:

$$\begin{array}{r} 71 \\ - 46 \\ \hline \end{array} = \begin{array}{r} \overset{60}{\cancel{70}} \rightarrow 11 \\ \underline{40 \rightarrow 6} \\ 20 \rightarrow 5 = 25 \end{array}$$

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

$$\begin{array}{r} 754 = \\ - 86 \\ \hline \end{array}$$

$$\text{Step 1} \quad \begin{array}{r} 700 \rightarrow 50 \rightarrow 4 \\ - \quad \quad \quad 80 \rightarrow 6 \\ \hline \end{array}$$

$$\text{Step 2} \quad \begin{array}{r} 700 \rightarrow 40 \rightarrow 14 \quad (\text{adjust from T to U}) \\ - \quad \quad \quad 80 \rightarrow 6 \\ \hline \end{array}$$

$$\text{Step 3} \quad \begin{array}{r} 600 \rightarrow 140 \rightarrow 14 \quad (\text{adjust from H to T}) \\ - \quad \quad \quad 80 \rightarrow 6 \\ \hline 600 \rightarrow 60 \rightarrow 8 = 668 \end{array}$$

This would be recorded by the children as

$$\begin{array}{r} 754 = \\ - 86 \\ \hline \end{array} \quad \begin{array}{r} \overset{600}{\cancel{7}00} \rightarrow \overset{140}{\cancel{5}0} \rightarrow 14 \\ \quad \quad \quad \quad \quad 80 \rightarrow 6 \\ \hline 600 \rightarrow 60 \rightarrow 8 = 668 \end{array}$$

Step 7

Decomposition

$$\begin{array}{r} 6 14 1 \\ 7 5 4 \\ - 8 6 \\ \hline 6 6 8 \end{array}$$

☺ *be able to subtract numbers with different numbers of digits;*

Step 8

Decomposition involving decimals.

$$\begin{array}{r} 7 \quad 14 \quad 1 \\ 8.54 \\ - 3.67 \\ \hline 4.87 \end{array}$$

Children should:

- ☺ using decomposition, children should also begin to find the difference between two three-digit sums of money;
- ☺ know that decimal points should line up under each other.

Step 9

Decomposition of larger numbers.

$$\begin{array}{r} 6 \quad 14 \quad 1 \\ 7548 \\ - 2866 \\ \hline 4682 \end{array}$$

Children should:

- ☺ be able to subtract numbers with different numbers of digits;
- ☺ be able to subtract decimal fractions with up to four digits and either one or two decimal places;
- ☺ know that decimal points should line up under each other.