

# Information for Parents



# Addition

## Calculations at Tonacliffe - Addition Progression

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

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

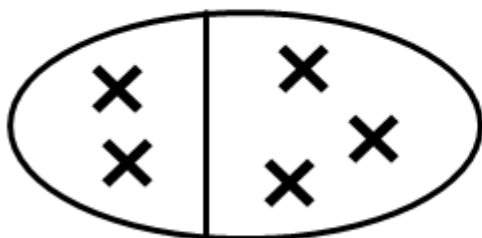
### Step 1

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

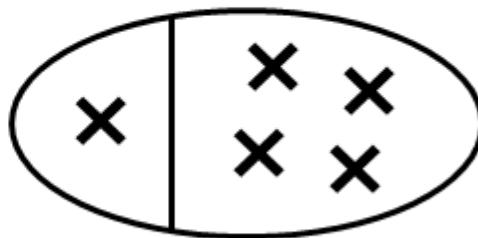
### Step 2

Next, 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.

### Make 5



$$2 + 3 = 5$$

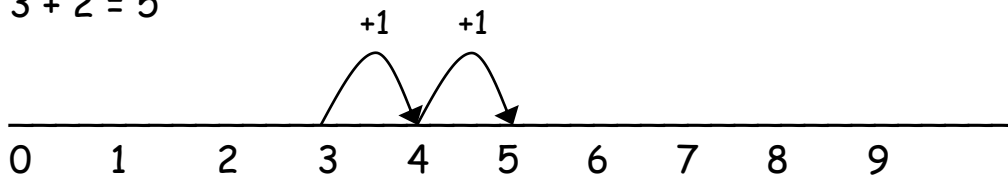


$$1 + 4 = 5$$

### Step 3

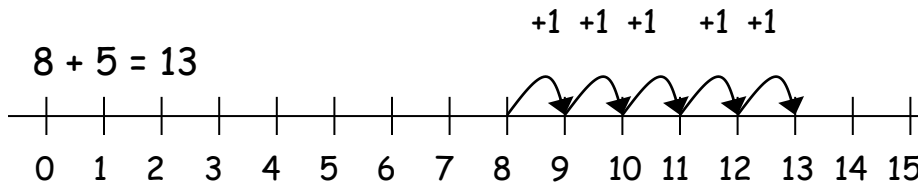
They use numberlines and practical resources to support calculation and teachers *demonstrate* the use of the numberline.

$$3 + 2 = 5$$



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

$$8 + 5 = 13$$

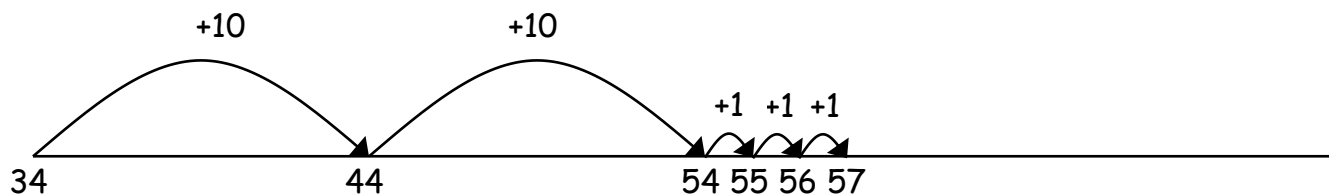


### Step 4

Children will begin to use 'empty number lines' themselves starting with the larger number and counting on.

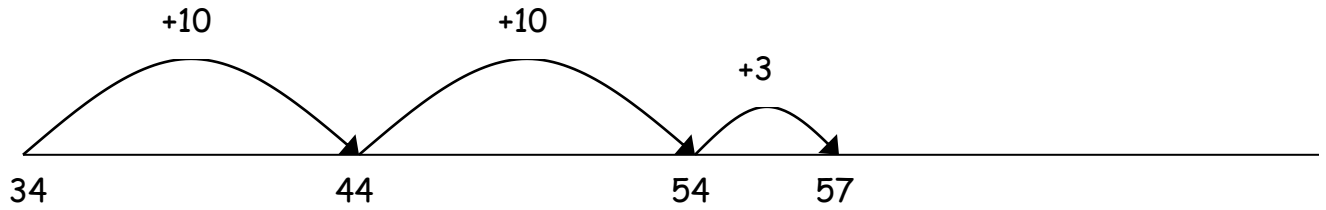
☺ First counting on in tens and ones.

$$34 + 23 = 57$$



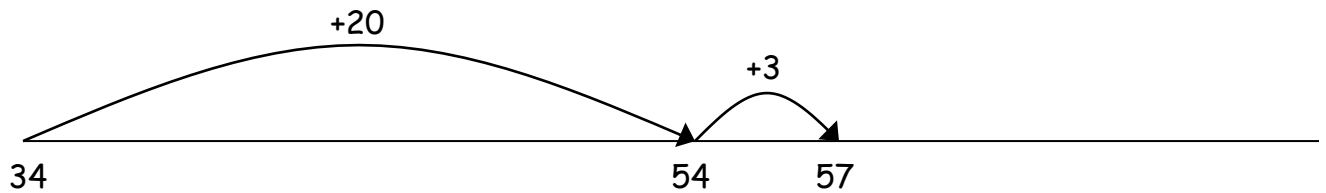
- ☺ Then helping children to become more efficient by adding the units in one jump (by using the known fact  $4 + 3 = 7$ ).

$$34 + 23 = 57$$



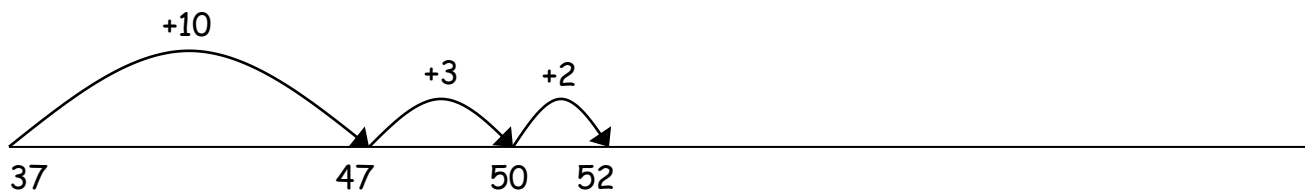
- ☺ Followed by adding the tens in one jump and the units in one jump.

$$34 + 23 = 57$$



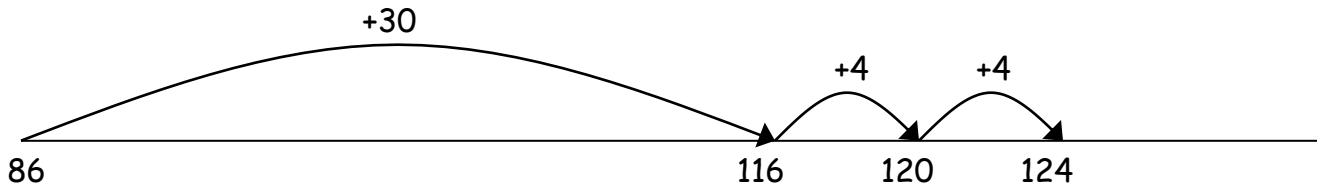
- ☺ Bridging through ten can help children become more efficient.

$$37 + 15 = 52$$



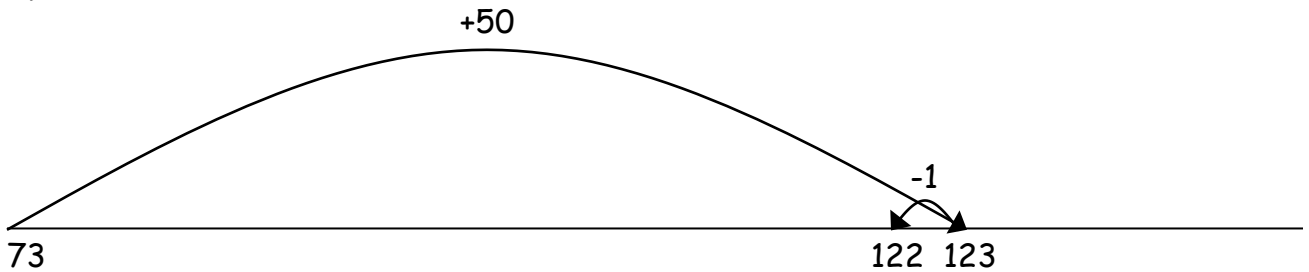
- ☺ Count on from the largest number irrespective of the order of the calculation.

$$38 + 86 = 124$$



- ☺ Compensation

$$49 + 73 = 122$$



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

### **Step 5 - Informal written methods**

Adding most significant digits first, and then moving to adding least significant digits.

$$\begin{aligned} 67 + 24 &= (60 + 20) + (7 + 4) \\ &= 80 + 11 = \underline{91} \end{aligned}$$

As children become more confident this can be shortened to:

$$86 + 65 = 140 + 11 = \underline{151}$$

Moving to adding the least significant digits first in preparation for 'carrying'.

$$\begin{array}{r} 67 \\ + 24 \\ \hline 11 \text{ ( } 7 + 4 \text{)} \\ \hline 80 \text{ (} 60 + 20 \text{)} \\ \hline 91 \end{array}$$

$$\begin{array}{r} 267 \\ + 85 \\ \hline 12 \text{ ( } 7 + 5 \text{)} \\ 140 \text{ (} 60 + 80 \text{)} \\ \hline 200 \text{ (} 200 + 0 \text{)} \\ \hline 352 \end{array}$$

## Step 6

From this, children will begin to carry below the line.

$$\begin{array}{r} 625 \\ + 48 \\ \hline 673 \\ 1 \end{array}$$

$$\begin{array}{r} 783 \\ + 42 \\ \hline 825 \\ 1 \end{array}$$

$$\begin{array}{r} 367 \\ + 85 \\ \hline 452 \\ 11 \end{array}$$

*Using similar methods, children will:*

- ☺ *add several numbers with different numbers of digits;*
- ☺ *begin to add two or more three-digit sums of money, with or without adjustment from the pence to the pounds;*
- ☺ *know that the decimal points should line up under each other, particularly when adding mixed amounts, e.g. £3.59 + 78p.*

## Step 7

Children should extend the carrying method to numbers with three and four digits.

$$\begin{array}{r} 587 \\ + 475 \\ \hline 1062 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ \hline 111 \end{array}$$

Using similar methods, children will:

- ☺ *add several numbers with different numbers of digits;*
- ☺ *begin to add two or more decimal fractions with up to three digits and the same number of decimal places;*
- ☺ *know that decimal points should line up under each other, particularly when adding mixed amounts, e.g. 3.2 m + 280 cm.*

## Step 8

Children should extend the carrying method to number with any number of digits.

$$\begin{array}{r} 58754 \\ + 47532 \\ \hline 106286 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 13587 \\ + 4675 \\ \hline 18262 \\ \hline 111 \end{array}$$

$$\begin{array}{r} 42 \\ 6432 \\ 786 \\ 3 \\ + 4684 \\ \hline 11947 \\ \hline 121 \end{array}$$

*Using similar methods, children will*

- ☺ *add several numbers with different numbers of digits;*
- ☺ *begin to add two or more decimal fractions with up to four digits and either one or two decimal places;*
- ☺ *know that decimal points should line up under each other, particularly when adding mixed amounts, e.g.  $401.2 + 26.85 + 0.71$ .*