

Calculation Policy- Addition

The following methods of addition 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.

Reception

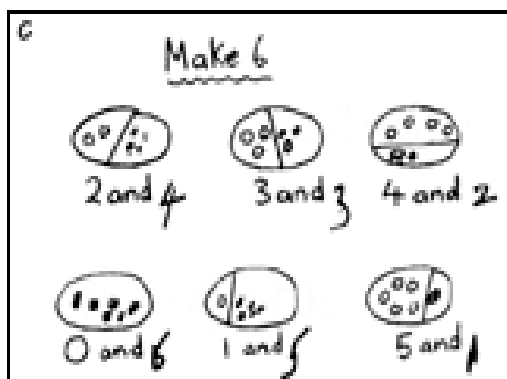
Children will use a variety of practical resources to add.

They will be taught to find the total number of items in two groups by counting them all. They will then move on to counting on to add two quantities.

They will use practical resources to find one more than a number, before moving on to using a number track for this.

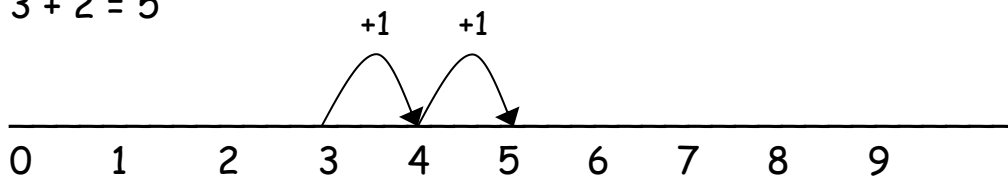
Year 1

Children will be taught to read and record simple addition in number sentences. 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.



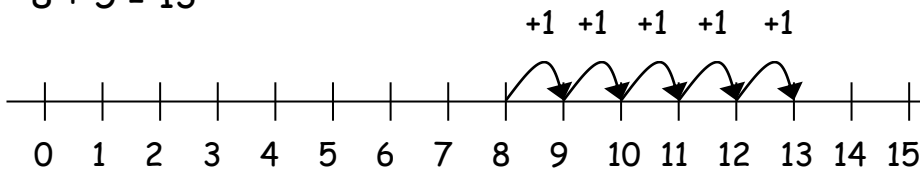
They use number lines and practical resources such as numicon and counting equipment to support calculation and teachers *demonstrate* the use of the number line.

$$3 + 2 = 5$$



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

$$8 + 5 = 13$$



Children will be introduced to the idea of adding starting with the largest number. They will explore the commutative law of addition.

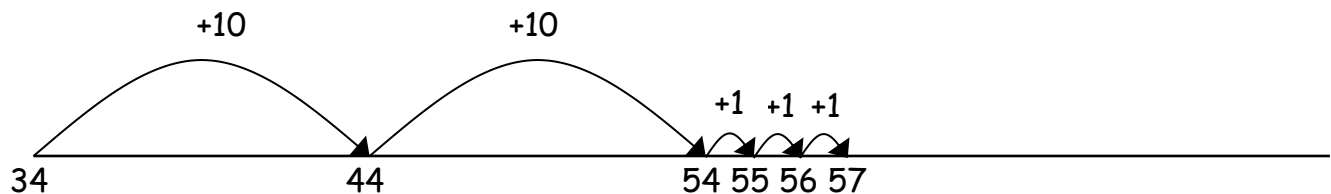
Y2

Children will experience seeing addition presented both horizontally and vertically. They will continue to add starting with the larger number.

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

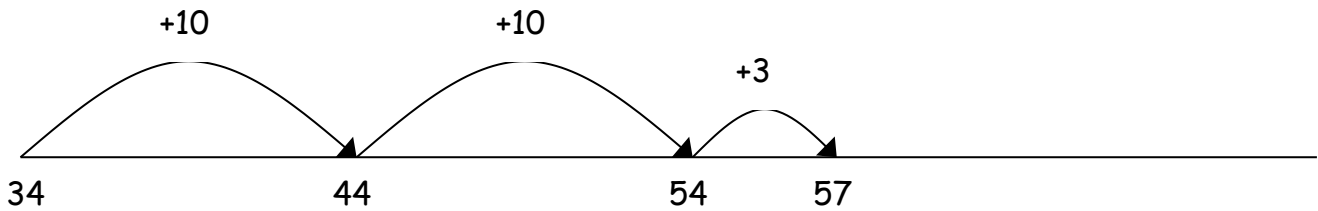
- First counting on in ones to add a one digit number, then by tens to add a multiple of ten.
- Next the children should count on in tens and ones to add two digit numbers.

$$34 + 23 = 57$$



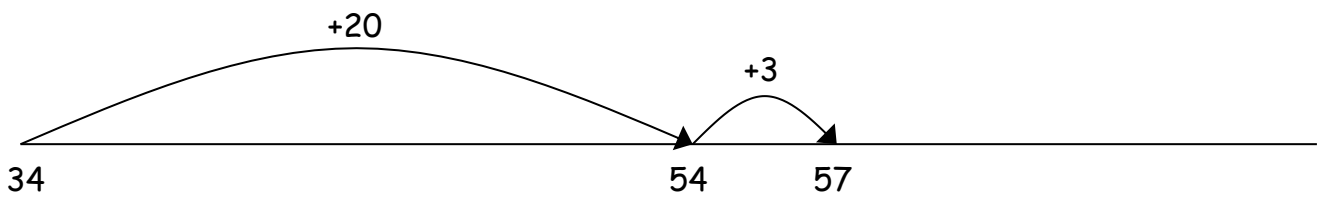
- Then helping children to become more efficient by adding the units in one jump (by using the known fact $4 + 3 = 7$).

$$34 + 23 = 57$$



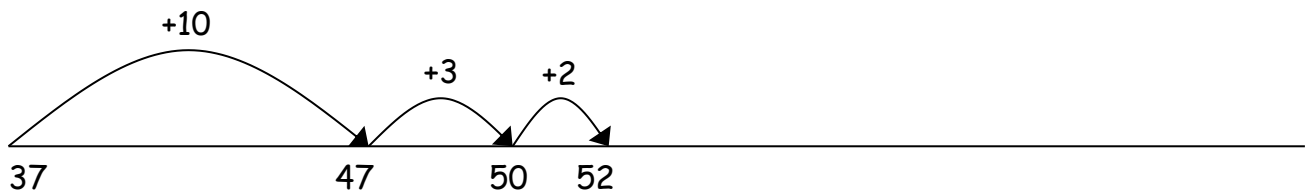
- Followed by adding the tens in one jump and the units in one jump.

$$34 + 23 = 57$$



- Bridging through ten can help children become more efficient.

$$37 + 15 = 52$$

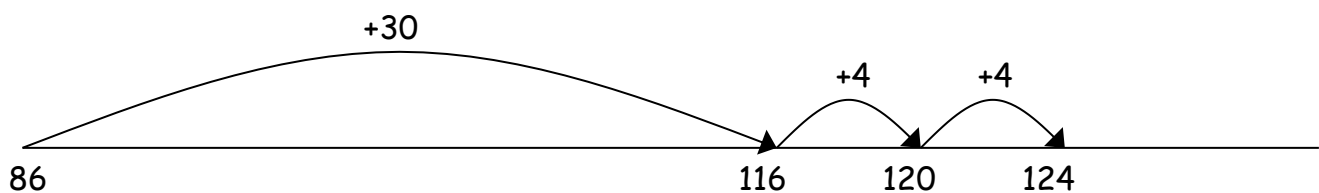


Y3

Children will continue to use empty number lines with increasingly large numbers, including compensation where appropriate.

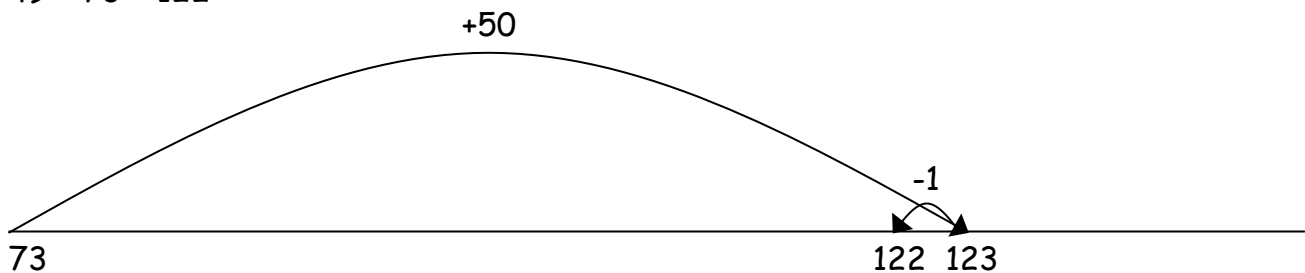
- Count on from the largest number irrespective of the order of the calculation.

$$38 + 86 = 124$$



- 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.

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

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

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

*Brackets can be used by the teacher to show the process but children might not record using brackets if they are secure in their understanding.

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

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

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

Y4

Children should add numbers using column addition involving carrying.

$$\begin{array}{r} 5 \ 6 \ 7 \\ + 1 \ 9 \ 9 \\ \hline 7 \ 6 \ 6 \end{array}$$

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 or subtracting mixed amounts, e.g. £3.59 + 78p.*

They should be encouraged to use the inverse operation to check their calculations.

Y5

Children should extend the carrying method to numbers with at least four digits and numbers with decimal points.

Using similar methods, children will:

- *add several numbers with different numbers of digits;*
- *know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 3.2 m - 280 cm.*

Y6

Children should extend the carrying method to number with any number of digits (including decimals).

Using similar methods, children will

- ✓ *add several numbers with different numbers of digits;*
- ✓ *know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 401.2 + 26.85 + 0.71.*