

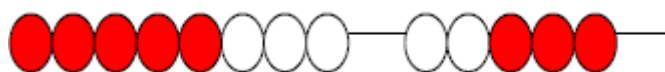
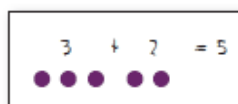
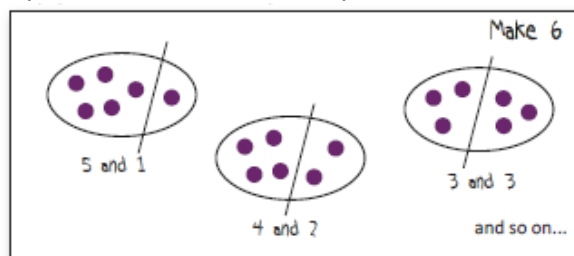
+ Addition

COUNTING ALL

Stage 1 (Foundation Stage - Year 1)

Children first use a range of objects and pictures to explain addition as combining two sets of objects.

Beginning with the objects themselves, children learn to do addition by drawing pictures of the objects and later represent the objects by symbols such as dots or tally marks.

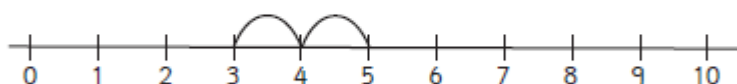
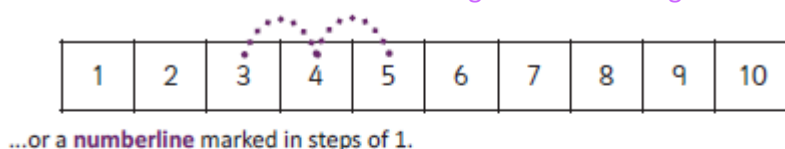


COUNTING ON

Stage 2

Introduce counting on using a number track and then number line (putting the largest number first).

Continue to use practical resources to support calculation. **Please Note: we don't use arrows on a number line so that children can see that counting on and counting back are the same process.**



Note: Labelled numberlines like this should always start at 0 (zero).

NUMBER BONDS

Stage 3

Knowing numbers that add to 10 (and other numbers eg 5, 7, 20...) through practical resources and marked number lines.

PARTITIONING

Stage 4

Recap understanding of partitioning numbers into tens and ones (units). Children split each number into tens and ones (units), adding tens first, and then ones (units) as this is how we would do the calculation mentally. Dienes and counters should also be used at this stage.

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

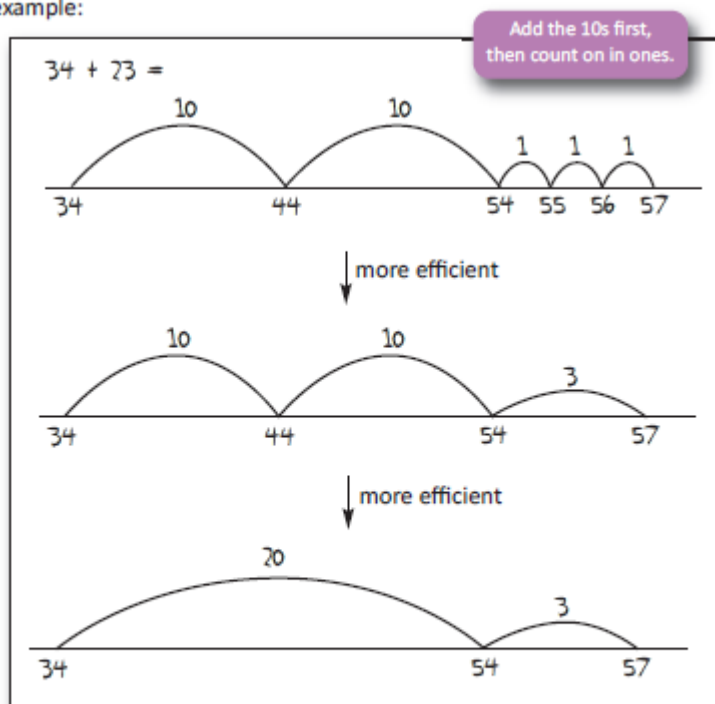
Partitioning splits each number into the tens and units - we always add the tens first, then the units, as this is how we would do the calculation mentally.

NUMBERLINES

Stage 5 (Year 2 - Year 3)

Empty numberlines are used to count up, becoming increasingly efficient as children become more confident in choosing the jumps that they use. They must start at the larger number and count on irrespective of the order of the calculation. Empty numberlines may not include zero.

For example:



First, counting on in ones (units). Then counting on in tens and ones (units).

Then, add 10s in separate jumps but group the ones (units).

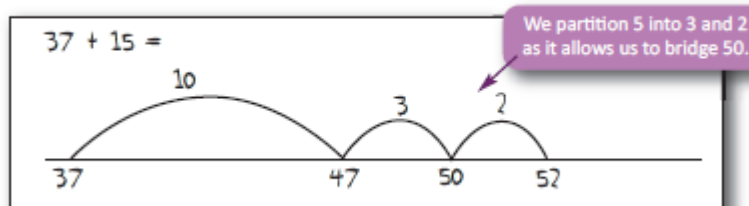
Finally, group 10s in one jump and units in one jump.

Note: We don't use arrows on a number line so that children can see that counting on and counting back are the same process.

Stage 6 (around year 3)

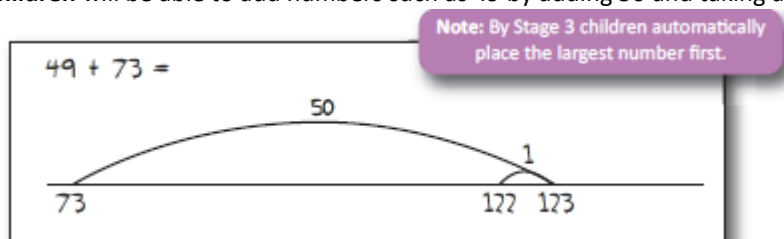
Children will use the numberline to support addition for increasingly large numbers including bridging or compensation to make it more efficient.

Bridging across 10 is another way of making the process more efficient.



Compensation

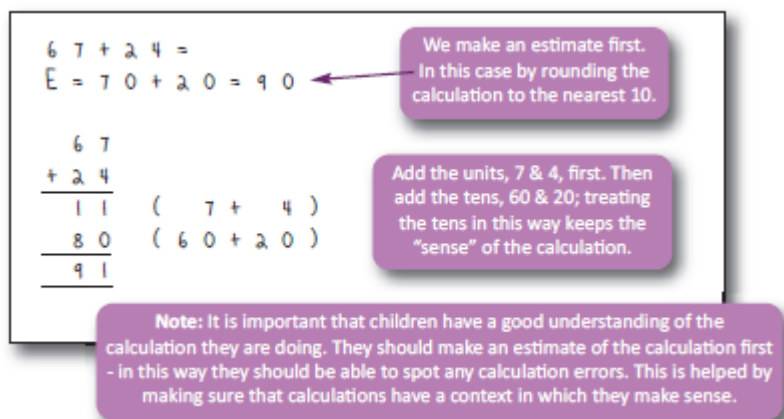
Children will be able to add numbers such as 49 by adding 50 and taking away 1.



EXPANDED METHOD

Stage 7 with annotation (end Year 3 - Year 4)

Our first “written method” is an expanded version. Because this is a written method and not a mental one, and so that children are ready to “carry” we **begin from the right** with the **least significant digits**. Children should use place value headings (T and U and decimal places where appropriate) until they are secure with this method.



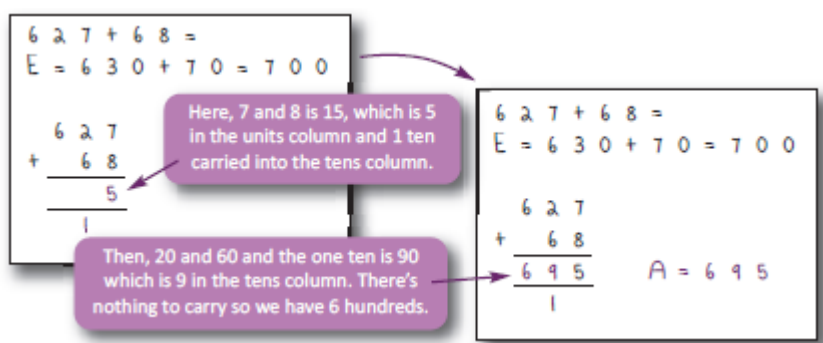
When children are secure with this method, they can do the expanded method without annotations.

COMPACT METHOD

Stage 8 (Year 4 - Year 6)

The common standard written method for addition is used, making sure that children have made an estimate first to pick up any errors.

Two lines must be drawn and the **carrying must be below the bottom line**. Children should use place value headings (T and U and decimal places where appropriate) .



This standard written method should be used only when an easier or quicker method is not available.

As children become more confident they will be able to use the method to:

- add more than two numbers with different numbers of digits
- add money, lining up the decimal points, and dealing with mixed amounts, eg £3.59 + 78p
- add two or more decimal fractions with up to two decimal places
- add quantities in mixed units, eg 3.2m + 280cm

Billy uses a pedometer to measure how far he walks in three days. On Monday he walked 4.6km, on Tuesday he walked 5km and on Wednesday he walked 780m. How far did he walk altogether?

$$4.6 \text{ km} + 5 \text{ km} + 780 \text{ m} =$$
$$E = 5 \text{ km} + 5 \text{ km} + 1 \text{ km} = 11 \text{ km}$$

$$\begin{array}{r} 4.60 \\ 5.00 \\ 0.78 \\ \hline 10.38 \\ 1 \end{array} \quad A = 10.38 \text{ km}$$