Addition

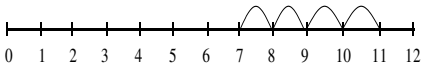
Stage 1

Understand addition as combining any number of groups. Find one more than a given sets of objects. Develop ways of recording calculations using pictures, etc

Stage 2

Using number lines to count on ones

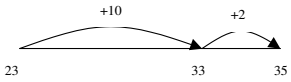
7 + 4 = 11



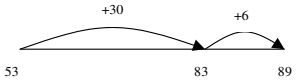
Stage 3

Partition into tens and ones and recombine

23 + 12 = 23 + 10 + 2
= 33 + 2
= 35



53 + 36 = 53 + 30 + 6
= 83 + 6
= 89



Stage 4

$$\begin{array}{r} 47 = 40 + 7 \\ +76 \quad 70 + 6 \\ \hline 110 + 13 = 123 \end{array}$$

Progress to:

$$\begin{array}{r} 47 \\ +76 \\ \hline 13 \\ 110 \\ \hline 123 \end{array}$$

Stage 5

Formal method, showing numbers carried underneath

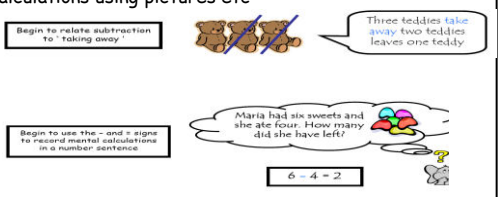
$$\begin{array}{r} 358 \\ +\ 73 \\ \hline 431 \\ {\scriptstyle 11} \end{array}$$

Extended to numbers with any number of digits and decimals with 1 and 2 decimal places.

Subtraction

Stage 1

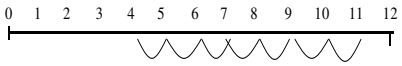
Understand subtraction as **'taking away' from a set** and **counting back and** develop ways of recording calculations using pictures etc



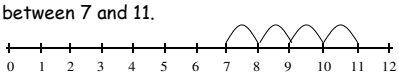
Stage 2

Using number lines to count back in ones.

11-7=4



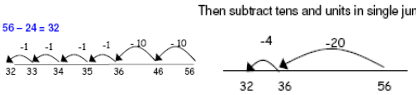
Counting on, using a number line, to find the difference between 7 and 11.



Stage 3

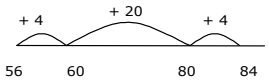
Use the numberline to subtract by using the 'COUNT BACK' method

Then subtract tens and units in single jumps



Complementary addition (counting up from the smaller number to the larger number)

84 - 56 = 28



Stage 4

Expanded layout, leading to column method

$$\begin{array}{r} 70+4 \\ -\ 20+7 \\ \hline \end{array} \qquad \begin{array}{r} {\scriptstyle 60\ \ 14} \\ \cancel{70}+\cancel{4} \\ -\ 20+7 \\ \hline 40+7 \end{array} \qquad \begin{array}{r} {\scriptstyle 6\ 14} \\ \cancel{7}\,\cancel{4} \\ -\,2\,7 \\ \hline 4\,7 \end{array}$$

Stage 5

Decomposition

$$\begin{array}{r} {\scriptstyle 4\ 15\ 13} \\ \cancel{5}\,\cancel{6}\,\cancel{3} \\ -\ 2\,7\,8 \\ \hline 2\,8\,5 \end{array}$$

Progress to using decomposition with decimals