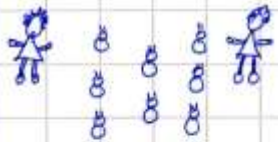


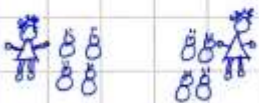
Progression from mental to written strategies - KS1
Division

Division as "sharing"

8 teddy bears
shared between
2 children



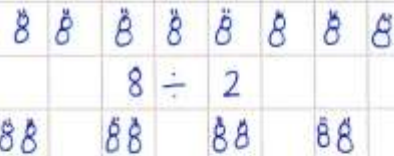
$$8 \div 2$$



$$8 \div 2 = 4$$

Division as "grouping"

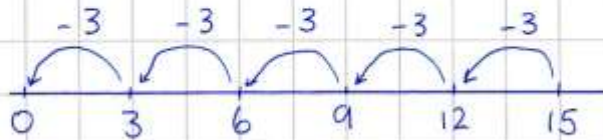
8 teddy bears
grouped in twos



$$8 \div 2 = 4$$

Division as repeated subtraction on the number line:

$$15 \div 3$$



WASPS

Methods of Calculating with the Four Operations

(+ - x ÷)

KS1

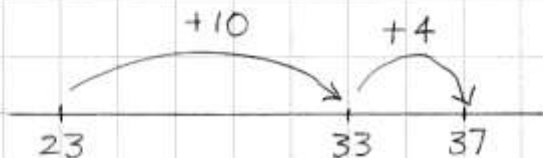
Progression from mental to written strategies - KS1

Addition

Mental methods using partitioning:

$$\begin{aligned} 23 + 14 &= (20 + 10) + (3 + 4) \\ &= 30 + 7 \\ &= 37 \end{aligned}$$

Using a blank number line:



Vertical layout ("ones/units" first)

e.g.

$$\begin{array}{r} 23 \\ + 14 \\ \hline 7 \end{array} \text{ "three add four"}$$

$$\begin{array}{r} 30 \\ \hline 37 \end{array} \text{ "twenty add ten"}$$

Compact written method:

$$\begin{array}{r} 23 \\ + 14 \\ \hline 37 \end{array}$$

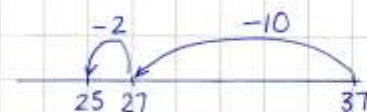
Progression from mental to written strategies - KS1

Subtraction

Subtraction as "taking away" using number line:

e.g.

$$37 - 12$$



Compact written method:

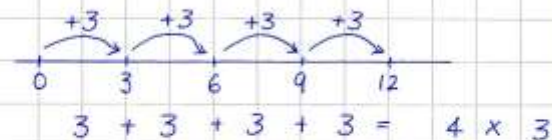
$$\begin{array}{r} 37 \\ - 12 \\ \hline 25 \end{array}$$

Progression from mental to written strategies - KS

Multiplication

As repeated addition:

e.g.



Vertical method:

e.g.

$$\begin{array}{r} 21 \\ \times 3 \\ \hline 63 \end{array} \quad \begin{array}{r} 3 \times 1 \\ 3 \times 20 \end{array}$$