

# Key Stage 2:- Progression of Calculation

## Addition +

1. Expanded written with no regroup:

$$172 + 121 = 293$$



$$\begin{array}{r} 100 & 70 & 2 \\ + & 100 & 20 & 1 \\ \hline 200 & 90 & 3 \end{array}$$

$$\begin{array}{r} 172 \\ + 121 \\ \hline 200 \\ 90 \\ 3 \\ \hline 293 \end{array}$$

2. Expanded with regrouping:

$$\begin{array}{r} 167 \\ + 119 \\ \hline 200 \\ 70 \\ 16 \\ \hline 286 \end{array}$$

3. Compact with regrouping:

$$\begin{array}{r} 1267 \\ + 1478 \\ \hline 2745 \end{array}$$

## Subtraction -

1. Expanded written with no regroup:

$$267 - 124 =$$

$$\begin{array}{r} 200 & 60 & 7 \\ - & 100 & 20 & 4 \\ \hline 100 & 40 & 3 \end{array}$$

2. Expanded with regrouping:

3. Compact with regrouping:

$$\begin{array}{r} 9751 \\ - 2529 \\ \hline 7222 \end{array}$$

$$\begin{array}{r} 7821 \\ - 2664 \\ \hline 5157 \end{array}$$

## Multiplication X

1. Times tables and commutativity:

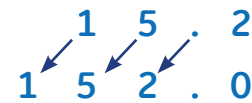
$$7 \times 3 = 3 \times 7$$



Children learn their tables up to 12x12

2. Multiply and divide by 10 and 100:

h t u . tths



Each digit moves one place value column to the left to multiply, the right to divide

Extends to multiplying multiples of ten

$$\begin{array}{l} 70 \times 3 = \\ 7 \times 3 = 21 \\ 21 \times 10 = 210 \end{array}$$

3. The distributive law and grid multiplication:

$$347 \times 4 =$$

x	300	40	7
4	1200	160	24
	1200	160	24
+		24	
	1384		

## Division ÷

1. Division as the inverse of multiplication:

$$8 \times 9 = 72$$

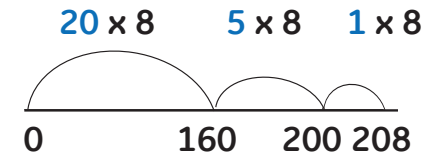
$$72 \div 8 = 9$$

$$72 \div 9 = 8$$

2. Chunking on a numberline:

Jump in multiples

$$208 \div 8 = 26$$



Add the 'lots of' 8

$$20 + 5 + 1 = 26$$

