

Stage 5

Addition

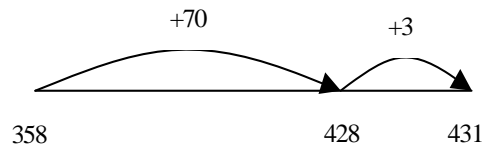
+ and = signs and missing numbers

Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.

Partition into hundreds, tens and ones and recombine

Either partition both numbers and recombine or partition the second number only e.g.

$$\begin{aligned} 358 + 73 &= 358 + 70 + 3 \\ &= 428 + 3 \\ &= 431 \end{aligned}$$



Add or subtract the nearest multiple of 10 or 100, then adjust

Continue as in Year 2, 3 and 4 but with appropriate numbers e.g. $458 + 79 =$ is the same as $458 + 80 - 1$

Pencil and paper procedures

Leading to formal method, showing numbers carried underneath for G&T children.

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

Extend to numbers with at least four digits

$$3587 + 675 = 4262$$

$$\begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ 111 \end{array}$$

Revert to expanded methods if the children experience any difficulty.

Extend to decimals

Subtraction

- and = signs and missing numbers

Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.

Subtract the nearest multiple of 10 or 100, and then adjust.

Continue as in Year 2, 3 and 4 but with appropriate numbers.

Find a difference by counting up

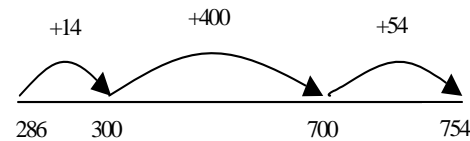
$$\text{e.g. } 8006 - 2993 = 5013$$

This can be modelled on an empty number line (see complementary addition below).

Pencil and paper procedures

Complementary addition

$$754 - 286 = 468$$



$$754 - 86$$

$$\begin{array}{r} 700 \text{ and } 50 \text{ and } 4 \\ - \quad 80 \text{ and } 6 \\ \hline 700 \text{ and } 40 \text{ and } 14 \\ - \quad 80 \text{ and } 6 \\ \hline \end{array}$$

600 and 140 and 14

$$\begin{array}{r} 600 \quad 140 \quad 14 \\ - \quad 80 \quad \text{and} \quad 6 \\ \hline 600 \quad 60 \quad 8 = 668 \end{array}$$

Compact written method involving decomposition.

$$\begin{array}{r} 11 \\ 754 \\ - 286 \\ \hline 468 \end{array}$$

Multiplication

X and = signs and missing numbers

Continue using a range of equations as in Year 2 but with appropriate numbers

Partition

$$47 \times 6 = 92$$

$$\begin{aligned} 47 \times 6 &= (40 \times 6) + (7 \times 6) \\ &= (240) + (42) \\ &= 282 \end{aligned}$$

OR

Use the grid method of multiplication (as below)

Pencil and paper procedures

Encourage estimation first e.g.

$$70 \times 40 = 2800$$

Grid method

X	70	2
30	2100	60
8	560	16

$$2660 + 76 = 2736$$

Expanded method

$$\begin{array}{r} 272 \\ \times 8 \\ \hline 16 \\ 560 \\ \hline 1600 \\ \hline 2176 \end{array} \quad \text{GT} \quad \begin{array}{r} 272 \\ \times 8 \\ \hline 2176 \\ 51 \end{array}$$

Extend to simple decimals with one decimal place.

$$\begin{array}{r} 12.5 \\ \times 2 \\ \hline 1.0 \quad (2.0 \times 0.5) \\ 4.0 \quad (2.0 \times 2.0) \\ \hline 20.0 \quad (2.0 \times 10.0) \\ 25.0 \end{array}$$

Division

÷ and = signs and missing numbers

Continue using a range of equations as in Year 2 but with appropriate numbers.

Sharing and grouping

Continue to understand division as both sharing and grouping (repeated subtraction).

Pencil and paper procedures

Encourage estimation first

$$256 \div 7 \text{ lies between } 210 \div 7 = 30 \text{ and } 280 \div 7 = 40$$

$$\begin{array}{r} 256 \\ - \quad 70 \quad (10 \text{ groups}) \text{ or } (10 \times 7) \\ \hline 186 \\ - \quad 140 \quad (20 \text{ groups}) \text{ or } (20 \times 7) \\ \hline 46 \\ - \quad 42 \quad (6 \text{ groups}) \text{ or } (6 \times 7) \\ \hline 4 \quad (36 \text{ groups}) \text{ or } (36) \end{array}$$

Answer: 36 remainder 4

GT

$$\begin{array}{r} 124 \text{ r } 4 \\ 6 \overline{) 748} \\ \underline{-600} \quad (100 \times 6) \\ 148 \\ \underline{-120} \quad (20 \times 6) \\ 28 \\ \underline{-24} \quad (4 \times 6) \\ 4 \end{array}$$