

Stage 6

Addition

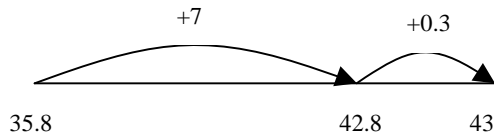
+ and = signs and missing numbers

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

Partition into hundreds, tens, ones and decimal fractions and recombine

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

$$\begin{aligned} 35.8 + 7.3 &= 35.8 + 7 + 0.3 \\ &= 42.8 + 0.3 \\ &= 43.1 \end{aligned}$$



Add the nearest multiple of 10, 100 or 1000, then adjust

Continue as in Year 2, 3, 4 and 5 but with appropriate numbers including extending to adding 0.9, 1.9, 2.9 etc

Pencil and paper procedures

Extend to numbers with any number of digits and decimals with 1, 2 and 3 decimal places. $4165 + 7983 = 12,148$

$$\begin{array}{r} 4165 \\ + 7983 \\ \hline 12148 \\ 11 \end{array}$$

$$14.685 + 3.9 + 4 + 7.030 = 21.615$$

$$\begin{array}{r} 14.685 \\ 3.900 \\ 4.000 \\ + 7.030 \\ \hline 29.615 \\ 11 \end{array}$$

Revert to expanded methods if the children experience any difficulty.
Extend to decimals (either one or two decimal places).

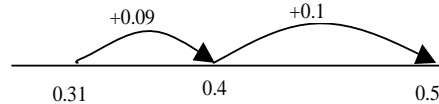
Subtraction

- and = signs and missing numbers

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

Find a difference by counting up e.g. $0.5 - 0.31 = 0.19$

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



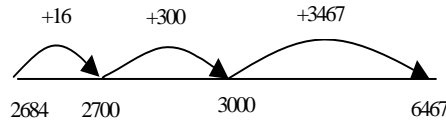
Subtract the nearest multiple of 10, 100 or 1000, then adjust

Continue as in Year 2, 3, 4 and 5 but with appropriate numbers.

Pencil and paper procedures

Complementary addition

$$6467 - 2684 = 3783$$



$$\begin{array}{r} \text{OR } 6467 - 2684 = 3783 \\ \quad 16 \quad (2700) \\ \quad 300 \quad (3000) \\ \quad 3467 \quad (6467) \\ \hline 3783 \end{array}$$

Expanded to explain decomposition

$$\begin{array}{r} 1300 \\ 5000 \quad 300 \quad 160 \\ \hline 6000 \text{ and } 400 \text{ and } 60 \text{ and } 7 \\ - 2000 \text{ and } 600 \text{ and } 80 \text{ and } 3 \\ \hline 3000 \quad 700 \quad 80 \quad 4 \end{array}$$

Using decomposition

$$\begin{array}{r} 14 \quad 16 \\ 6 \quad 4 \quad 6 \quad 7 \\ - 2 \quad 6 \quad 8 \quad 3 \\ \hline 3 \quad 7 \quad 8 \quad 4 \end{array}$$

Multiplication

x and = signs and missing numbers

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

Pencil and paper procedures

Grid method

X	4000	800	30	6	
8	32000	6400	240	48	↘

$$\begin{array}{r} 32000 \\ 6400 \\ 240 \\ + 48 \\ \hline 38688 \end{array}$$

$$\begin{array}{r} \text{G+T} \\ 4836 \\ \times 8 \\ \hline 38688 \\ 624 \end{array}$$

$$\begin{array}{r} 746 \\ \times 47 \\ \hline 42 \quad (7 \times 6) \\ 280 \quad (7 \times 40) \\ 4900 \quad (7 \times 700) \\ 240 \quad (40 \times 6) \\ 1600 \quad (40 \times 40) \\ \hline 28000 \quad (40 \times 700) \\ 35062 \\ 121 \end{array}$$

$$\begin{array}{r} \text{GT} \\ 746 \\ \times 47 \\ \hline 5222 \\ 29840 \\ \hline 35062 \end{array}$$

decimals
approximate first.

$$4.62 \times 3 \text{ is about } 15$$

$$\begin{array}{r} 4.62 \\ \times 3 \\ \hline 13.86 \\ 1 \end{array}$$

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

$\begin{array}{r} 8 \overline{) 4796} \\ \underline{- 800} \\ 3996 \\ \underline{- 800} \\ 3196 \\ \underline{- 800} \\ 2396 \\ \underline{- 800} \\ 1596 \\ \underline{- 800} \\ 796 \\ \underline{- 800} \\ -400 \end{array}$	$\begin{array}{r} 8 \overline{) 4796} \\ \underline{- 4000} \quad (500 \times 8) \\ 796 \\ \underline{- 640} \quad (80 \times 8) \\ 156 \\ \underline{- 80} \quad (10 \times 8) \\ 76 \\ \underline{- 72} \quad (9 \times 8) \\ 4 \end{array}$
---	--

$$\begin{array}{r} \text{G+T} \quad 599 \text{ r } 4 \\ 8 \overline{) 4796} \\ \underline{77} \\ 4796 \end{array}$$

$$\begin{array}{r} 149 \text{ r } 47 \\ 49 \overline{) 7348} \\ \underline{- 4900} \quad (100 \times 49) \\ 2448 \\ \underline{- 980} \quad (20 \times 49) \\ 1468 \\ \underline{- 980} \quad (20 \times 49) \\ 488 \\ \underline{- 245} \quad (5 \times 49) \\ 343 \\ \underline{- 196} \quad (4 \times 49) \\ 47 \end{array}$$

decimals 87.5 - 7

$$\begin{array}{r} 7 \overline{) 87.5} \\ \underline{- 70.0} \quad (10 \times 7) \\ 17.5 \\ \underline{- 14.0} \quad (2 \times 7) \\ 3.5 \\ \underline{- 3.5} \quad (0.5 \times 7) \\ 0.0 \end{array}$$

answer 12.5