

Addition

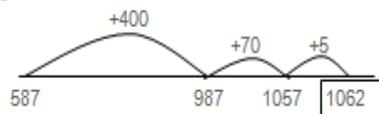
△ (mental method) I can add to the nearest multiple of 10 or 100, then adjust:

$$\underline{358+79=437}$$

$$358+80-1=437$$

△ (mental method) I can add larger numbers, partitioning the smaller number:

$$587 + 475 =$$



△ I can use column addition to add three or four digit numbers, involving carrying over into the next column:

$$\begin{array}{r} 587 \\ + 475 \\ \hline 1062 \\ 11 \end{array} \qquad \begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ 111 \end{array}$$

△ I can use column addition to add numbers with varying digits:

$$\begin{array}{r} 7648 \\ + 1486 \\ \hline 9134 \\ 111 \end{array} \qquad \begin{array}{r} 6584 \\ + 5848 \\ \hline 12432 \\ 111 \end{array} \qquad \begin{array}{r} 42 \\ 6432 \\ 786 \\ 3 \\ + 4681 \\ \hline 11944 \\ 121 \end{array}$$

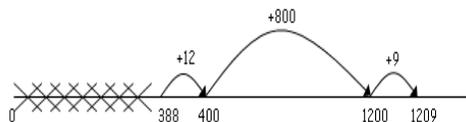
△ I can add decimal numbers: (mental method)

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

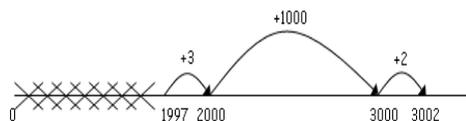
Subtraction

△ (mental method) If the number is near to a multiple of 10 or 100, I can count on using an empty number line:

$$1209 - 388 = 821$$

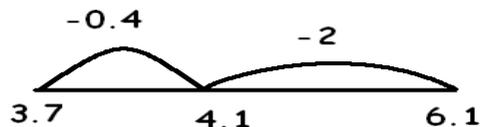


$$3002 - 1997 = 1005$$



△ (mental method) I can use my knowledge of place value to subtract decimals:

$$6.1 - 2.4 = 3.7$$



△ I can use column subtraction to solve increasingly more complex calculations involving many exchanges, and solve subtractions with more than 4 digits:

$$\begin{array}{r} 51316 \\ - 6467 \\ \hline 2684 \\ 3783 \end{array}$$

Multiplication

△ I can multiply a two or three digit number by another two or three digit number:

$$72 \times 38$$

Make your approximate first 72 x 38 is approximately 70 x 40 = 2800

$$\begin{array}{r} \times \quad 70 \quad 2 \\ 30 \quad \boxed{2100} \quad \boxed{60} \\ 8 \quad \boxed{560} \quad \boxed{16} \\ \hline 2736 \end{array} \qquad \begin{array}{r} 2100 \\ + 560 \\ + 60 \\ + 16 \\ \hline 2736 \end{array}$$

$$372 \times 24$$

Make your approximate first 372 x 24 is approximately 400 x 25 = 10000

$$\begin{array}{r} \times \quad 300 \quad 70 \quad 2 \\ 20 \quad \boxed{6000} \quad \boxed{1400} \quad \boxed{40} \\ 4 \quad \boxed{1200} \quad \boxed{280} \quad \boxed{8} \\ \hline 6000 \\ + 1400 \\ + 1200 \\ + 280 \\ + 40 \\ + 8 \\ \hline 8928 \end{array}$$

△ I can multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers

$$1345 \times 6$$

Division

△ I can divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context:

432 school children go on a camping trip. Each tent sleeps five. How many tents will they need to take?

$$432 \div 5 \text{ becomes}$$

$$\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

Answer: 86 remainder 2

Answer: They will need to take 87 tents

△ I can divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context:

Chocolates are packed in trays of 15. If I have 432

Addition

OR
(mental method)

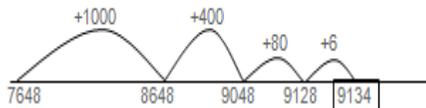


OR

$$\begin{array}{r} \pounds 6.72 + \\ 8.56 \\ + 2.30 \\ \hline \pounds 17.58 \end{array}$$

Δ (mental method) I can add larger numbers, supported by the number line, partitioning the smaller number:

(a) $7648 + 1486 =$



Subtraction

Progressing on to

$$\begin{array}{r} \text{(b) } 6467 - 2684 \\ \begin{array}{r} 6467 \\ - 2684 \\ \hline 3783 \end{array} \end{array} \quad \text{and check answer} \quad \begin{array}{r} 3783 \\ + 2684 \\ \hline 6467 \end{array}$$

Δ I can subtract decimals using the column method:

$$\begin{array}{r} 0.121 \\ 423.04 \\ - 85.60 \\ \hline 337.44 \end{array}$$

Progressing on to

$$\begin{array}{r} 324.90 \\ - 7.25 \\ \hline 317.65 \end{array}$$

Multiplication

$$\begin{array}{r} 1345 \\ \times 6 \\ \hline 8070 \\ 223 \end{array}$$

Multiply TU x TU using the grid method, e.g. 38×72

x	30	8	
70	2100	560	= 2660
2	60	16	= 76
			2736

Progressing to the expanded written form for TU x TU

$$\begin{array}{r} 72 \\ \times 38 \\ \hline 16 \quad (2 \times 8) \\ 560 \quad (70 \times 8) \\ 60 \quad (2 \times 30) \\ 2100 \quad (70 \times 30) \\ \hline 2736 \end{array}$$

Δ I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication:

Division

chocolates, how many full trays will I have and how many chocolates will be left over?

$432 \div 15$ becomes

$$\begin{array}{r} 28 \text{ r}12 \\ 15 \overline{) 432} \\ \underline{30} \\ 13 \\ \underline{12} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

Answer: there will be 28 trays of chocolates and 12 chocolates left.

Δ I can express remainders as a fraction:

432 litres of water are stored in 15 litre drums. How many full drums of water will there be and what fraction of the final drum will be filled?

$432 \div 15$ becomes

$$\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{30} \\ 13 \\ \underline{12} \\ 12 \\ \underline{12} \\ 0 \end{array} \quad \begin{array}{l} 15 \times 20 \\ 15 \times 8 \end{array}$$

$$\frac{12}{15} = \frac{4}{5}$$

Answer: $28 \frac{4}{5}$

Answer: there will be 28 full

	Addition	Subtraction	Multiplication	Division
			<p>24 × 16 becomes</p> $\begin{array}{r} & & 2 & & \\ & & 2 & 4 & \\ \times & 1 & 6 & & \\ \hline 2 & 4 & 0 & & \\ 1 & 4 & 4 & & \\ \hline 3 & 8 & 4 & & \end{array}$ <p>Answer: 384</p> <p>124 × 26 becomes</p> $\begin{array}{r} & & 1 & 2 & & \\ & & 1 & 2 & 4 & \\ \times & & 2 & 6 & & \\ \hline 2 & 4 & 8 & 0 & & \\ & 7 & 4 & 4 & & \\ \hline 3 & 2 & 2 & 4 & & \\ \hline 1 & 1 & & & & \end{array}$ <p>Answer: 3224</p> <p>124 × 26 becomes</p> $\begin{array}{r} & & 1 & 2 & & \\ & & 1 & 2 & 4 & \\ \times & & 2 & 6 & & \\ \hline & 7 & 4 & 4 & & \\ 2 & 4 & 8 & 0 & & \\ \hline 3 & 2 & 2 & 4 & & \\ \hline 1 & 1 & & & & \end{array}$ <p>Answer: 3224</p>	<p><i>drums and the 29th drum will be 4/5 full.</i></p> <p>Progressing to expressing the remainder as a decimal: e.g.</p> <p><i>£432 was raised at the school fair and is to be shared equally between 15 classes. How much will each class receive?</i></p> <p>432 ÷ 15 becomes</p> $\begin{array}{r} & & 2 & 8 & . & 8 & \\ 1 & 5 & \overline{) 4} & 3 & 2 & . & 0 \\ & & 3 & 0 & & & \\ \hline & & 1 & 3 & 2 & & \\ & & 1 & 2 & 0 & & \\ \hline & & & 1 & 2 & 0 & \\ & & & 1 & 2 & 0 & \\ \hline & & & & & & 0 \end{array}$ <p>Answer: 28.8</p> <p><i>Answer: Each class will receive £28.80</i></p> <p>Δ I can divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context: <i>496 pupils attend a football tournament. When they are put into teams of 11, how many full teams will there</i></p>

	Addition	Subtraction	Multiplication	Division
				<p><i>be? Will everyone be in a team?</i></p> <p>496 ÷ 11 becomes</p> $\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \\ \underline{44} \\ 56 \\ \underline{55} \\ 1 \end{array}$ <p>Answer: there will be 45 full teams of 11 players and one pupil will not have a team.</p>