

Maths Calculation Strategies

Lower Key Stage 2



Addition strategies



Expanded column method, where children record each stage of the calculation on a separate line helps children to understand the value of each digit.

$$\begin{array}{r} \text{HTO} \\ 478 \\ + 256 \\ \hline 14 \\ 120 \\ 600 \\ \hline 734 \\ \hline \end{array}$$

Addition strategies



Once expanded method is understood, children can move to the more traditional written method.

- Year 3 – numbers with up to 3 digits
- Year 4 – numbers with up to 4 digits

$$\begin{array}{r} \text{HTO} \\ 478 \\ + 256 \\ \hline 734 \\ \hline 11 \end{array}$$

Addition strategies



In Lower Key Stage 2, children will be expected to add and subtract fractions with the same denominator.

If the denominators are the same, simply add the numerators.

$$\frac{1}{5}$$

← numerator

← denominator

$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$$

Subtraction strategies

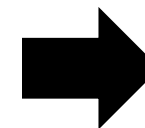


Children should begin using the formal written method with no exchanges taking place.

Children should then move to calculations where one exchange takes place.

- Year 3 – numbers with up to 3 digits
- Year 4 – numbers with up to 4 digits

$$\begin{array}{r} \text{TO} \\ 76 \\ - 45 \\ \hline 31 \end{array}$$



$$\begin{array}{r} \text{TO} \\ \overset{1}{\cancel{7}}6 \\ - 47 \\ \hline 29 \end{array}$$

Subtraction strategies



Written subtraction should then move to multiple exchanges.

Year 3 – 3 digit numbers

Year 4 – 4 digit numbers

Finally, children should tackle exchanges which take place across multiple columns.

$$\begin{array}{r} \text{HTO} \\ 1 \overset{16}{\cancel{2}} \overset{1}{7} 6 \\ - 189 \\ \hline 87 \end{array}$$

$$\begin{array}{r} \overset{6}{\cancel{7}} \overset{12}{\cancel{8}} \overset{15}{\cancel{5}} \overset{3}{\cancel{6}} 2 \\ - 46725 \\ \hline 26837 \end{array}$$

$$\begin{array}{r} 59 \\ \cancel{5} \cancel{1} 0 9 \\ - 2123 \\ \hline 3886 \end{array}$$

Subtraction strategies



In Lower Key Stage 2, children will be expected to add and subtract fractions with the same denominator.

$$\begin{array}{r} 2 \\ - \\ 5 \end{array}$$

← numerator

← denominator

If the denominators are the same, simply subtract the numerators.

$$\frac{4}{5} - \frac{2}{5} = \frac{2}{5}$$

Calculation strategies - multiplication



By the end of Year 3, children should know multiplication and division facts for their 2, 3, 4, 5, 8 & 10 times tables.

By the end of Year 4, children should know all multiplication and division facts up to 12×12 .

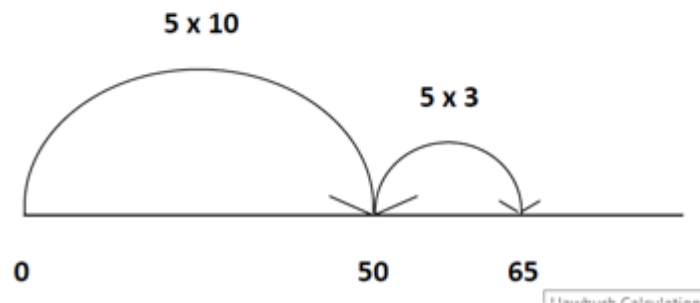
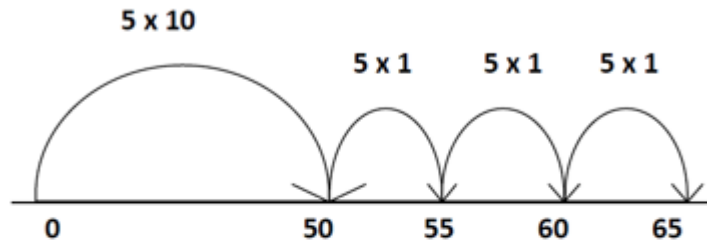
Using the Time Table Rockstars program is a great way to practise your times table facts and recall these as quickly as possible!

Multiplication strategies



Using number lines and multiplication knowledge to answer 2dg x 1dg calculations

$$5 \times 13 = 65$$



Children should progress through this strategy by using as fewer steps as possible and using existing knowledge of their times tables.

Multiplication strategies



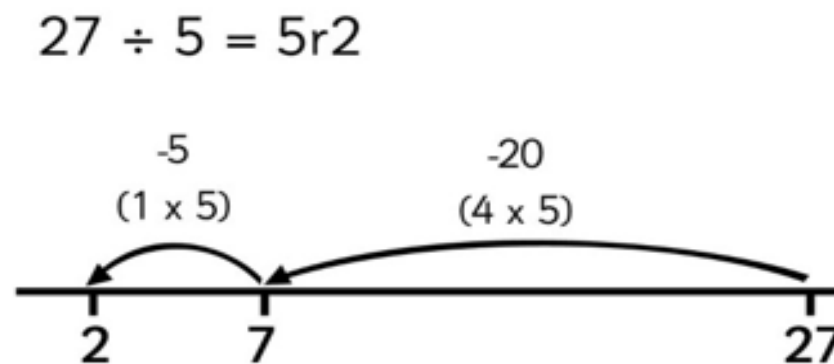
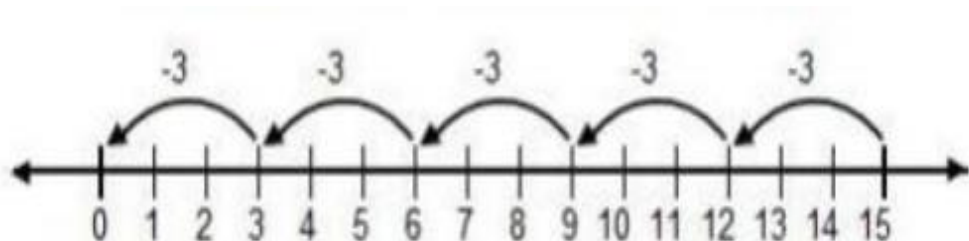
In Year 4, children will begin to use a formal written method for short multiplication. Children will begin by showing each section of the calculation before moving to a condensed version with carried units underneath the calculation.

$$\begin{array}{r} \text{TO} \\ 38 \\ \times 7 \\ \hline 56 \\ 210 \\ \hline 266 \\ \hline \end{array} \quad \begin{array}{c} \text{leading to} \\ \longrightarrow \end{array} \quad \begin{array}{r} \text{TO} \\ 38 \\ \times 7 \\ \hline 266 \\ \hline 5 \end{array}$$

Division strategies



Building from Year 2, children can continue to use the number line and repeated subtraction to divide (with and without remainders). Children should move towards calculating with as few steps as possible, based on their multiplication knowledge.



Division strategies



In Year 4, children should move towards using a formal written method. Known as the short method, or 'bus stop method', children should use this for calculations with and without remainders. Children should learn to divide with a 1-digit number.

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \end{array}$$

$$\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \end{array}$$