

Multiplication - Stage Three

Recall and use multiplication facts for the 3, 4 and 8 multiplication tables (continue to practise the 2, 5 and 10 multiplication tables)

Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to a formal written method.

Partitioning Method

Handwritten work on grid paper showing the partitioning method for 13×5 . The text reads: 13×5 (Partition 13 into 10 + 3). Below this, two separate multiplication facts are shown: $10 \times 5 = 50$ and $3 \times 5 = 15$. Finally, the results are added together: $50 + 15 = 65$.

To support children's understanding of the **partitioning method**, teacher could demonstrate by using an empty number line

However, children **are not** expected to record in this way unless it supports their progression.

Expanded Short Multiplication

Handwritten work on grid paper showing expanded short multiplication for 13×8 . The problem is written as 13×8 . Below it, the number 13 is partitioned into 10 + 3. The multiplication is then performed in two parts: $3 \times 8 = 24$ and $10 \times 8 = 80$. The partial products are added together to get the final result: $24 + 80 = 104$.

Use the language of place value to ensure understanding.
Include an addition symbol when adding partial products.
Encourage children to use **multiplication facts** to support this process

Expanded short multiplication (refined)

Refined handwritten work on grid paper for 13×8 . The number 13 is written above the multiplication symbol. The multiplication is performed in two parts: $3 \times 8 = 24$ and $10 \times 8 = 80$. The partial products are added together to get the final result: $24 + 80 = 104$.

Formal short multiplication

Formal handwritten work on grid paper for 13×8 . The numbers 13 and 8 are written above the multiplication symbol. The multiplication is performed in two parts: $3 \times 8 = 24$ and $10 \times 8 = 80$. The partial products are added together to get the final result: $24 + 80 = 104$.

Ensure that the digit 'carried over' is **written under the line in the correct column**.
Use the language of place value to ensure understanding.
If, at any time, children are making significant errors, return to the previous stage in calculation.

Multiplication Stage Four

Recall multiplication facts for multiplication tables up to 12×12

Multiply two-digit and three-digit numbers by a one-digit number using **formal written layout**

Expanded Short Multiplication (two-digit number by a one-digit number):

$$\begin{array}{r} 30 + 6 \\ \times \quad 4 \\ \hline 24 \quad (6 \times 4) \\ 120 \quad (30 \times 4) \\ \hline 144 \end{array}$$

Include an additional symbol when adding partial products.

Use multiplication facts to support – in particular with multiples of 10 (e.g. $\times 20, 40$).

Expanded Short Multiplication (Refined)

$$\begin{array}{r} 36 \\ \times \quad 4 \\ \hline 24 \quad (6 \times 4) \\ 120 \quad (30 \times 4) \\ \hline 144 \end{array}$$

Short Multiplication (formal method) of a two-digit number multiplied by a one-digit number

$$\begin{array}{r} 36 \\ \times \quad 4 \\ \hline 144 \\ \hline 2 \end{array}$$

Use the language of place value to ensure understanding.

Ensure that the digit 'carried over' is written **under the line in the correct column and then added not multiplied**. Continue to practise the formal method of short multiplication of a two-digit number by a one-digit number throughout. If children are confident, continue to develop short multiplication with three-digit numbers multiplied by a one-digit number.

Expanded Long Multiplication

$$\begin{array}{r} 127 \\ \times \quad 6 \\ \hline 42 \quad (7 \times 6) \\ 120 \quad (20 \times 6) \\ 600 \quad (100 \times 6) \\ \hline 762 \end{array}$$

Short Multiplication (Formal Method):

$$\begin{array}{r} 127 \\ \times \quad 6 \\ \hline 762 \\ \hline 14 \end{array}$$

Use the language of place value to ensure understanding.

Ensure that the digits 'carried over' are written under the line in the correct column and then added, not multiplied. If, at any time, children are making significant errors, return to the previous stage in calculation.

Multiplication - Stage Five

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. Ensure that children are confident with the methods outlined in the previous year's guidance before moving on. Build on the work covered in stage four with the formal method of short multiplication (two-digit number multiplied by a one-digit number).

Expanded Long Multiplication

$$\begin{array}{r} 23 \times 13 \\ \hline 9 \quad (3 \times 3) \\ 60 \quad (20 \times 3) \\ 30 \quad (10 \times 3) \\ 200 \quad (10 \times 20) \\ \hline 299 \end{array}$$

Compact Long Multiplication (Formal method)

$$\begin{array}{r} 23 \\ \times 13 \\ \hline 69 \quad (3 \times 23) \\ 230 \quad (10 \times 23) \\ \hline 299 \end{array}$$

When children are confident with long multiplication extend with three-digit numbers multiplied by a two-digit number, returning to the grid method first, if necessary:

$$\begin{array}{r} 124 \\ \times 26 \\ \hline 744 \quad (6 \times 124) \\ 2480 \quad (20 \times 124) \\ \hline 3224 \end{array}$$

Multiplication - Stage Six

Multiply multi-digit numbers (including decimals) up to 4 digits by a two-digit whole numbers/

Ensure that children are confident with the methods outlined in the previous stage's guidance before moving on. Continue to practise and develop the **formal short multiplication** method and **formal long multiplication** method with larger numbers and decimals throughout Stage six. Return to an expanded forms of calculation initially, if necessary (see stage five guidance).