Multiplication - Year 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**

NB Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.

Build on the work covered in Y4 with the **formal method of short multiplication** (two-digit number multiplied by a one-digit number).

When children are confident introduce multiplication by a two-digit number. If necessary, return to the grid method and/or expanded method first.

Grid method (two-digit number multiplied by a teen- number):

23 x 13 = (20 + 3) x (10 + 3) = 299

X	20	3
10	200	30
3	60	9

```
  2 3 0
+   6 9
  2 9 9
```

Add the partial products (200 + 30) + (60 + 9) = 299

Expanded long multiplication (two-digit numbers multiplied by a teen- number):

23 x 13 = 299

```
   2 3
X 1 3
     9   (3 x 3)
   6 0   (3 x 20)
 + 3 0   (10 x 3)
 2 0 0   (10 x 20)
 2 9 9
```

This leads into…

Compact long multiplication (formal method):

23 x 13 = 299

```
  2 3
X 1 3
 + 6 9   (3 x 23)
 2 3 0   (10 x 23)
 2 9 9
```

Use the language of place value to ensure understanding.

Add the partial products.

Extend to larger two-digit numbers:

56 x 27 = (50 + 6) x (20 + 7) = 1512

x	50	6	
20	1000	120	1120
7	350	42	392
			1512

Add the partial products (1000+ 120) + (350 + 42) = 1512

Expanded long multiplication (two-digit numbers multiplied by two-digit numbers):

56 x 27 = 1512

```
    5 6
  X 2 7
    4 2   (7x6)
  3 5 0   (7x50)
+ 1 2 0   (20x6)
 1 0 0 0  (20x50)
 1 5 1 2
   1
```

This expanded method is linked to the grid method

This leads into…

Compact long multiplication (formal method):

56 x 27 = 1512

```
   5 6
 x 2 7
 3 9 4 2   (7x56)
+1 1 1 2 0 (20x56)
 1 5 1 2
   1
```

Use the language of place value to ensure understanding.

In this example there are digits that have been 'carried' over in the partial products.

Add the partial products.

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:

124 x 26 = 3224

```
    1 2 4
 X  2 6
   7 1 4 2 4   (6x124)
+2 4 8 0       (20x124)
 3 2 2 4
 1 1
```

Use the language of place value to ensure understanding.

Add the partial products.

The prompts (in brackets) can be omitted if children no longer need them.

Extend with short and long multiplication of decimal numbers (initially in the context of money and measures), returning to an expanded method first, if necessary (see Y6 guidance).

NB If, at any time, children are making significant errors, return to the previous stage in calculation.