

Progression in written calculation strategies for multiplication

(Examples indicate end of year expectations)

Reception

Statutory Guidance

Solve problems, including doubling, halving and sharing

Double 5



Non-statutory

Count in 2s, 5s and 10s



5 10 15 20

Year 1

Statutory Guidance

Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Possible representations

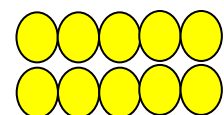
e.g. 2 lots of 3 =

There are two bowls with three apples in each. How many apples are there altogether?



Non-Statutory guidance

They make connections between arrays, number patterns, and counting in twos, fives and tens.



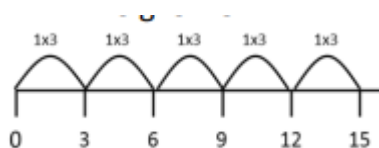
Year 2

Statutory Guidance

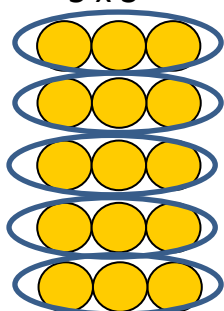
Solve problems involving multiplication using materials, arrays, repeated addition, mental methods, and multiplication facts, including problems in contexts.

Possible representations

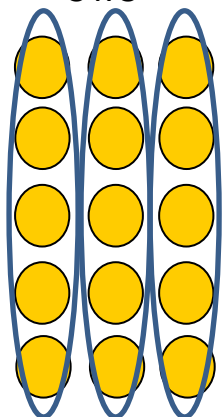
e.g. $5 \times 3 =$



$5 \times 3 =$



$3 \times 5 =$



Multiplication facts include:
2, 5 and 10

Year 3

Statutory Guidance

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 formal written methods.

Multiplication facts include:

2,3,4,5,8 and 10

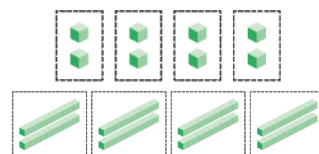
Key strategies:

Partitioning the two-digit number into tens and ones



Children should use base ten to understand multiplication by multiples of 10 e.g. if $2 \times 4 = 8$ then

$20 \times 4 = 80$



e.g. $34 \times 8 =$

x	30	4	
8	240	32	= 272

Year 4

Statutory Guidance

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

Key strategy:

Short multiplication

Expanded

$$\begin{array}{r} 35 \\ \times 4 \\ \hline 120 \text{ (} 30 \times 4 \text{)} \\ + 20 \text{ (} 5 \times 4 \text{)} \\ \hline 140 \end{array}$$

Compact

$$\begin{array}{r} 347 \\ \times 7 \\ \hline 2429 \end{array}$$

3 4

Multiplication facts up to 12×12

Year 5

Statutory Guidance

Multiply numbers up to 4 digits by a one – or two-digit number using the formal written method,

Key strategies:

Short multiplication

2741

x 6

$$\begin{array}{r} 2741 \\ \times 6 \\ \hline 16446 \end{array}$$

4 2

Including Long multiplication for two digit numbers – e.g. 28×26

$$\begin{array}{r} 26 \\ \times 28 \\ \hline 208 \\ + 520 \\ \hline 728 \end{array} \quad \begin{array}{l} (26 \times 8) \\ (26 \times 20) \end{array}$$

Year 6

Statutory Guidance

Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.

Key strategies:

Long multiplication

e.g. 2741×66

2741

$$\begin{array}{r} 2741 \\ \times 66 \\ \hline 16446 \\ + 164460 \\ \hline 180906 \end{array}$$

From Fractions section:

Multiply one-digit numbers with up to two decimal places by whole numbers

$$\begin{array}{r} 2.41 \\ \times 6 \\ \hline 14.46 \\ 2 \end{array}$$