

Strategies for the Written Method of Calculation for Multiplication

(Strategies indicate end of year expectations)

Year One

Statutory Guidance: solve one-step problems involving multiplication, by calculation the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Non-Statutory Guidance:** make connections between arrays, number patterns and counting in twos, fives and tens.

Multiplication Strategy A

Count in 2s, 5s and 10s

Make equal sets or groups practically

$2 \times 3 =$

$2 \times 3 = 6$

Multiplication Strategy B

Jottings: repeated addition on a numbered line

$3 \times 5 = 3 + 3 + 3 + 3 + 3$

$3 \times 5 = 15$

Multiplication Strategy B2

Grouping

Making connections between arrays, number patterns and counting in 2s, 5s and 10s

$5 \times 2 = 10$

$2 \times 5 = 10$

Year Two

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

Multiplication Strategy C

Jottings: repeated addition on a blank number line

$5 \times 4 = 5 + 5 + 5 + 5$

$5 \times 4 = 20$

Multiplication Strategy D

Using arrays for multiplication facts 2, 5 and 10

$4 \times 5 =$

$4 \times 5 = 20$

(Also show $5 \times 4 = 20$ by grouping vertically)

Multiplication Strategy E

Jottings: partitioning and using a blank number line

$15 \times 3 = (10 \times 3) + (5 \times 3)$

$15 \times 3 = 45$

Year Three

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 methods and progressing to formal written methods. Multiplication facts include: 2, 3, 4, 5, 8 and 10.

Multiplication Strategy F

Grid method TU x U

Progressing to formal written methods

23×8

X	20	3	
8	160	24	184

$23 \times 8 = 184$

Multiplication Strategy G

Written method: grid method TU x TU

28×34

X	20	8	
30	600	240	840
4	80	32	112
			952

$28 \times 34 = 952$

Year Four

Statutory Guidance: Multiply two-digit and three-digit numbers by a one digit number using the formal written layout. Multiplication facts up to 12x12.
(Grid method used as a jotting and to support understanding)


Multiplication Strategy H

Written method: grid method HTU x TU

$$312 \times 27$$

X	300	10	2	
20	6000	200	40	6240
7	2100	70	14	2184
				8424

$312 \times 27 = 8,424$




Multiplication Strategy I

Written method: grid method using decimals

$$5.83 \times 26$$

X	5	0.8	0.03	
20	100	16.0	0.6	116.6
6	30	4.8	0.18	34.98
				151.58


$5.83 \times 26 = 151.58$



Multiplication Strategy J

Written method: column method TU x U

$$48 \times 7$$

$$\begin{array}{r} 48 \\ \times 7 \\ \hline 56 \quad (7 \times 8) \\ 280 \quad (7 \times 40) \\ \hline 336 \end{array}$$



Multiplication Strategy K

Formal written layout for multiplication

$$347 \times 7$$

$$\begin{array}{r} 347 \\ \times 7 \\ \hline 2429 \\ 34 \\ \hline \end{array}$$

$347 \times 7 = 2,429$



Year Five

Statutory Guidance: multiply numbers up to 4 digits by a one or two-digit number using the formal written method, including long multiplication for two-digit numbers.


Multiplication Strategy L

Formal written layout for multiplication

$$2,741 \times 6$$

$$\begin{array}{r} 2741 \\ \times 6 \\ \hline 16446 \\ 42 \\ \hline \end{array}$$

$2,741 \times 6 = 16,446$




Multiplication Strategy M

Expanded written method for long multiplication: TU x TU

$$32 \times 73$$

$$\begin{array}{r} 32 \\ \times 73 \\ \hline 96 \quad (3 \times 2) \\ 214 \quad (3 \times 30) \\ \hline 2336 \quad (70 \times 30) \\ 336 \\ \hline \end{array}$$

$32 \times 73 = 2,336$




Multiplication Strategy N

Long multiplication for two-digit numbers

$$24 \times 16$$

$$\begin{array}{r} 24 \\ \times 16 \\ \hline 144 \\ 240 \\ \hline 384 \end{array}$$

$24 \times 16 = 384$




Multiplication Strategy O

Long multiplication: HTU x TU

$$362 \times 24$$

$$\begin{array}{r} 362 \\ \times 24 \\ \hline 1448 \\ 7240 \\ \hline 8688 \end{array}$$

$362 \times 24 = 8,688$



Year Six

Statutory Guidance: multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
From fractions section: multiply one-digit numbers with up to two decimal places by whole numbers.


Multiplication Strategy P

Multiply one-digit numbers (2 decimal places) by whole numbers

$$2.41 \times 6$$

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

$2.41 \times 6 = 14.46$



Multiplication Strategy Q

Written method of long multiplication

$$2,741 \times 66$$

$$\begin{array}{r} 2741 \\ \times 66 \\ \hline 16446 \\ 164460 \\ \hline 180906 \\ 11 \\ \hline \end{array}$$

$2,741 \times 66 = 180,906$

