Information for Parents

Tonacliffe Primary School

Multiplication

Calculations at Tonacliffe - Multiplication Progression

This leaflet will show you the main steps your child will go through while learning how to do multiplication calculations at Tonacliffe Primary School.
When children are confident and secure at a step, they will move on to the next one.

Multiplication facts

Knowing multiplication facts (tables) is a vital part of children's mathematical knowledge.

By the end of Year 2 children should know:

2 times table
5 times table
10 times table

By the end of Year 3 children should know:

2 times table
3 times table
4 times table
5 times table
8 times table
10 times table

By the end of Year 4 children should be able to recall all multiplication facts up to 12 x 12.

Step 1

Children will experience equal groups of objects and will count in 2s and 10s and begin to count in 5s. They will work on practical problem solving activities involving equal sets or groups.

$2 \times 3 = 6$

Step 2

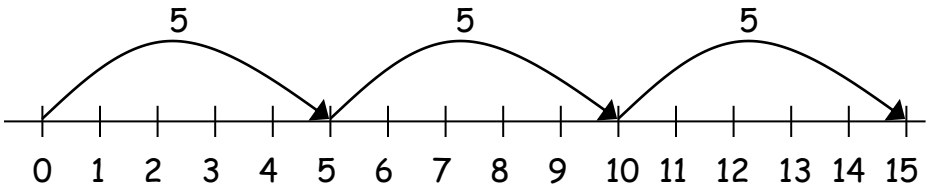
Children will develop their understanding of multiplication and use jottings to support calculation:

☺ **Repeated addition**

3 times 5 is 5 + 5 + 5 = 15 or 3 lots of 5 or 5 x 3

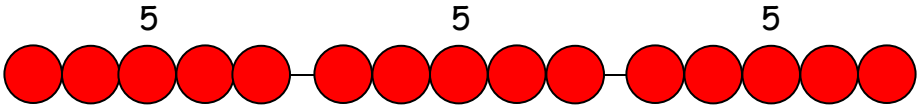
Repeated addition can be shown easily on a number line:

5 x 3 = 5 + 5 + 5



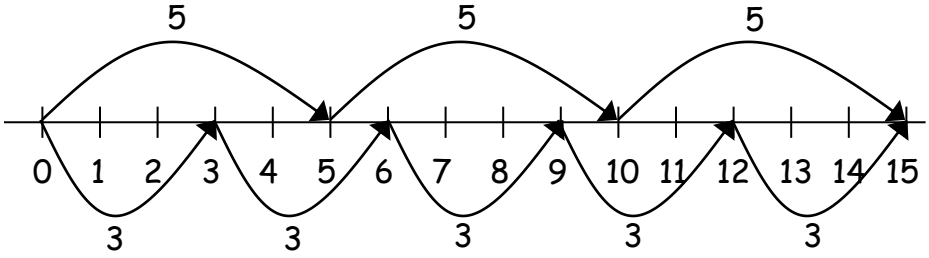
and on a bead bar:

5 x 3 = 5 + 5 + 5



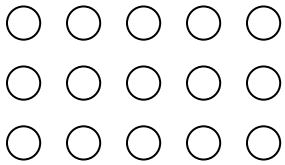
☺ **Commutativity**

Children should know that 5 x 3 has the same answer as 3 x 5. This can also be shown on the number line.



☺ **Arrays**

Children should be able to model a multiplication calculation using an array.



5 x 3 = 15

3 x 5 = 15

Step 3

☺ **Partitioning**

38 x 5 = (30 x 5) + (8 x 5)
= 150 + 40
= 190

Step 4 - Grid method

TU x U
(Short multiplication – multiplication by a single digit)

23 x 8

Children will approximate first
23 x 8 is approximately 25 x 8 = 200

x	20	3
8	160	24

$$\begin{array}{r} 160 \\ +\ 24 \\ \hline 184 \end{array}$$

Step 5 - Grid method

HTU x U
(Short multiplication – multiplication by a single digit)

346 x 9

Children will approximate first
346 x 9 is approximately 350 x 10 = 3500

x	300	40	6
9	2700	360	54

$$\begin{array}{r} 2700 \\ 360 \\ +\ 54 \\ \hline 3114 \\ \scriptstyle 1\ 1 \end{array}$$

Step 6

TU x TU
(Long multiplication – multiplication by more than a single digit)

72 x 38

Children will approximate first
72 x 38 is approximately 70 x 40 = 2800

x	70	2
30	2100	60
8	560	16

$$\begin{array}{r} 2100 \\ 560 \\ 60 \\ 16 \\ \hline 2736 \\ \hline \end{array}$$
1

Step 7

Using similar methods, they will be able to multiply decimals with one decimal place by a single digit number, approximating first. They should know that the decimal points line up under each other.

e.g. 4.9 x 3

Children will approximate first
4.9 x 3 is approximately 5 x 3 = 15

x	4	0.9
3	12	2.7

$$\begin{array}{r} 12 \\ +\ 2.7 \\ \hline 14.7 \\ \hline \end{array}$$

Step 8

ThHTU x U
(Short multiplication – multiplication by a single digit)

4346 x 8

Children will approximate first
4346 x 8 is approximately 4346 x 10 = 43460

x	4000	300	40	6
8	32000	2400	320	48

32000
2400
320
\+ 48
34768

Step 9

HTU x TU
(Long multiplication – multiplication by more than a single digit)

372 x 24

Children will approximate first
372 x 24 is approximately 400 x 25 = 10000

x	300	70	2
20	6000	1400	40
4	1200	280	8

6000
1400
1200
280
40
\+ 8
8928
1

Step 10

Using similar methods, they will be able to multiply decimals with up to two decimal places by a single digit number and then two digit numbers, approximating first. They should know that the decimal points line up under each other.

For example: 4.92 x 3

Children will approximate first
4.92 x 3 is approximately 5 x 3 = 15

x	4	0.9	0.02
3	12	2.7	0.06

12
2.7
+ 0.06
14.76

Step 11

Using similar methods, they will be able to multiply two decimals. 43.1 x 2.8

x	40	3	0.1
2	80	6	0.2
0.8	32	2.4	0.08

80
32
6
2.4
0.2
+ 0.08
120.68