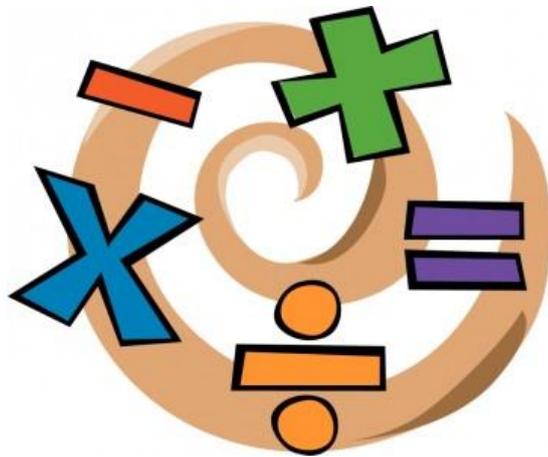


Building Dreams and
Inspiring Futures Federation



WOODVALE
PRIMARY ACADEMY

Primary Phase Approach to Multiplication



Teacher's Guide

Multiplication

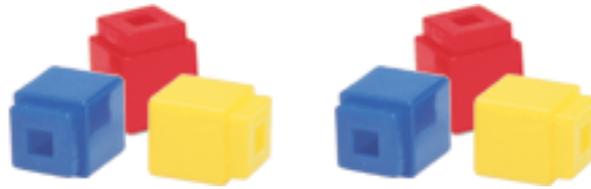
Step 1

Multiplication skills begin in the Early Years with counting in different steps.

Early stages of multiplication involve counting sets of objects to find the total. For example:

$$2 \times 3 = 6$$

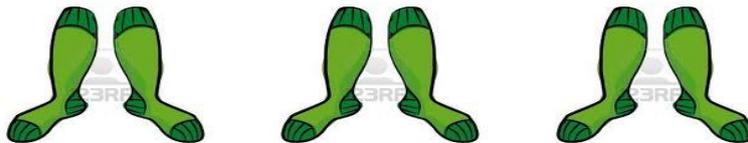
(2 sets of 3)



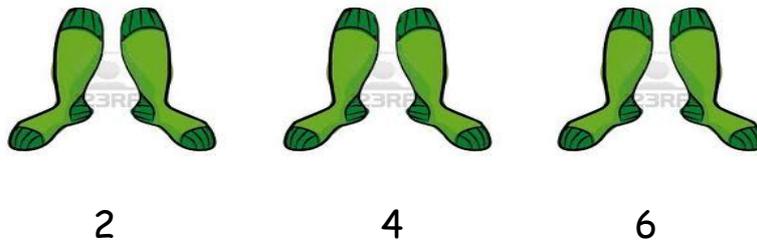
or

$$3 \times 2 = 6$$

(3 sets of 2)



or counting in groups, e.g. counting in groups of two



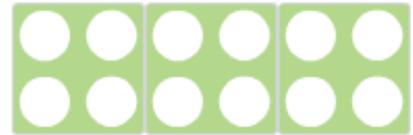
Multiplication

Step 2 Repeated addition to work out multiplication using Numicon

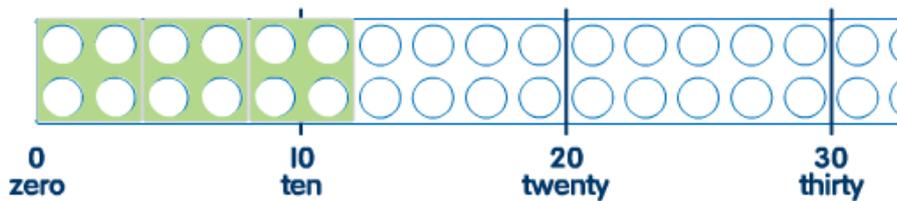
$$3 \times 4 =$$

Children should now be aware that the calculation means we need 3 sets of 4. Children need to be taught that they are counting in 4's so will use the Numicon 4 piece. For this calculation they need three 4 pieces.

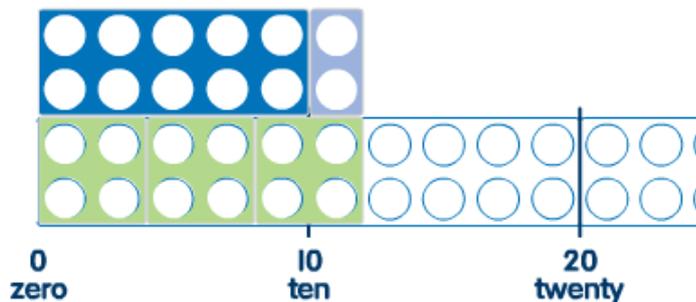
Children may be able to count on in 4's to work the answer out, if not steps can be put in place to help them to recognise the answer.



For example: using a Numicon number line.



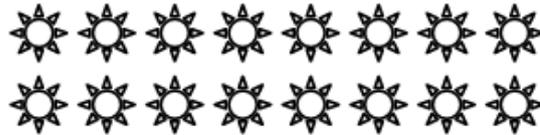
Or placing Numicon (tens and units) pieces above the sets of 4.



Step 4 Arrays

Children will need to practically make arrays using objects or see them as pictures to understand the process before drawing their own.

$8 \times \underline{\quad} = \underline{\quad}$



Ensure the same language as before is used "Here is one set, how many are in the set? How many sets are there?"

Record as arrays and be able to give related facts.

$3 \times 4 =$

3 groups of 4 = 12

E.g.

x x x

x x x

x x x

x x x

4 groups of 3 = 12

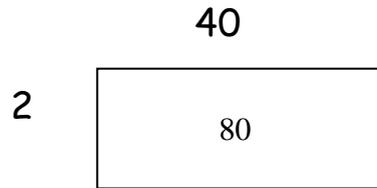
x x x x

x x x x

x x x x

Step 5 Multiply a single digit number by a multiple of ten

$2 \times 40 =$



Step 6 Use grid method to multiply a 2 digit number by a single digit number

$\overline{32} \times 4 =$

X	30	2
4	120	8

$120 + 8 = 128$

Step 7 Grid method using partitioning to multiply 2 digit numbers

$27 \times 43 =$

X	20	7
40	800 +	280
3	60 +	21

$$\begin{array}{r} = 1080 \\ + \\ = 81 \\ \hline 1161 \\ \hline \end{array}$$

**Don't move your children on unless they are ready.
Consolidate through using and applying.**

Step 8 Vertical method for multiplication

$$27 \times 43 =$$

$$\begin{array}{r} 27 \\ \times 43 \\ \hline 21 \quad (3 \times 7) \\ 60 \quad (3 \times 20) \\ 280 \quad (40 \times 7) \\ \underline{800} \quad (40 \times 20) \\ \hline 1161 \end{array}$$

Step 9 Compact vertical multiplication

$$27 \times 43 =$$

$$\begin{array}{r} 27 \\ \times 43 \\ \hline 81 \quad (3 \times 27) \\ \underline{1080} \quad (40 \times 27) \\ \hline 1161 \end{array}$$

Step 10 Extend to HTU \times TU and HTU \times HTU, put into a context and use decimals