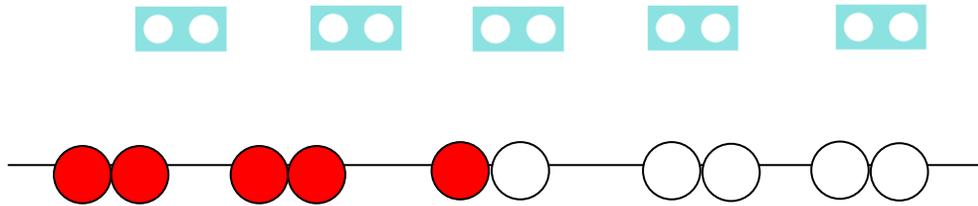


**DEVELOPING UNDERSTANDING AND MENTAL METHODS**

Throughout teaching in mathematics, multiplication is taught wherever possible through real life problem solving situations providing opportunities for children to achieve the Early Learning Goal.

- Begin to approach multiplication in play and problem solving.  
Experience equal groups of objects.  
Work on practical problem solving activities involving equal sets or groups.  
Children will count in 2s and 10s. Some children may be able to count in 5s.  
They will develop ways of counting using Numicon, bead string, objects and pegs.

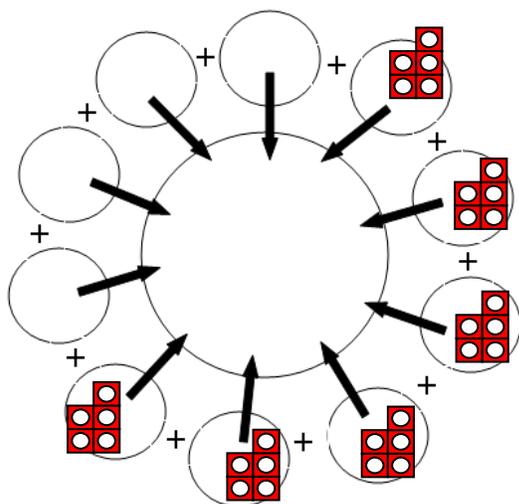


- Respond, in practical situations, to questions such as:  
*How many socks in two pairs?*  
*How many 10p coins are here? How much money is that?*



**Repeated addition**

- Use Models and Images, drawings, and at times practical equipment to answer questions such as five added together six times is.....

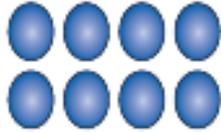


$6 \times 5$  should be read as  
*6 lots of 5* OR  
*6 times a 5 Numicon shape.*

Use related vocabulary and symbols to describe and record multiplication number sentences.

- **Describing an array**

Encourage children to re-arrange arrays in different rows.



$$2 \times 4 = 8 \text{ (read as 2 lots of 4)}$$



$$4 \times 2 = 8 \text{ (read as 4 lots of 2)}$$

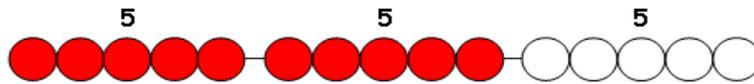


$$1 \times 8 = 8 \text{ (read as 1 lot of 8)}$$

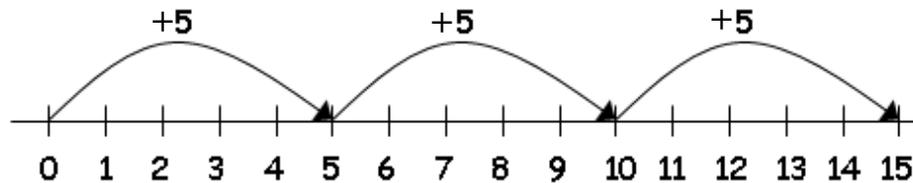
Begin to interpret situations as multiplication calculations, and explain reasoning, for example:

- *There are 3 bags with 5 sweets in each bag. How many sweets are there altogether?*

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

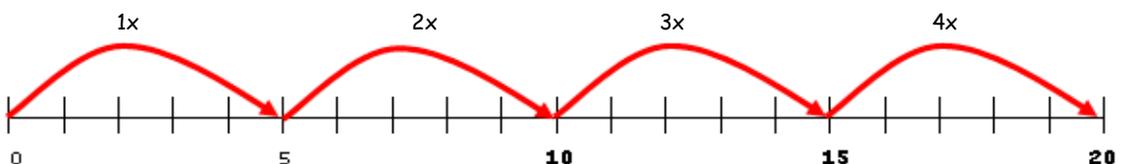


Repeated addition can be shown easily on a bead bar/string and also on a horizontal or vertical number line.

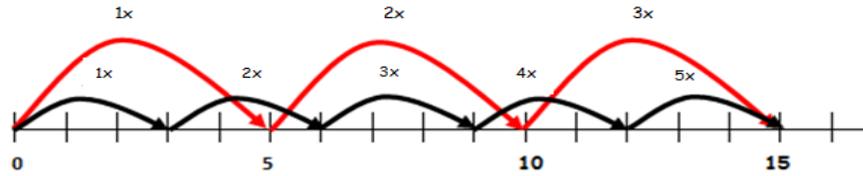


With developing recall of multiplication facts, steps in mental multiplication can be recorded by jumping on a number line.

- $4 \times 5 = 20$  (read as 4 lots of 5)



**Commutativity** – Commutative law should be introduced and children should know that  $3 \times 5$  is equal to  $5 \times 3$ .



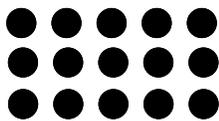
**Arrays**

Children should be able to model a multiplication calculation (practically e.g. counters) using an array. This knowledge will support with the development of the grid method.

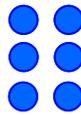
**Partitioning:**

Use known facts to work out unknown facts.

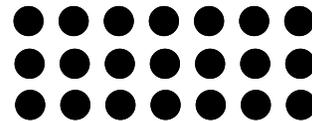
For example: use knowledge of 2 and 5 times tables to work out multiples of 7.



$3 \times \underline{5}$



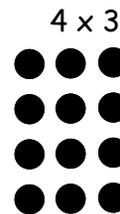
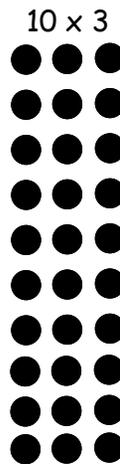
$3 \times \underline{2}$



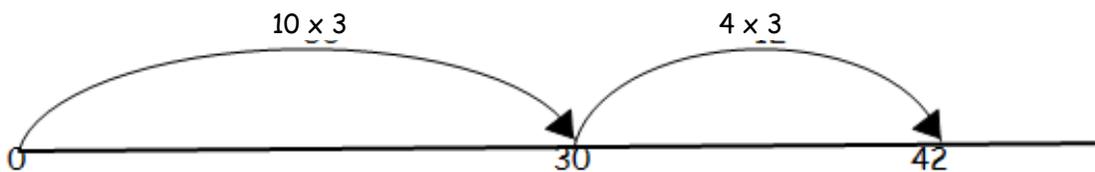
$3 \times 7$

- Progressing to larger numbers

$$\begin{array}{r}
 14 \times 3 \\
 \swarrow \quad \searrow \\
 10 \quad 4 \\
 \times 3 \quad \times 3 \\
 \hline
 30 \quad + \quad 12 = 42
 \end{array}$$



Children should be encouraged to use a number line to record.



As children become more confident, encourage them to multiply a 2 digit by 1 digit number mentally.