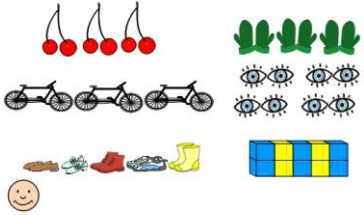


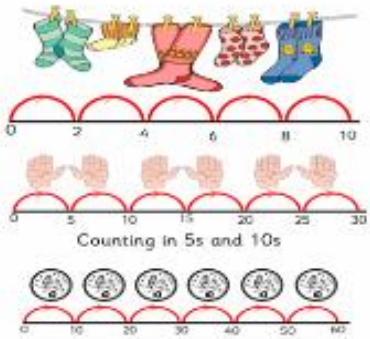
The Journey through Multiplication in the Dawlish Learning Partnership - Exminster Primary School

Children start by counting in sets e.g. of twos or of tens.

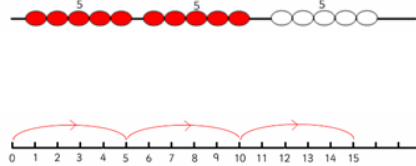


How many pairs of shoes? How many shoes? 2, 4, 6 etc

The number line image should be developed alongside the practical counting and problem solving that children engage in and not as a separate, abstract idea. The number line image will support e.g. year 2's work on developing the repeated addition image for multiplication.



Introducing multiplication through repeated addition.
 $5 \times 3 = 5 + 5 + 5$



The repeated addition image leads into the array image, where the item being repeatedly added is a column or a row in the array. Building up the array in this way provides a powerful image.

Can you make me an array that shows 3 x 8?

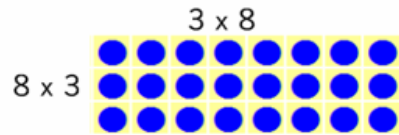
How many spots are there?

How did you work it out?

Can you describe this array?

What multiplication facts does this array show?

Arrays support later work with the grid method of multiplication.



Arrays once again provide a useful image for introducing the grid method of multiplication. For some children who are ready, this will lead to vertical recording in the 'standard' form. For many children though, the grid method will be **the** written method throughout. e.g. 8×13

13×8

$10 + 3$

$80 + 24$

$80 + 24 = 104$

$$\begin{array}{r} 13 \\ \times 8 \\ \hline 80 \\ 24 \\ \hline 104 \end{array}$$

TO x TO:
 Calculate 38×72

'So what are 8 72s?'

Estimate: 38×72 is roughly $40 \times 70 = 2800$

'Which part of the grid helps me solve 38×70 ?'

38×72

or 70×30

$2100 + 16 = 2116$

$$\begin{array}{r} 38 \\ \times 72 \\ \hline 76 \\ 266 \\ \hline 2736 \end{array}$$

3 multiplied by 7 is 21. How does this help us complete this

The principles of the grid method can then be applied to a more formal presentation of the same strategies.

HTO x TO
 Calculate 372×24

	300	70	2	
20	6000	1400	40	
4	1200	280	8	

$$\begin{array}{r} 7440 \\ + 1488 \\ \hline 8928 \end{array}$$

$$\begin{array}{r} 372 \\ \times 24 \\ \hline 7440 \\ + 1488 \\ \hline 8928 \end{array}$$

When the understanding is there, then children can be moved towards the more traditional approach. However, some children will choose not use this method. Some feel more secure using the grid method.

$$\begin{array}{r} 125 \\ \times 5 \\ \hline 25 \\ 100 \\ \hline 500 \\ + 625 \\ \hline 625 \end{array}$$

$$\begin{array}{r} 72 \\ \times 3 \\ \hline 216 \end{array}$$

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 266 \\ + 5 \\ \hline 266 \end{array}$$

$$\begin{array}{r} 742 \\ \times 8 \\ \hline 5936 \end{array}$$