

Reception

Children are encouraged to develop a mental image of the size of numbers. They learn to think about equal groups or sets of objects in practical, real life situations. They begin to record these situations using pictures.



A child's jotting showing fingers on each hand as a double.



A child's jotting showing double three as three cookies on each plate.

Year 1

Children will continue to solve multiplication problems using practical equipment and jottings. They may use the equipment to make groups of objects.

Year 3

Children will continue to use arrays to lead into the grid method of multiplication.

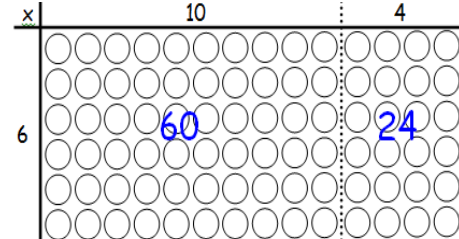
14×6

The 14 is partitioned (split) into 10 and 4.

The answer to 6×10 is found = 60

The answer to 6×4 is found = 24

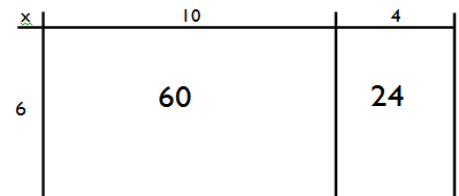
The two answers are added together $60 + 24 = 84$



$(6 \times 10) + (6 \times 4)$

$60 + 24$

84



Year 2

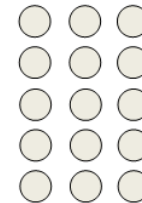
Children understand that multiplication is repeated addition and that can be done by counting in equal steps/groups.



or

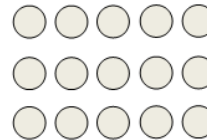


Children can then be introduced to the image of a rectangular array, initially through real items such as egg boxes, baking trays, ice cube trays, wrapping paper etc. and using these to show that counting up in equal groups can be a quicker way of finding a total.



$3 + 3 + 3 + 3 + 3 = 15$

Children also understand that 3×5 is the same as 5×3



$5 + 5 + 5 = 15$

Year 4+

This is the final stage, the array is removed and children use the grid method.

23×8

$$\begin{array}{r} \times \quad 20 \quad 3 \\ 8 \quad \boxed{160} \quad \boxed{24} \end{array}$$

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

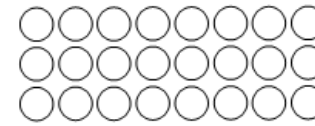
346×9

$$\begin{array}{r} \times \quad 300 \quad 40 \quad 6 \\ 9 \quad \boxed{2700} \quad \boxed{360} \quad \boxed{54} \end{array}$$

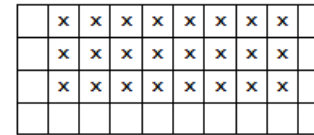
$$\begin{array}{r} 2700 \\ + 360 \\ + 54 \\ \hline 3114 \\ \small 11 \end{array}$$

Year 3

Children continue to use arrays and create their own to represent multiplication calculations



$3 \times 8 = 8 + 8 + 8 = 24$



$3 \times 8 = 8 + 8 + 8 = 24$

Year 6

The grid method can be used for multiplying any numbers, including long multiplication and multiplication involving decimals.

4.92×3

$$\begin{array}{r} \times \quad 4 \quad 0.9 \quad 0.02 \\ 3 \quad \boxed{12} \quad \boxed{2.7} \quad \boxed{0.06} \end{array}$$

$$\begin{array}{r} 12 \\ + 2.7 \\ + 0.06 \\ \hline 14.76 \end{array}$$

72×38

$$\begin{array}{r} \times \quad 70 \quad 2 \\ 30 \quad \boxed{2100} \quad \boxed{60} \\ 8 \quad \boxed{560} \quad \boxed{16} \end{array}$$

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

Year 4+

When children are confident with the grid method shown above they will also learn a short method of multiplication.

Year 4

1 2

X 44 8**Year 5 – including carrying**

1 8

X 47 2

3

Year 6 – extending to use decimals

4 . 9 2

X 31 4 . 7 6

2