

Arrays

An array is a rectangle divided into rows and columns. The rows can be made up of separate items or drawn as a block divided into smaller rectangles.

Separate items

This array shows 2 rows of 5:



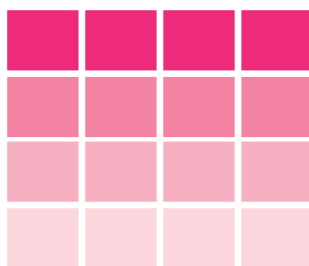
In an array, rows are always horizontal. This can also be described as 2×5 . There are 10 stars altogether so $2 \times 5 = 10$.

Rectangle

This array also shows 2 rows of 5.



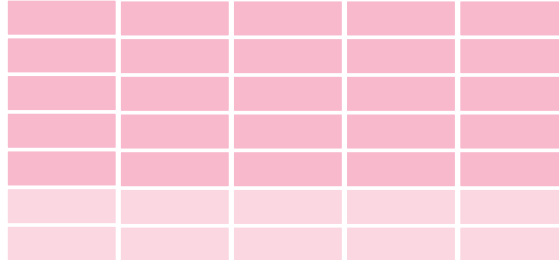
An array is useful for showing **square numbers**. Square numbers have equal rows and columns. 16 is a square number – it has 4 rows of 4. So $4 \times 4 = 16$.



The square numbers up to 100 are:

1 (1x1)	36 (6x6)
4 (2x2)	49 (7x7)
9 (3x3)	64 (8x8)
16 (4x4)	81 (9x9)
25 (5x5)	100 (10x10)

Arrays can be used to show large multiplication facts to help children learn different ways to work them out. It helps their mental strategies (working out in their head).



To work out 7×5 they could see:

$$5 \text{ rows of } 5 = 25$$

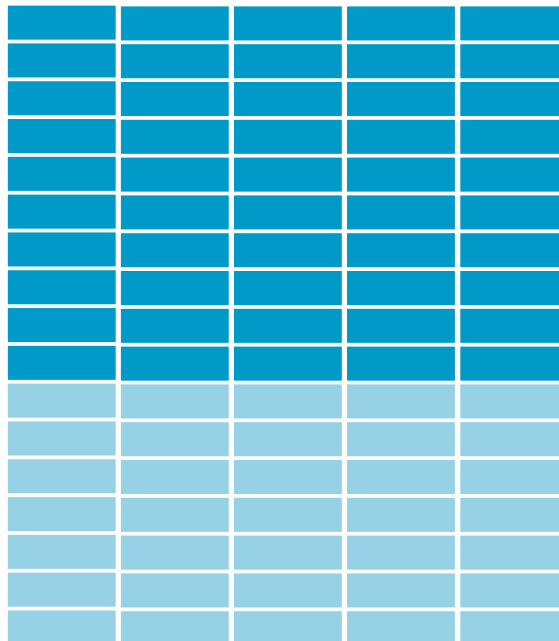
+

$$2 \text{ rows of } 5 = 10$$

So:

$$7 \times 5 = (5 \times 5) + (2 \times 5) = 25 + 10 = 35$$

Later they could work out even larger problems using the array.



To work out 17×5 they could see:

$$10 \text{ rows of } 5 = 50$$

+

$$7 \text{ rows of } 5 = 35$$

So:

$$17 \times 5 = (10 \times 5) + (7 \times 5) = 50 + 35 = 85$$