

## Multiplication and Division for Visual Learners: Visualizing the concepts of multiplication and division in 5 steps.

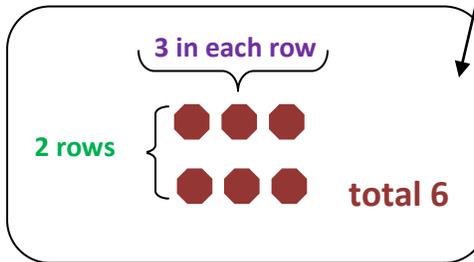
### 1. Real life object

Start with everyday life objects, preferably those who have a number in their name such as a six pack, dice, a dozen egg carton, or an eighteen wheeler.

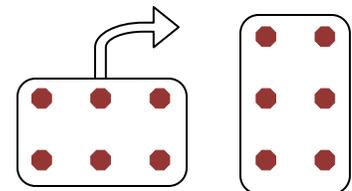


### 2. Rows of counters

From life objects you go to counters. Model or ask your child to lay out the array that shows the same number as the real life object. Count the total. Now show counting per row, so skip counting by the number in a row: each row has 3 counters, so 2 rows have 6 counters.

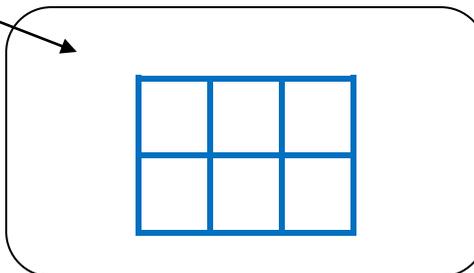


Does your child see that you can rotate the array to show that  $2 \times 3$  is  $3 \times 2$ ?



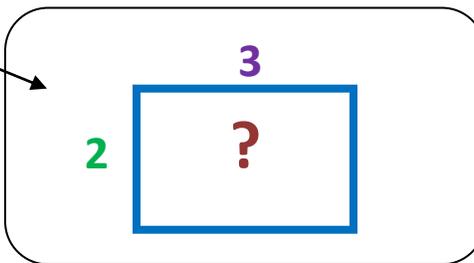
### 3. Area model

This is the area model. Area is about the number of spaces inside the shape, or length times width  $2 \times 3 = 6$ . Compare with a the number of small windows in a large window pane, tiles in a rectangular part of your kitchen floor, square foot garden, or cut it out squared paper and rotate.



### 4. Multiplication

*Multiplication is working from the outside in.* The outside numbers are the *factors*, the big number in the box, is the *product*. You do not need to draw each square: the number of rows is the width and the number in a row is the length. Together they make the outside shape and show the product:  $2 \times 3 = 6$ . Use this format to practice the multiplication tables.



### 5. Division

*Division is working from the inside out*, so from the big number in the 'box' to the smaller numbers on the sides. Imagine your total number of squares or counters is 6 and you are making 2 rows, how long is each row? This is 3, the number of the question mark, the answer for  $6 \div 2$ . Practice the division facts this way, together with the multiplication tables.

