## Stick multiplication

Multiplication using Bajo ${ }^{\oplus}$ Easy Math sticks explained step by step in 4 examples.

Example 1. One-digit number

$$
2 \times 3=6
$$


(1) Arrange perpendicularly two groups of sticks, one representing the multiplicand (number 2 in this example) and the other representing the multiplier (number 3 in this example).
(2) To know the result of this operation you just need to count the intersections created by the crossing sticks (number 6 in this example).

Example 2. Two-digits numbers

(1) If you want to multiply numbers with two digits (e.g. $22 \times 13$ ), split the digits of each number (e.g. 2-2 $\times 1-3$ ) and use the sticks to represent each of them. Finally place them perpendicularly and don't forget to leave a space in between the digits as shown in the example.
(2) The intersections create three groups: left, middle and right (represented here with green boxes).
(3) Each of those groups of intersections represent one digit of the resulting number (in this case 2-8-6).

Example 3. Higher than ten
$14 \times 13=182$

(1) As in the previous examples, choose the numbers of the operation and represent them with the sticks.

2 Consider the crossing pointsseparating them into: right group, middle group and left group.
3. Count the crossing points starting with the group to the right and when the sum is a number higher than ten (12 in
this example), the first digit goes to the next group to the left and it adds to the sum in that group. The same rule applies if it happens in the middle group but if the sum of the group in the left is higher than ten it stays in the result as it is.

## Example 4. Using zero



The side of the stick with printed stripes represents the number 0 (Zero).
(1) Set the sticks representing the numbers for the multiplication as we did before.
(2) Keep in mind the crossing point's right group, middle group and left group.
(3) Count the crossing points starting with the group to the right. Important: The crossing points with the 'zero' stick doesn't add to the sum because its value is 0 .

When numbers in the multiplication have 3 digits just represent them adding sticks to the right, create 4 groups and follow the same steps.

