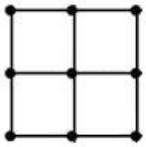
NOETIC LEARNING

# PROBLEM OF THE WEEK

**SEPTEMBER 28, 2015**

## THE PROBLEM:

Carl is using popsicle sticks to build some grids. He needs 4 popsicle sticks to make a 1×1 grid, and 12 sticks to make a 2×2 grid as shown below. How many sticks does he need to make a 10×10 grid?



**(Source: Noetic Learning Challenge Math Online, Grade 4)**

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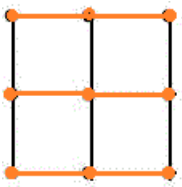
### THE SOLUTION:

Sticks are either placed horizontally or vertically. We mark the sticks placed horizontally with orange.



How many rows of sticks that placed horizontally? For a 2 × 2 grid, there are 3 rows and there are 2 sticks in each row.

For a 10 × 10 grid, there should be 11 rows and there should be 10 sticks in each row. So there are 10 × 11 = 110 sticks placed horizontally.

How many columns of sticks that placed vertically? For a 2 × 2 grid, there are 3 columns and there are 2 sticks in each column.

For a 10 × 10 grid, there should be 11 columns and there should be 10 sticks in each row. So there are 10 × 11 = 110 sticks placed vertically.

Therefore, there are 110 sticks placed horizontally and there are 110 sticks placed vertically. There are a total of 110 + 110 = 220 sticks in a 10 × 10 grid.

### THE ANSWER: 220 STICKS