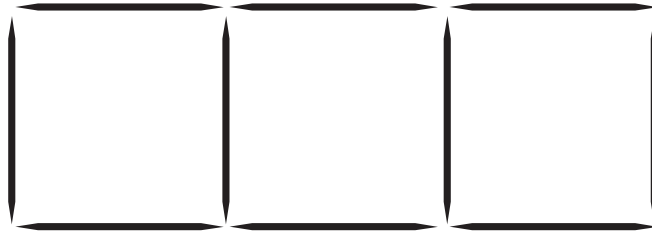


COUNTDOWN CHALLENGE

A Toothpick Pattern Rule: *Challenging*

In the picture below, the toothpicks form squares. Explain a rule you can use to find the total number of toothpicks needed to make any given number of squares.



1. What do you see? (3 squares, 10 line **segments**)
2. Can you predict the question?
3. Read the problem.
4. How many toothpicks do you need for the first square? How many are added to make the second square?
How many are added to make the third square?
5. Predict how many you would need for 4 squares, 5 squares and 6 squares.
6. What rule did you use to make the prediction?
7. Complete this table for 6 squares:

# of Squares (n)	# of Toothpicks
1	
2	
3	
4	
5	
6	

8. Choose which rule you can use to find the total number of toothpicks needed to make any given number of squares: ($3n$ $3n + 1$ $3n - 1$)

First, I studied the diagram **because** _____

Second, I read the problem **because** _____

Next, I decided to make a table **because** _____

Then, I tried several rules beginning with $3n$ **because** _____

My answer is _____ **because** _____

Finally, I checked my work because I wanted to get all 12 points.