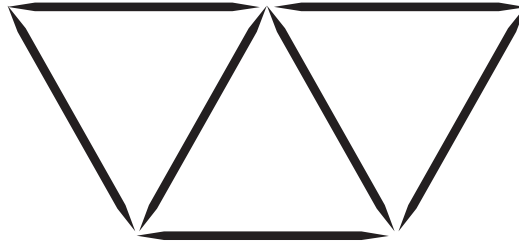


# COUNTDOWN CHALLENGE

## A Toothpick Pattern Rule: *Instructional*

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



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

# of Triangles (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 triangles: ( $2n$        $2n + 1$        $2n - 1$ )

---

---

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  $2n$  **because** \_\_\_\_\_

My answer is \_\_\_\_\_ **because** \_\_\_\_\_

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