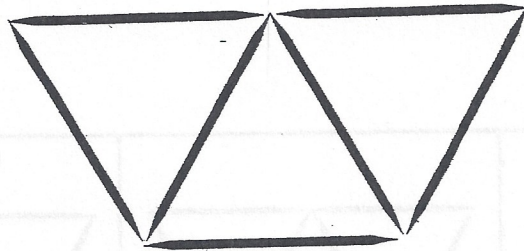


Name \_\_\_\_\_

Period \_\_\_\_\_

### 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. How many toothpicks do you need for the first triangle? How many are added to make the second triangle?
2. How many are added to make the third triangle?
3. Predict how many you would need for 4 triangles, 5 triangles and 6 triangles.
4. What rule did you use to make the prediction?
5. Complete this table for 6 triangles:

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

6. Choose which rule you can use to find the total number of toothpicks needed to make any given number of triangles:  $(2n)$        $2n + 1$        $2n - 1$

Use words, symbols or diagrams to solve the problem. Also, explain in words the steps you took to solve the problem and why you took those steps.

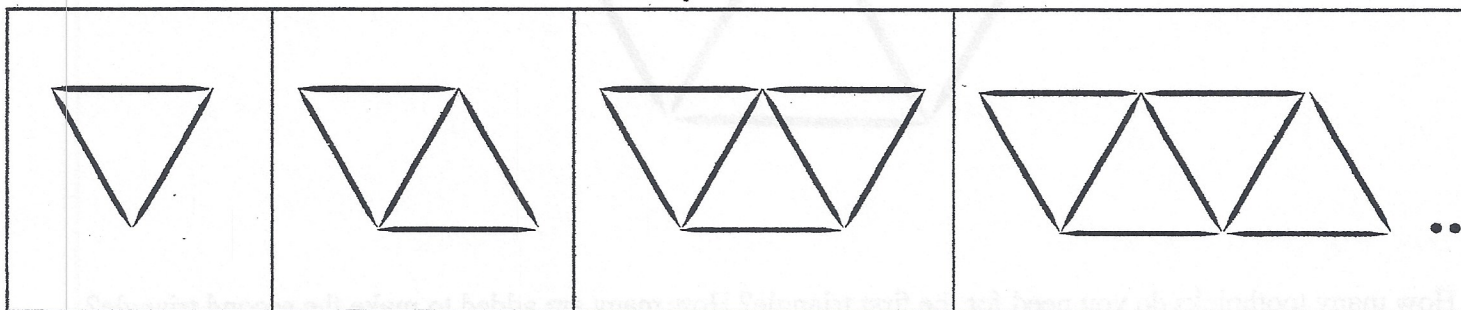
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## Toothpick Patterns:

Each figure is made of toothpicks. Assume that the sequence of figures continues with each figure increasing in size in a similar manner. How many toothpicks will be needed to create the 15th figure in the sequence?



1. What do you see?
2. Can you predict the question?
3. Read the problem.
4. How many toothpicks do you need for 1 triangle? How many are added to make 2 triangles? How many are added to make 3 triangles? How many are added to make 4 triangles?
4. Predict how many you would need to make 5 triangles, 6 triangles, and 7 triangles.
5. What rule did you use to make the prediction?
6. Complete this table for up to 15 triangles:

# of Triangles	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
# of toothpicks															

