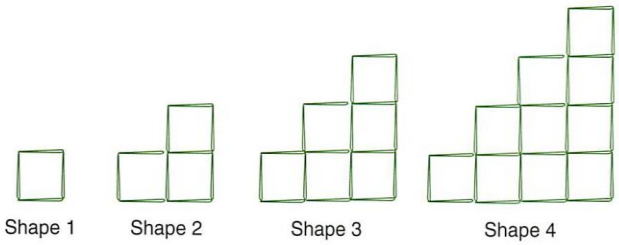
Building with Toothpicks

STAGE ONE	 1. Use a pattern from the shapes to determine the perimeter of the fifth shape in the sequence. Show or explain how you arrived at your answer. 2. Write a formula that you could use to find the perimeter of any shape *n*. Explain how you found your formula.
STAGE TWO	3. Create a table and a graph of the first seven shapes in the pattern. What rule did you use to continue the pattern? Explain how you determined your rule. 4. How would the pattern differ if you used triangles instead of squares?
STAGE THREE	5. Determine the explicit and recursive formulas for finding the perimeter of the n^{th} figure. 6. What would be the perimeter of the 100^{th} figure?

Activity adapted from *Friel, S., Rachlin, S., Doyle, D., Nygard, C., Pugalee, D., & Ellis, M. (2001). Navigating through Algebra in grades 6-8. Reston, VA: NCTM.*