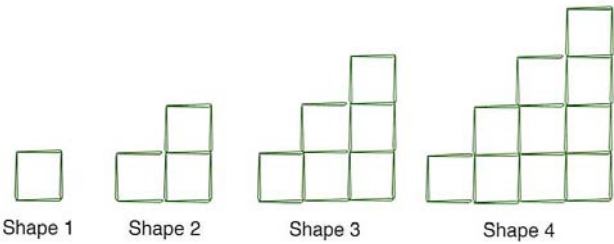


## Building with Toothpicks

STAGE ONE	 <p style="text-align: center;">Shape 1      Shape 2      Shape 3      Shape 4</p>
STAGE TWO	<ol style="list-style-type: none"> <li>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.</li>   <li>2. Write a formula that you could use to find the perimeter of any shape <math>n</math>. Explain how you found your formula.</li>   <li>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.</li>   <li>4. How would the pattern differ if you used triangles instead of squares?</li> </ol>
STAGE THREE	<ol style="list-style-type: none"> <li>5. Determine the explicit and recursive formulas for finding the perimeter of the <math>n^{\text{th}}</math> figure.</li>   <li>6. What would be the perimeter of the 100<sup>th</sup> figure?</li> </ol>

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.*