Exploring the relationship between length, area, perimeter, and similarity.

1. This activity focuses on an exploration of similarity by changing the lengths of rectangles. Students will use desks as a physical mode of learning.
2. The Lesson begins by stating that we will be looking at the relationships between length, perimeter, and area with rectangles.
3. Construct a 1 x 2 rectangle out of desks.
   1. Predict how perimeter and area will change if we double the length
   2. Perform the change and look at the results. (Requires 4 desks)
   3. Is this new rectangle similar to the original rectangle?
4. Construct a 1 x 2 rectangle out of desks.
   1. Predict how perimeter and area will change if we triple the length and width. (Requires 18 desks)
   2. Perform the change and look at the results
   3. Is this new rectangle similar to the original rectangle?
5. Construct an irregular polygon.
   1. Predict how perimeter and area will change if we double the length. (Requires 8 desks)
   2. Is it similar to the original figure?
   3. Predict how perimeter and area will change if we double both length and width (Requires 16 desks)
   4. Is it similar to the original figure?
6. Construct another irregular polygon.
   1. Discuss how to make a larger similar figure. (What would we have to do in order to create a similar figure?)
   2. Predict how perimeter and area will change if we double length and width of the orignal. (Requires 12 desks)
   3. Predict how perimeter and area will change if we triple length and width of the original. (Requires 27 desks)
7. Go back to the data you’ve collected and try to determine the relationship between similar figures and their attributes. (The excel file gives a good organizational plan for this diverse information)
8. Assess student understanding by having them predict the perimeter and area of a figure if it’s length and width are doubled and if it’s length and width are tripled. (Are there enough desks in the room to construct these similar shapes?)