

This activity was written by Candace Walkington.

Wooly's Dilemma

Wooly has been enjoying the new triangular pen you built for her when we worked on the triangle inequality – the design she decided on was an equilateral triangle. However, Wooly is interested in making her pen even bigger.

Wooly used all the fencing she had available to make her current equilateral triangle pen, but she thinks that if the fence was shaped differently, she would have more room. **Wooly needs your help to figure out what shape she should make her pen in order to maximize the area.**

Wooly's fence is made up of wooden pieces 1 m long strung together with hinges, and she has only a limited number of these pieces to work with. In your group's ziploc bag, you will see how many 1m fence pieces Wooly has.

Draw a picture of the fence design you recommend for Wooly, calculate its area, and write a convincing argument to Wooly explaining why this shape would be better than other shapes.

Be ready to present your solution to the class, and compare your solution to other groups who had different numbers of fence pieces. Can you think of a general rule or conjecture?

