3.1 Building Triangles

Bridges, towers, and other structures contain many triangles in their design.

- What properties of these simple polygons could make them valuable in construction?

Problem 3.1

The best way to discover what is so special about triangles in construction is to build several models and study their reaction to pressure.

A Make and study several test triangles using the steps below. Sketch and label your results.

Step 1 Pick three numbers between 2 and 20 for side lengths of a polystrip triangle.

Step 2 Try to make a triangle with the chosen side lengths. If you can build a triangle, try to build a different triangle with the same side lengths.

Repeat Steps 1 and 2 to make and study several other triangles. Record your results in a table with headings like this

Side Lengths	Triangle Possible?	Sketch	Different Shape?

1. List some sets of side lengths that did make a triangle.
2. List some sets of side lengths that did not make a triangle.

B Study your results from Question A with different side length possibilities.

1. What pattern do you see that explains why some sets of numbers make a triangle and some do not?
2. For what side length relationships can you make more than one triangle from a given set of side lengths?
3. Find three other side lengths that make a triangle. Then, find three other side lengths that will not make a triangle.

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