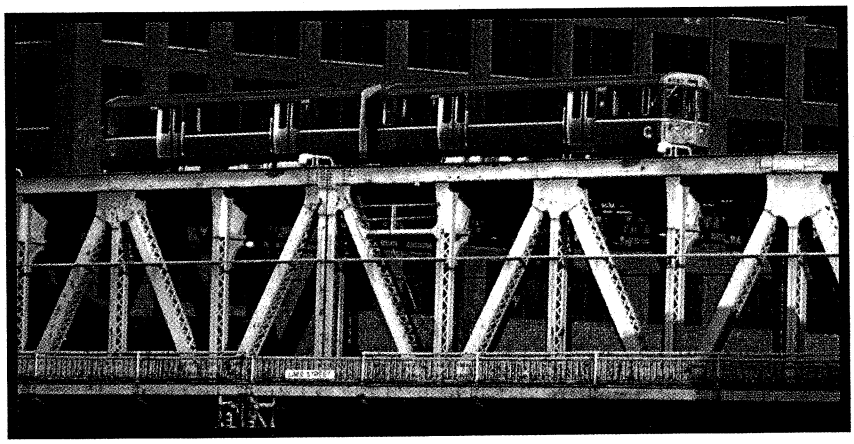
4.1 Building Triangles

Bridges, towers, and other structures contain many triangles in their design.
Why are triangles used so frequently in construction?



Problem 4.1 Building Triangles

Make a triangle using the steps below. Sketch and label your results.

Step 1 Roll three number cubes and record the sum. Do this two more times, so that you have three sums.

Step 2 Using polystrips, try to make a triangle with the three sums as side lengths. If you can build one triangle, try to build a different triangle with the same side lengths.

Repeat Steps 1 and 2 to make several triangles.

A. 1. List each set of side lengths that did make a triangle.

2. List each set of side lengths that did not make a triangle.

3. What pattern do you see in each set that explains why some sets of numbers make a triangle and some do not?

4. Use your pattern to find two new sets of side lengths that will make a triangle. Then find two new sets of side lengths that will not make a triangle.

B. Can you make two different triangles from the same three side lengths?

C. Why do you think triangles are so useful in construction?

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