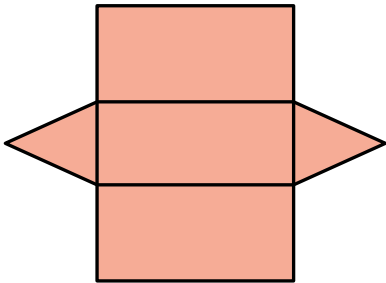


## A TEACHER REFLECTS



### Raising the Roofs

After giving the assignment of making the four roof models, I stepped back to let students work on their own. **Shelley** was using scissors to slice thin slivers off of one edge of a triangle. “When I fold it up into the roof, there is a little bit hanging over,” she told me. Shelley had decided to work on the hardest net first: the pyramid hip roof with a pentagon base. She was doing it by “guess and check,” which in this case translated into, “cut, fold up, and then cut some more.” She was engaged in the task and learning that it wasn’t going to be as easy as she first thought. Rather than telling her how to make the net, I let her continue to experiment.



**Jared** and **Courtney** were working together on making nets for a gable roof. Through their experimentation, they had found a way to draw two triangles and three rectangles that would fold up into a roof. They had figured out which sides needed to have the same dimensions.

While many of the first models were crude, students were getting the idea of what it takes to assemble polygons into a three-dimensional solid.

The next day, when I put up a picture of a flawed net, everyone knew what was wrong with it. By experimenting with their own nets, they had

learned that edges need to be the same length if they are to match when folded up. In the class discussion, students were beginning to articulate some of the underlying geometric principles of nets.

Students continued experimenting outside of class. Each day, we had a discussion about what worked and what didn’t. Here are some of the suggestions that students shared:

“For the hip roof, construct the trapezoids first, and then the triangles.”

“For the gable roof, the sides of the rectangles need to be longer than the width of the ceiling, or the roof won’t be sloped enough.”

“When you make the four triangles for the pyramid roof with a rectangle base, all the edges of the triangles you draw are the same length.”

Suggestions like these showed me that students were not only visualizing, inventing, and constructing geometrically, but also becoming comfortable with the vocabulary they needed to express their ideas. I could see that as their understanding improved, the quality of their models improved, too.