

A TEACHER REFLECTS



Daniel, Karen, June, and Carlos just completed the structure from Round 1 in the Mystery Structures Game. I decided to stay and watch them work on the second set of clues, since I knew this set was more challenging than the first.

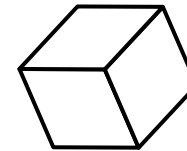
The difficulty with the second clue was that the structure was a hexagonal prism, in which one of the hexagonal bases was made with three rhombuses (see Figure 1). The clues indicated that the structure was a prism with 18 edges, required 11 pieces to build, had half as many rhombuses as rectangles, and that the base was a hexagon made from two isosceles trapezoids (see Figure 2).

They decided that if one base was made of two trapezoids, the other base must be as well. They wrestled with the other clues, trying to construct the sides of the prism, and couldn't get the number of rhombuses to equal half the number of rectangles. After studying the two bases for a few minutes, Daniel took three rhombuses, and started fitting them together in different directions. "Look! You can make a hexagon using these things. Then you could use six rectangles and it would work!" It sounded to me as if he could see the finished structure in his mind.

The thing that impressed me about the episode was Daniel's ability to visualize the structure before doing it with his hands. His description of the bases provided enough information for others to visualize the structure as well.

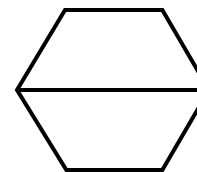
I also realized how important it is to observe students at work solving problems in order to assess their abilities to visualize. I would have learned little about their visualization skills if I had looked only at their finished work. Of course, I would have learned even less if I had intervened to tell them what was wrong with the first bases they made.

Figure 1



A base with three rhombuses

Figure 2



A base with two trapezoids