

## A TEACHER REFLECTS



As we worked through this unit, I noticed that students' writing frequently did not clearly explain their thinking. By the time we got to Lesson 11, this had become a real concern. Their stem-and-leaf plots and scatterplots showed their understanding, and their oral explanations were usually good, but their writing lagged behind.

I wanted to model good writing for the students, so I showed them some examples from their own writing. I used the predictions they made about how often they would get their preference.

Almost all the students had made inaccurate predictions, but I intentionally focused on the explanation, rather than whether or not it was correct. We would do the experiment, and students would see the errors in their predictions later. On the overhead, I had written examples from students' predictions that showed they were trying to explain their thinking: "I think I'll get it three times because it goes into 12 four times," and, "I think the blue band will show up first at least 5 out of 12 times because there are only 4 choices and you are randomly picking the bands."

Another student used fractions to express his expected result: "I think it will come up  $\frac{4}{12}$  because there are 4 colors and 12 tries, so I think I will get  $\frac{4}{12}$ ." I asked them to help me underline the important parts of these students' sentences.

Then I showed examples of other students' answers and asked them to think about ways their answers could be rewritten to show mathematical thinking. Students had written, "I want them to

perform third," "I think I will get that prediction 3 times," and, "I don't know why I think that, but it sounds like a good one." Again, I did not comment on the accuracy of the prediction, but focused on helping students write clearer explanations. Another student had written, "I think it will be  $\frac{1}{2}$  times because that sounds logical."

Students came up with some suggestions that I wrote on a chart: they noticed the use of the word "random" and pointed out that vocabulary was important, and they noticed that a student had expressed probability in fractions. They agreed that the first explanations made a better basis for discussing reasoning than "sounds like a good one." They laughed a little when I showed "I don't know what is going to happen." I told them that if they came to a conclusion that they didn't think they could make a prediction, then they should explain why. I had them practice their writing with a partner, and reminded them to look at the chart to see if they had followed the guidelines we had developed.

At this point, students continued with the lesson. Working with the tree diagrams showed students concretely how many possible outcomes there were, and they realized why almost all of them had made predictions that were much too high. Once they made their tree diagram they could see the possibilities clearly. Having written clearer predictions, they could go back and explain what they had not considered in their original predictions, or why their predictions had been close.