
Reflection on 4th grade public research lesson on May 5, 2003 at the St. Josaphat School

In planning the lesson on measurement there were many aspects of instruction to consider including the goal of the lesson, time management, materials, activities, and class discussion. Our team discussed and decided upon what we agreed to be the best method of instruction for each activity. After seeing the lesson firsthand, and participating in the debriefing session after the lesson was taught, certain elements of the lesson seemed in need of revision. Revising these elements will clarify the goals of the lesson and possibly provide the teacher with a better gauge of students' understanding.

During lesson observation and the debriefing session certain parts of the lesson were repeatedly stressed as areas for possible revision and improvement.

These areas were:

The use of tape on the jar as a guide for students. Did it discourage conversion?

The relationship between prediction and estimation. Many students changed their predictions as they measured to make them more accurate. Do they understand the vocabulary?

The distribution of materials. Would it be more beneficial for all groups to measure the same ingredient so that they would have a shared experience to learn from and discuss?

The question. Should it be changed from the beginning of the lesson?

The Use of Tape on the Jar:

Initially, we thought that this seemed like a logical way to mark a stopping point for the students without providing them the actual measuring tool. If they have a $\frac{1}{4}$ cup scoop, why use a tablespoon to measure at all? In retrospect, measuring to the marked line was difficult for students. It allowed too much room for error, and many students adjusted their answers from what they actually measured based on what they knew the conversion should be. Perhaps it would have been more effective to provide the students with the actual measured amount of each ingredient, then to have them measure that amount using tablespoons. For example, give the students $\frac{3}{4}$ cups of sugar in a bag and a tablespoon, then ask the students to count how many tablespoons they can fill. A follow up to this activity would be to have the students make their own mark on the jar at the point to which they filled it, then to re-measure and check themselves for accuracy.

The Relationship between Prediction and Estimation:

Students were asked to predict how many tablespoons they would use to fill the jar. As they worked, however, many of them adjusted their predictions based on how their measurement was going. It may be more effective to make estimates before passing out any tools, then to compare our predictions with our actual measurements. This could be a lesson in the accuracy of tools, as well as which tools to use in order to get the most precise measurement. The teacher needs to explain to students why it is important to make a prediction. Students should understand that being able to estimate the amount helps to check the accuracy of their actual measure. The problem may also have been that students lacked an understanding of prediction in that it does not need to be exact. Students need to

be given a basic common vocabulary for such tasks. This can be done by consistent and varied use in class by the teacher throughout the year. Other vocabulary that could be included in this “consistent and varied use” is the word *appropriate*. Did students fully understand what the teacher was implying when asking the question, “What is the most appropriate tool?”

The Distribution of Materials:

In the initial lesson, students were divided into groups, and each group was given a different measurement. During discussion, each group presented their findings for *their* ingredient and *their* measure. When students were asked to state what they’d learned in the lesson, many students stated something similar to, “I learned that $\frac{3}{4}$ cup of sugar equals 12 tablespoons.” It seemed that perhaps students weren’t making the generalizations about conversion that we had hoped. Therefore, it may be more effective for each group to measure the same ingredient at the same time and then to compare answers. This would open up a discussion about accuracy of measurements, and also provide students with a common experience to share. All students may feel more involved if this were the case, and they may make the connection to conversion if they are measuring repeatedly and viewing a collection of results as their own, rather than only the one ingredient.

The Question:

The question posed was “Can you follow this recipe for chocolate chip cookies by using only a tablespoon?” By asking a question with an exact answer, students simply answered yes or no. By changing the question to “*How* can you follow this recipe for chocolate chip cookies by using only a tablespoon?” students are given the opportunity to explore various possibilities and solutions to the problem posed. This may encourage more creative and independent thinking than a question with a more exact answer.