Title: What Happened to the Mean and Median?

Grade level/course: 7th
Time Frame: 75 minutes
Content Objectives:
- Students will predict, calculate, and analyze what happens to the mean and median when data is removed from or added to a given data set.

Language Objectives:
- Students will use correct terminology to predict and analyze the changes in mean and median.
- Vocabulary: mean, median, distribution, data value

Higher Order Thinking:
- Predicting what will happen
- Justifying their prediction
- Analyzing the results

Materials:
- Student textbook
- Calculators
- Wooden cubes

Initiation: Give a line graph and ask students to calculate mean and median using cubes.

Procedures:
1. Distribute cubes.
2. Do initiation.
3. Have students turn to page 41 in their texts – Investigation 2, Measures of Central Tendency from Connected Math Project.
4. Have students work alone to answer #A1, either with cubes or not, reminding them to predict first and write out a justification for their prediction.
5. Have students pair up to share thinking.
6. Have pairs continue and complete #A2.
7. Share answers and thinking at the board.
8. Have pairs complete part B, reminding them to experiment at least 4 times before answering a question and record results in notes. Questions include using the new distribution from Question A, part (2). Experiment with removing data values and replacing them with new data values. How does replacing smaller data values with larger data values affect the mean and the median.

Closure: Answers to part B, stated formally with justification.
Student Work Products:
- Class notes

Assessment: Same as closure
Differentiation: Working in pairs

#A1 suppose you remove the three cereals with 6 grams of sugar per serving and add three new cereals, each with 9 grams of sugar per serving. What happened to the mean and the median? Why do you think this happens?

#A2   a. Use the new distribution from part (1). Suppose you remove a cereal with 3 grams of sugar and add a cereal with 8 grams of sugar. How do the mean and the median change?

      b. Suppose you remove another cereal with 3 grams of sugar and add another cereal with 8 grams of sugar. How to the means and the median change?

      c. Suppose you remove a their cereal with 3 grams and add a third cereal with 8 grams of sugar. How to the mean and the median change?

Sugar in Top Shelf Cereals

Legend:
△ Mean
⊥ Median

Sugar per Serving (g)