3-5 Math Collecting Taste Test Data

Jenna Mobley

Overview:

Students will host a taste test in the cafeteria and collect data from all participants that shows how many students liked it, loved it, and didn't care for it. To display this data with a large number of participants, students will learn to create a scaled bar graph then analyze the data from their scaled graphs.
(Time Needed: Approximately 25 minutes with optional 20min extension time)

Common Core Math Standards:

- Measurement and Data
  - 3rd Grade:
    - CCSS.MATH.CONTENT.3.MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Objectives:

- Students will be able to draw a scaled picture graph and a scaled bar graph to represent a data set with three categories.
- Students will be able to solve one- and two- step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Materials:

From the Grocery Store:
- Legumes, washed

From the Classroom:
- Clipboard
- Pencils and coloring supplies

Reproducibles:

- Blank Tally Chart for Taste Test Data Collection
- Blank Bar Graph with 3 Categories (1 for each small group)

Outline:

- Engage: Host a legumes taste test
- Explore: Explore methods for data collection
- Explain: Explain the method of scaled bar graphs
- Extend: Collect data and create additional scaled bar graph for comparison

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Lesson Plan:

- Engage (in the cafeteria, with multiple classes)
    - Students can host a taste test of legumes with all of the students that are in the cafeteria during their lunch period.
    - Resources:
        - Planning a Taste Test (in the Cafeteria)
        - Dressing Recipes for Classrooms
        - Legumes Recipes for Classrooms (see website)
    - Students should create a tally chart to gather data from the students (at least 60 responses is ideal):
        - How many loved it?
        - How many liked it?
        - How many didn't care for it?
- Explore (whole group) - 10 minutes
    - Ask students to analyze the data they collected on their tally chart (most likely scattered groups of 5, not lined up from category to category).
        - How many students loved it? Liked it? Didn't care for it?
        - How many more students loved it than didn't care for it?

      It should be difficult for students to answer this quickly from a tally chart without counting each set by 5s and totaling the numbers then completing the subtraction problem.
    - Allow students to brainstorm ways to clearly display the data that was collected in their tally chart so that these two questions can be answered more easily.
        - Lead students to understanding that if the tallies in groups of 5 were lined up across the categories, it'd be easier to compare the numbers because you can simply count the difference between two parallel rows.
        - Lead students to understanding that when the tallies in groups of 5 are lined up, they can add numbers across the top to quickly denote the totals without having to count.
- Explain (whole group) - 15 minutes
    - Provide students in small groups with a Blank Bar Graph, only 20 cells high. Given the potential that over 20 students had the same response, ask students to use the techniques they learned working with the tallies to determine how they can display their data using the bar graph.
    - Students should decide that they should create a scaled bar graph, with each cell equalling 2-5, or any number that makes sense for the data they are working with.

- When they have completed their graph, ask students:
  - How many students loved it? Liked it? Didn't care for it?
  - How many more students loved it than didn't care for it?

  It should be simple for students to determine how many votes were counted in each category and to compare the categories.

- Extend (small groups / in seats) - 20 minutes
  - Allow students to visit another lunch period to collect data asking the question "Do you like legumes?" providing the options "love it," "like it," and "don't care for it" noticing whether the students had participated in a legumes taste test at school yet or whether it's based on the previous experiences.
  - In small groups, students can create a bar graph displaying their data, using the same scale as their previous graph so that the two can be compared directly.
- Evaluate

Example Evaluation

Based on the scaled bar graph you created in your small group...	
How many students love legumes?	
How many students like legumes?	
How many students don't care for legumes?	
How many total students participated in the survey?	
How many more / less students liked legumes than those that didn't care for legumes?	
How many students liked or loved legumes?	
How many more / less students liked or loved legumes than those that didn't care for legumes?	