6-8 Math Collecting Taste Test Data

Make Room for LEGUMES

October Farm to School Month | #MakeRoomforLegumes

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Overview:

Students will conduct a taste test of legumes with a random sample of students from throughout the grade level or school, asking students how they would rate the taste of legumes from 1 to 10. Students will collect that data on a number line dot plot and draw conclusions about the general population's opinion of legumes from their collection.
(Time Needed: Approximately 40 minutes - with time for data collection)

Common Core Math Standards:
- Measurement and Data
    - 6th Grade:
        - CCSS.MATH.CONTENT.6.SP.B.4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
    - 7th Grade
        - CCSS.MATH.CONTENT.7.SP.A.1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

Objectives:
- Students will be able to display numerical data of students' opinion of legumes on a scale from 1-10 in plots on a number line dot plot.
- Students will be able to collect data from a random sample of students, representative of the entire grade / school population, and make generalizations about the entire population from that data.

Materials:

From the Grocery Store:
- Legumes, washed

From the Classroom:
- Clipboards
- Pencils and coloring supplies

Reproducibles:
- Blank Dot Plot with a scale from 1-10

GEORGIA ORGANICS

Middle School | GA Standards | 80 min

Outline:
- Engage: Host a legumes taste test
- Explore: Explore methods for data collection
- Explain: Explain the method of dot plots for a random sample
- Extend: Collect and analyze data

Lesson Plan:
- Engage (throughout the school)
  - Express to students that they are tasked with developing a way to communicate the entire school's opinion of legumes to their principal and cafeteria staff.
  - Allow students to brainstorm ideas together for how to collect and share this data.
- Explore (whole group) - 10 minutes
  - Remind students that they can prepare a taste test of legumes and offer the legumes to a random sampling from the grade level or school - either during lunch time in the cafeteria or from classroom to classroom, choosing just a few students at random from each. Random sampling tends to produce representative samples and support valid inferences.
  - Students should create a dot plot to gather data from the students (at least 60 responses is ideal), specifically how much they like legumes on a scale from 1-10.
  - Resources:
    - Planning a Taste Test (in the Cafeteria)
    - Dressing Recipes for Classrooms
    - Legumes Recipes for Classrooms
- Explain (whole group / on carpet) - 15 minutes
  - Explain that random sampling tends to produce representative samples and support valid inferences. Allow students to discuss the data that they collected to determine patterns and make inferences.
- Extend (small groups / in seats) - 20 minutes
  - Allow students to display this data in a way that would speak to their principal or cafeteria staff, sharing the data on students' opinions of legumes and potentially accompanied by an opinion writing piece having a specific ask for the recipient - for example, offering legumes in the salad bar more often.

- 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?	