

Weighing Peanut m&ms[®]

Utah Secondary Mathematics Core Curriculum Standards

Comparing experimental results with theoretical probability, displaying data, collecting and interpreting data, computing the mean and median, computing range

GAISE Guidelines for Assessment and Instruction in Statistics Education

Level B Understanding – formulate questions, collect data, analyze data, and interpret the results

Teacher generated question – How does the weight printed on the package compare to the actual weight of a bag of peanut m&ms[®]? How is the weight related to the number of candies per bag?

Student generated questions – What is the mean weight of a bag of peanut m&ms[®]? What is the mean number of candies in a bag?

Learning Outcomes

- Students become interested in statistics
- Students understand how to collect and interpret statistical information
- Students create and conduct a statistical investigation
- Students make weight measurements using a scale

Specific Skills

- Students collect and record data
- Students chart results
- Students compute mean and median
- Students analyze results

Materials Needed

- Scales (with .1 gram precision)
- A small bag of peanut m&ms[®] for each student

Directions

Ask the students how many peanut m&ms[®] they think there are in a small bag. Ask them if they think that bags with fewer m&ms[®] have bigger m&ms[®] to make the candy distribution match the weight on the bag. Guide the students in setting up a study to test their hypotheses. Divide the class into groups so that each group has a scale. Give each student a small bag of peanut m&ms[®] and have them weigh the bags of candies and record the weight. Then have them open the bags and count how many candies are inside and record that number as well. Then the students can eat their candy while the groups' data are written on the board to share with the rest of the class. Have the student calculate the means and medians of the data, and then construct a boxplot and a scatterplot of the data. Discuss the results.

Created for the American Statistical Association Meeting Within a Meeting Program (2008) for Middle School Teachers

Weight (gm)	Number (candies)
113.0	50

117.0	51
111.5	49
105.5	47
110.0	48
108.0	47
113.5	50
106.5	47
110.0	48
107.5	48
111.5	49
118.5	52
111.5	49
115.5	51
109.5	48
111.0	49
111.0	49
113.5	50
106.0	46
109.0	48
114.5	51
104.0	46
106.5	47
111.0	49
108.0	47
111.5	49
111.5	49
119.5	52

Prompt the students to generate and answer data analysis questions.

What is the mean weight of a bag of peanut m&ms®? What is the median weight?

What is the mean number of candies per bag? What is the median number?

How do our results compare to the weight printed on the bag? What might be some reasons for any differences?

What kind of relationship do you see between the weight of a bag and the number of candies?



