**Statistical Studies: Analyzing Data**

III.B Student Activity Sheet 7: Using Technology

Suppose data were collected on 25 bags of Spud Potato Chips. The weight (to the nearest gram) of the chips in each bag is listed below.

25 28 23 26 23

25 25 24 24 27

23 24 28 27 24

26 24 25 27 26

25 26 24 25 25

**1.** Create a dotplot of the potato chip data and describe the distribution.

**2.** Does this distribution appear to support or contradict the manufacturer’s claim of an

average weight of 28.3 grams of chips per bag? Explain your reasoning.

**3.** Use your calculator or spreadsheet software to create a more formal display of these

data. Make a sketch of the result here and save an electronic copy for your formal

report. (If you create a histogram, remember to carefully consider your bin size.)

**4.** You can also use your calculator or spreadsheet software to create more precise

numerical descriptions of the data. This approach is quicker and usually more accurate than computing by hand.

The mean of the data is ***x*** 

The standard deviation of the data (a measure of “spread-outness”) is ***Sx*** =

The number of data values is ***n*** =

The five-number summary is

The numbers in the five-number summary represent

**5.** Sometimes it makes sense to analyze the proportion of a population that meets some

criterion. This is another method for investigating whether the manufacturer is correct in

claiming that the average weight of a bag of Spud’s is 28.3 grams. Write a statement or

hypotheses involving the proportion of bags of chips that meet a weight criterion.

**6.** What proportion of the bags in your sample were 28.3 grams or more? Does the answer

change your opinion about Question 2? Why or why not?

**7.** Suppose instead that the weight of the chips in each Spud’s bag is the following:

29 34 22 27 26

25 28 24 26 33

28 29 31 30 27

28 31 28 32 25

31 28 30 29 27

Produce a histogram and recompute the descriptive statistics for this set of data. What

do you notice?

The mean of the data is ***x*** 

The standard deviation of the data is ***Sx*** =

The number of data values is ***n*** =

The five-number summary is

**8. EXTENSION:** Prepare a professional report for the president of Spud Potato Chips based on one of the data sets.

Data Set 1

Go to www.billboard.com and select the Hot 100. This list gives the top 100 songs for the

week. You will compute statistics on the number of weeks that a random selection of the

songs has been on the charts. (If you wish, choose one of the specialized charts such as

R&B/Hip-Hop or Country.)

Use your calculator or a random number table to select 10 of the 100 songs. Write down the

name of each song, its rank on the list, and the number of weeks it has been on the chart.

For example, if your random number generator gives you *3*, write “No. 3, Mary Had a Little

Lamb*¸*14 weeks.”

Calculate the descriptive statistics for the data set and interpret all statistics.

Write a couple of sentences for the school newspaper about your results.

What would a graph tell you about these data?

Data Set 2

Go to www.imdb.com and select IMDb Top 250. (To find this link, scroll down and look for

User’s Favorites in the sidebar on the left.) This list ranks the top 250 movies as voted by

regular users of the Internet Movie Database (IMDb). (***Note:*** These are listed by ranking, not

by number of voters. The voters did not vote for a favorite movie; rather, they ranked the

movies on a scale of 0**–**10). You will compute statistics on the number of voters who provided

input on the movies, without actually using 250 pieces of data in your calculation. (If you

wish, choose the IMDb Bottom 100 instead.)

Use your calculator or a random number table to select 10 of the 250 movies. Write down

the name of each movie, its rank on the list, and the number of voters who ranked it.

Calculate the descriptive statistics for the data set and interpret all statistics.

Write a couple of sentences for the school newspaper about your results.

What would a graph tell you about these data?

Data Set 3

For information about state sales taxes, go to the Federation of Tax Administrators’ website

at www.taxadmin.org/FTA/rate/sales.html. The sales tax for each state and the District of

Columbia is listed. You will compute statistics for state sales taxes, without actually using

51 pieces of data in your calculation.

Use your calculator or a random number table to select 10 of the 51 locations. Write down

the name of each location and its sales tax.

Calculate the descriptive statistics for the data set and interpret all statistics.

Write a couple of sentences for the school newspaper about your results.

What would a graph tell you about these data?

Data Set 4

To view gasoline sales taxes by state, go to the American Petroleum Institute website at

www.api.org/statistics/fueltaxes. You will compute statistics for gasoline sales taxes by

state, without actually using 51 pieces of data in your calculation.

Use your calculator or a random number table to select 10 of the 51 amounts. Write down

the name of each state and its sales tax on a gallon of gas.

Calculate the descriptive statistics for the data set and interpret all statistics.

Write a couple of sentences for the school newspaper about your results.

What would a graph tell you about these data?

Data Set 5

To view diesel sales taxes by state, go to the American Petroleum Institute website at

www.api.org/statistics/fueltaxes. (Scroll down to find the diesel data, which appear after

the gasoline data). You will compute statistics for diesel sales taxes by state without,

actually using 51 pieces of data in your calculation.

Use your calculator or a random number table to select 10 of the 51 amounts. Write down

the name of each state and its sales tax on a gallon of diesel fuel.

Calculate the descriptive statistics for the data set and interpret all statistics.

Write a couple of sentences for the school newspaper about your results.

What would a graph tell you about these data?