Pre Lesson Activity

How Much Did You Spend at the Store (Bar Graph)?

1. (For homework) Students were asked to record how much they spent the last time they visited a grocery store and submit this to the instructor to compile.

2. Data from all students will be combined with data from the Data and Story Library (DASL), in which a marketing consultant observed 50 consecutive shoppers at a grocery store, and recorded how much money each shopper spent in the store.

   From this point forward, I will only use the 50 data points. There will be slight modifications once the student’s data points are included.

3. The data first needs to be organized into categories. Note that the 50 data points from DASL are already sorted from smallest to largest.

4. Students will be asked to find the minimum and maximum of the values, as well as the data range.

   SOLUTION: Min (2.32), Max (69.49), Range (67.17)

5. We will discuss as a group the best way to organize the data into categories. Lead students to organize data into 7 categories, taking intervals of length 10, starting with 2:

<table>
<thead>
<tr>
<th>Interval</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 to 12</td>
<td>8</td>
</tr>
<tr>
<td>12 to 22</td>
<td>20</td>
</tr>
<tr>
<td>22 to 32</td>
<td>7</td>
</tr>
<tr>
<td>32 to 42</td>
<td>8</td>
</tr>
<tr>
<td>42 to 52</td>
<td>2</td>
</tr>
<tr>
<td>52 to 62</td>
<td>2</td>
</tr>
<tr>
<td>62 to 72</td>
<td>3</td>
</tr>
</tbody>
</table>

6. Lead students in a discussion as to why a bar graph is the best way to represent this data.
How Many Children Do You Have, or Want (Line Graph)?

1. (For homework) Students were asked to identify how many children they might consider having at the age of 23 (or had, depending on age and gender). They need not divulge this information, which could be considered private.

2. Data from the Data and Story Library includes the number of live births per 10,000 23-year-old women in the United States between 1917 and 1975.

From this point forward, the only data included is from DASL. Should the students share their thoughts, it would not be appropriate to include, since the data is only through 1975.

3. Here, the birthrate is measured in number of births per 10,000 women in the US from 1917 through 1975. Students will be asked to explore whether this measure is the most accurate way to answer the question of children born. For example, why not just measure the number of children born over time?

4. The data is already organized in a way to facilitate graphing.

5. Lead students in a discussion as to why a line graph is the best way to represent this data.

What Party are You (Pie Graph)?

1. (For homework) Students were asked to identify which category they consider themselves (Democrat, Republican, or non-partisan). They need not divulge this information, which could be considered private.

2. Data from the internet provided by The Nevada Secretary of State’s Office official release of its December 2007 voter registration report: there are a total of 979,294 voters in the state. 396,742 are Democrats, while 391,875 registered as Republicans. 141,094 registered in the “non-partisan” category.

3. We will discuss as a group the best way to organize the data. Lead students to organize data in a table:

<table>
<thead>
<tr>
<th>Party</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democrat</td>
<td>396,742</td>
</tr>
<tr>
<td>Republican</td>
<td>391,875</td>
</tr>
<tr>
<td>Non-Partisan</td>
<td>141,094</td>
</tr>
</tbody>
</table>
4. Students are encouraged to find the sum of the values (which is 929,711), and should discuss the discrepancy (979,294 registered voters).

5. Lead students in a discussion as to why a pie chart is the best way to represent this data.

**Is there a Correlation between Teacher Pay and Per Pupil Spending (Scatterplot)?**

1. (For homework) Students were asked to determine the current level of spending per pupil in Clark County. In addition, the average teacher salary in the district.

2. Data from the *Data Story Library* includes the average salary paid to teachers and expenditures per pupil on education in the 50 states and the District of Columbia (for 1986).

3. Students will be asked to explore whether they expect a correlation of these two quantities.

4. The data is already organized in a way to facilitate graphing.

5. Lead students in a discussion as to why a scatter plot is the best way to represent this data.

**Are All Professors Paid the Same (Box and Whisker)?**

6. (For homework) Students were asked to research professors ranks. How are professors classified, and what do the classifications mean in terms of experience and salary?

7. Data from the *Data Story Library* includes the average salaries for professors at the top 50 universities of the Association of American Universities. Salaries of full, associate and assistant professors at these universities are provided.

8. Students will be asked to explore what they expect based on their research.

9. Students will need to find the median, minimum, maximum, 25th and 75th percentile for each group of data. The Project describes how to use Excel to accomplish this.

10. Once the information from (8) is determined, the graphs can be obtained.

11. Lead students in a discussion as to why a box and whisker plot is the best way to represent this data.