11.3 Using Data Displays

Goal: Choose appropriate displays for data sets.

Vocabulary

Categorical data: data that can be grouped into categories ex: favorite colors

aka nonnumerical data

Numerical data: data collected as #'s

When you choose a data display, one factor you should consider is whether the data are categorical or numerical.

Choosing Appropriate Data Displays

Use a line graph to display numerical data that change over ti.

Use a bar graph to see trends in non numerical data.

Use a bar graph to compare categorical data.

Use a circle graph to represent categorical data as parts of a whole

Use a scatter plot to organize numerical data based on their pairs.

Use a histogram to compare the frequency of numerical data that fall in equal intervals.

Use a box-and-whisker plot to organize numerical data into 4 groups of approximately equal size.

Example 1 ***Choosing an Appropriate Data Display***

The table shows the results of a survey that asked consumers to name the day of the week they usually shop for groceries. Which display(s) can you use to display the data?

When Consumers Shop	
Day	**Percent**
Sunday	16%
Monday	12%
Tuesday	9%
Wednesday	13%
Thursday	12%
Friday	16%
Saturday	22%

Solution

The responses to the survey consist of the days of the week, which are _____ data. Also, the sum of the percents is _____. So, you could use a _____ to display the data. A _____ could also be used.

Checkpoint

1. The table shows the voting age population and the number who voted in 10 recent federal elections. Both numbers are given in millions. Which display(s) can you use to display the data?

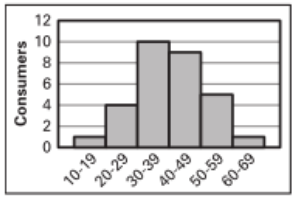
Voting age population (millions)	Voter turnout (millions)
205.8	105.6
200.9	73.1
196.5	96.5
193.7	75.1
189.5	104.4
185.8	67.9
182.8	91.6
178.6	65.0
174.5	92.7
169.9	67.6

Sample answer: The data are individual, and a bar graph or a scatter plot would be a good choice to display the data.

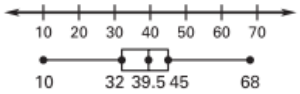
Example 2 *Comparing Data Displays*

Weekly Grocery Expenses An economist uses a histogram and a box-and-whisker plot to display the average weekly grocery expenses of 30 consumers. What are the advantages of each display?

a.



b.



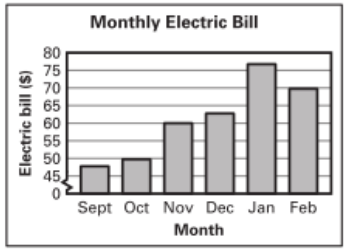
Solution

a. Using the histogram, the economist can compare the number of _____ in each interval. For example, the economist can see that the average weekly grocery expenses for 5 of the consumers is from _____, while the average weekly grocery expenses for ____ of the consumers is $30 to $39.

b. Using the box-and-whisker plot, the economist can easily divide the average weekly grocery expenses into low, low-middle, high-middle, and high groups of approximately equal size. For example, the economist can conclude that about ____ of the consumers spend $32 or less per week on groceries, and about ____ spend from $32 to $45 per week.

Example 3 *Identifying Misleading Data Displays*

Electric Bill The bar graph displays a household's monthly electric bill from September to February. What is misleading about the display?



Solution

The broken vertical axis exaggerates the differences in the bar lengths. For instance, it appears that February's electric bill is ____ times that of October's, but it is actually ____ times larger.