

Popular magazines often rank cities in terms of how desirable it is to live and work there.

1. Identify two categorical variables and two quantitative variables that could be used to measure a city's characteristics. Give a reason for each of your choices.

Each year, the DuPont Corporation publishes the results of a poll of car-color preferences for North American drivers. Here is the distribution of color preference for 2009:

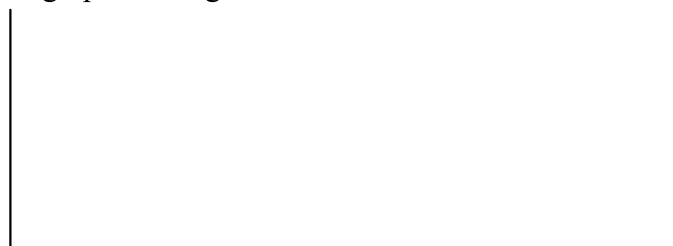
2. Make a bar graph of these data.



Color	Percentage
White/Pearl	17.8
Black	17
Silver	16.7
Gray	13
Blue	12.4
Red	12
Brown	5.7
Other	5.4

In 2009, DuPont conducted a similar poll worldwide. Here is the distribution for global car color preferences.

3. Make a bar graph of the global data.



Color	Percentage
White/Pearl	16
Black	23
Silver	25
Gray	13
Blue	9
Red	8
Brown	4
Other	2

4. Comment on the most important differences between these two distributions.

5. A research study asked children which of four different emotions they associated with the color red. The response and gender of each child are given in the following table.

	Joy	Happiness	Love	Anger
Male	28	20	40	18
Female	61	25	80	60

Use the data in this table to discuss the relationship between the emotions children associate with the color red and gender. Use the techniques and language you have learned in this section to support your conclusions.

How much disk space does your music use? Here are the files sizes (in megabytes) for 18 randomly selected files on Tim’s mp3 player:

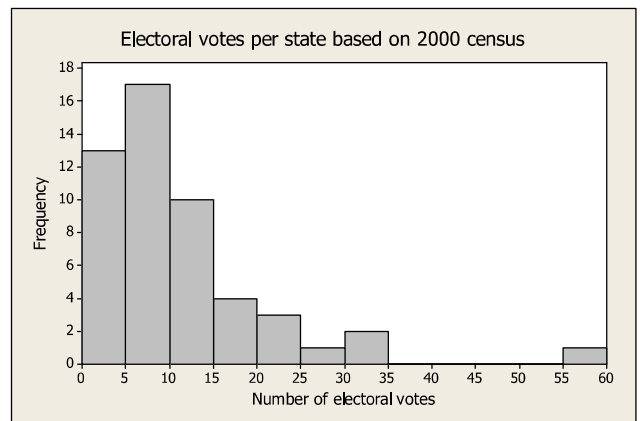
1.1    1.3    1.3    1.6    1.9    1.9    2.1    2.2    2.4  
 2.5    2.7    3.0    4.4    4.7    5.0    5.6    6.2    7.5

1. Make a dotplot of these data.

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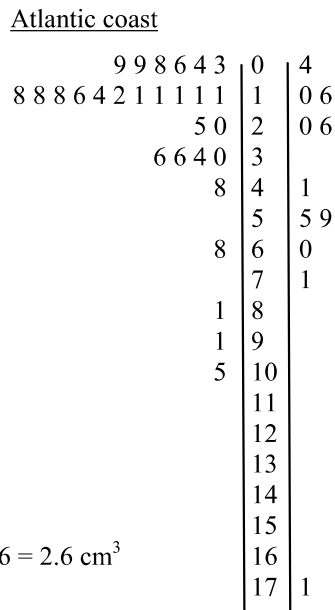
2. Describe the overall pattern of the distribution and any departures from that pattern.

3. The histogram below shows the distribution of electoral votes for the 50 United States and the District of Columbia. Describe the shape, center, and spread of the distribution.



Of the 50 species of oaks in the United States, 28 grow on the Atlantic coast and 11 grow in California. We are interested in the distribution of acorn volumes among oak species. Here are back-to-back stemplots on the volumes of acorns (in cubic centimeters) for these 39 oak species:

Volume of Acorns (cubic centimeters)

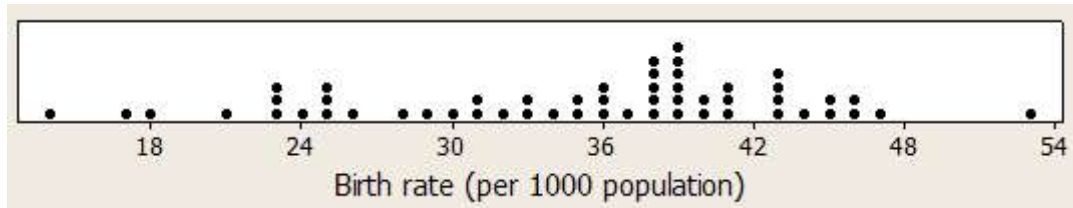


Key: 2|6 = 2.6 cm<sup>3</sup>

4. Use the stemplots to compare the distribution of acorn sizes between Atlantic Coast and California oak species.

One of the important factors in determining population growth rates is the birth rate per 1000 individuals in a population. Below are the birth rates per 1000 individuals for 54 African Nations from a 2009 Population Reference Bureau report. The data is provided in ascending order, along with a dotplot.

14	23	25	31	34	36	38	39	41	43	46
17	23	26	31	35	37	38	39	41	43	46
18	24	28	32	35	38	39	39	41	44	47
21	25	29	33	36	38	39	40	43	45	53
23	25	30	33	36	38	39	40	43	45	



1. What measures would you use to describe the center and spread of these data? Justify your answer.
2. Find the five-number summary for these data.
3. Are there any outliers? Justify your answer.
4. Draw a boxplot of this distribution.

5. For the birth rate data on the previous page, how can you tell *without doing any calculations*, that the median of these data is larger than the mean?

6. Mary measures the weights of five newly hatched pythons in grams. Here are her results:

29    30    32    34    35

Calculate the mean and standard deviation of python weights *using the formula* for each. Show your work!

7. Below are dotplots for three small datasets: A, B, and C. Without performing any calculations, rank the standard deviations of the datasets from lowest to highest. Justify your answer.

