

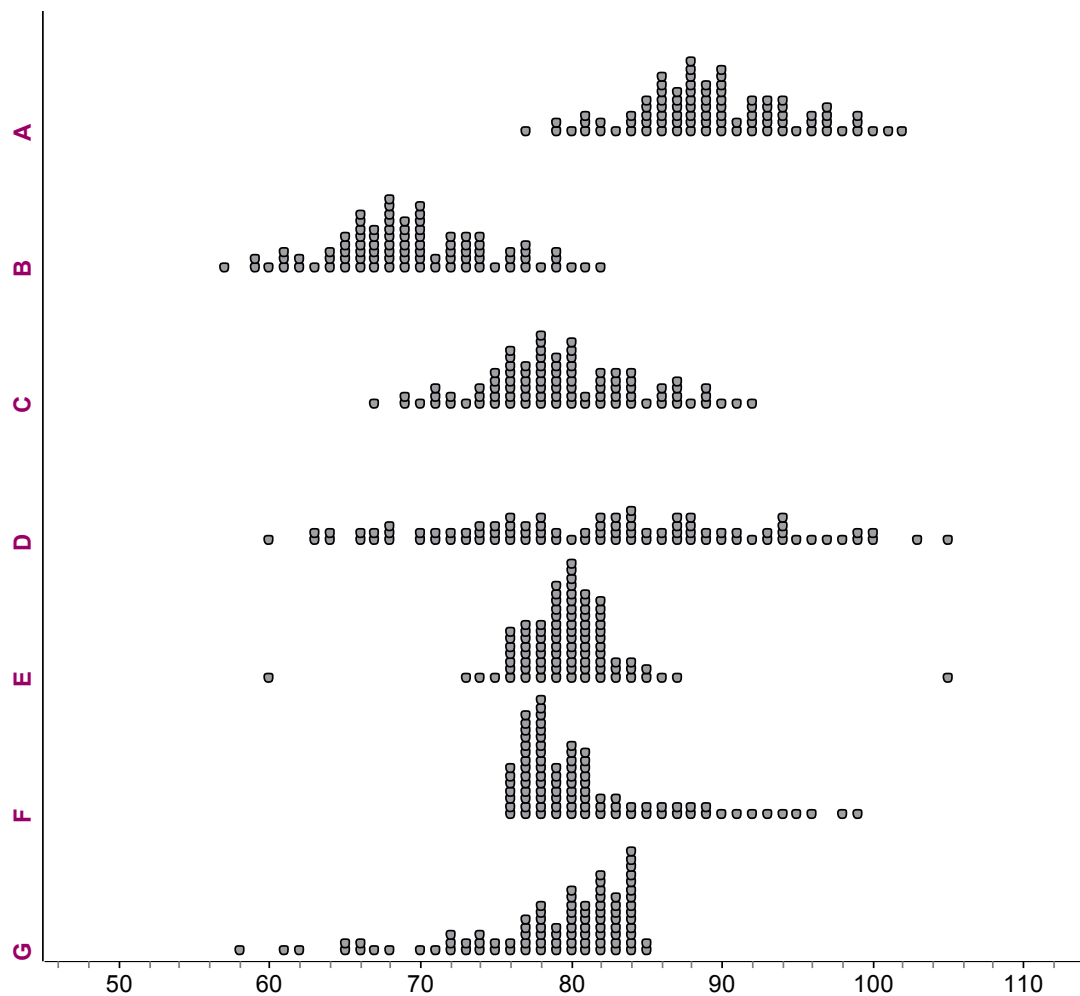
1.2 Displaying Quantitative Data with Graphs (Dotplot & Stemplot)

Learning Targets

1. Make and interpret dotplots and stemplots of quantitative data.
2. Describe the overall pattern (shape, center, and spread) of a distribution and identify any major departures from the pattern (outliers).
3. Identify the shape of a distribution from a graph as roughly symmetric or skewed.
4. Make and interpret histograms of quantitative data.
5. Compare distributions of quantitative data using dotplots, stemplots, or histograms.

Vocabulary: dotplot, overall pattern, departures, shape, center, spread, outlier, mode, symmetry, skewness, unimodal, bimodal, multimodal, stemplot, splitting stems, back-to-back stemplot

Elias and Aidan have decided to move and are considering seven different cities. The dotplots below show the daily high temperatures in June, July, and August for each of these cities. Help them pick a city by answering the questions below.



1. What is the most important difference between cities A, B, and C?
2. What is the most important difference between cities C and D?
3. What are two important differences between cities D and E?
4. What is the most important difference between cities C, F, and G?

Read 25–27

When describing the distribution of a quantitative variable, what characteristics should be addressed?

Read 27–29

Briefly describe/illustrate the following distribution shapes:

Symmetric

Skewed right

Skewed left

Unimodal

Bimodal

Uniform

Example: Frozen Pizza

Below is the number of calories per serving for 16 brands of frozen cheese pizza, along with a dotplot of the data.

340 340 310 320 310 360 350 330
260 380 340 320 360 290 320 330



Describe the shape, center, and spread of the distribution. Are there any outliers?

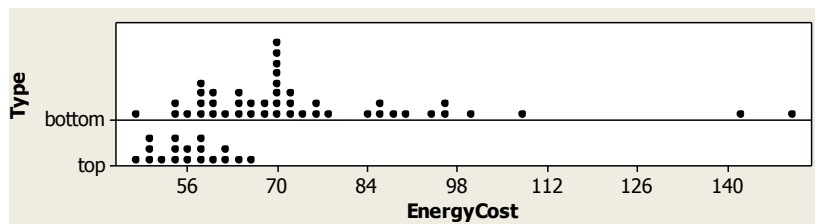
TRY: Check your understanding (p. 29).

Read 29–30

What is the most important thing to remember when you are asked to compare two distributions?

Example: Energy Cost: Top vs. Bottom Freezers

How do the annual energy costs (in dollars) compare for refrigerators with top freezers and refrigerators with bottom freezers? The data below is from the May 2010 issue of *Consumer Reports*.



Read 31–32

What is the most important thing to remember when making a stemplot?

Example: Which gender is taller, males or females? A sample of 14-year-olds from the United Kingdom was randomly selected using the CensusAtSchool website. Here are the heights of the students (in cm).

Make a back-to-back stemplot and compare the distributions.

Male: 154, 157, 187, 163, 167, 159, 169, 162, 176, 177, 151, 175, 174, 165, 165, 183, 180

Female: 160, 169, 152, 167, 164, 163, 160, 163, 169, 157, 158, 153, 161, 165, 165, 159, 168, 153, 166, 158, 158, 166

TRY: Check Your Understanding on p. 32

HW: page 41 (37, 39, 43, 45, 47)

1.2 Displaying Quantitative Data with Graphs (Histogram)

The following table presents the average points scored per game (PPG) for the 30 NBA teams in the 2012–2013 regular season. Make a dotplot to display the distribution of points per game. Then, use your dotplot to make a histogram of the distribution.

| Team | PPG | Team | PPG | Team | PPG |
|-----------------------|-------|------------------------|-------|------------------------|-------|
| Atlanta Hawks | 98.0 | Houston Rockets | 106.0 | Oklahoma City Thunder | 105.7 |
| Boston Celtics | 96.5 | Indiana Pacers | 94.7 | Orlando Magic | 94.1 |
| Brooklyn Nets | 96.9 | Los Angeles Clippers | 101.1 | Philadelphia 76ers | 93.2 |
| Charlotte Bobcats | 93.4 | Los Angeles Lakers | 102.2 | Phoenix Suns | 95.2 |
| Chicago Bulls | 93.2 | Memphis Grizzlies | 93.4 | Portland Trail Blazers | 97.5 |
| Cleveland Cavaliers | 96.5 | Miami Heat | 102.9 | Sacramento Kings | 100.2 |
| Dallas Mavericks | 101.1 | Milwaukee Bucks | 98.9 | San Antonio Spurs | 103.0 |
| Denver Nuggets | 106.1 | Minnesota Timberwolves | 95.7 | Toronto Raptors | 97.2 |
| Detroit Pistons | 94.9 | New Orleans Hornets | 94.1 | Utah Jazz | 98.0 |
| Golden State Warriors | 101.2 | New York Knicks | 100.0 | Washington Wizards | 93.2 |

*TI-84 Demonstration: finding median & creating Histograms

Read 33–36

How do you make a histogram?

Read 38–41

Why would we prefer a *relative* frequency histogram to a frequency histogram?

What will cause you to lose points on tests and projects with respect to graphical displays?

TRY: Check Your Understanding p.p. 39-40

HW: page 45 (51, 53, 55, 59–62), work through Foreign Born Example on pp. 33-34, Read 1.3