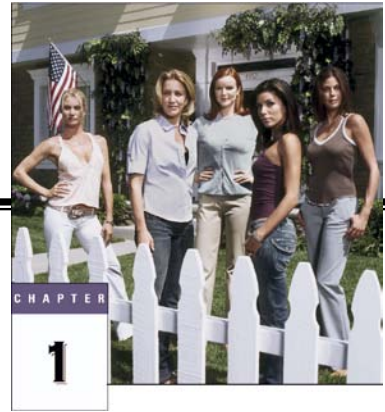# Chapter 1: Exploring Data

Key Vocabulary:

- distribution
- range
- spread
- frequency
- outlier
- center
- shape
- skewed left
- skewed right
- symmetric
- dot plot
- histogram

- stemplot
- split stems
- back-to-back stemplot
- time plot
- mean
- Σ
- $\overline{x}$
- nonresistant
- median
- resistant
- quartiles
- Q_1, Q_3

- IQR
- five-number summary
- minimum
- maximum
- boxplot
- modified boxplot
- standard deviation
- variance

Calculator Skills:

- round( )
- sortA( )
- sum
- mean
- 1-Var Stats

- ENTRY
- ANS
- ZoomStat
- TRACE
- WINDOW

1.1   Displaying Distributions with Graphs (pp.39-68)

1. What type of data are *pie charts* and *bar graphs* used for??

2. How do you make a *stemplot*?

3. When is a *back to back stemplot* useful?

4. When is it advantageous to split stems on a stemplot?

5. How is the *stemplot* of a distribution related to its histogram?

6. What is a *histogram*?

7. When is it better to use a *histogram* rather than a *stemplot* or *dotplot*?

8. What is meant by *frequency* in a histogram?

9. What is the difference between a *bar-graph* and a *histogram*?

10. When examining a distribution, you can describe the overall pattern by its

    S_____   O_____   C_____   S_____

11. When setting a window for constructing a histogram on the TI-83/84+:

    a. What is the significance of Xscl?

    b. How do you choose the values of Xmin and Xmax?

    c. What is the significance of Ymax?

12. Define *outlier*.

13. If a distribution is *symmetric*, what does its histogram look like?

14. If a distribution is *skewed right*, what does its histogram look like?

15. If a distribution is *skewed left*, what does its histogram look like?

16. What is the difference between *cumulative frequency* and *relative cumulative frequency*?

17. What is an *ojive*?

18. When is it useful to construct a *time plot*?

1.2   Describing Distributions with Numbers (pp.69-103)

1. In statistics, what are the most common measures of center?

2. Explain how to calculate the *mean*, $\overline{x}$.

3. Explain how to calculate the *median*, *M*.

4. Explain why the median is *resistant* to extreme observations, but the median is *nonresistant*.

5. What is the difference between *"average"* value and *"typical"* value?

6. In statistics, what is meant by *spread*?

7. Explain how to calculate Q_1 and Q_3 and *IQR*.

8. What is the *five-number summary*?

9. Describe a *boxplot*.

10. When does an observation become an *outlier*?

11. What does *standard deviation* measure?

12. What is the relationship between *variance* and *standard deviation*?

13. When does *standard deviation* equal zero?

14. Is *standard deviation* resistant or nonresistant to extreme observations? Explain.

15. Use a five number summary when…

16. Use $\bar{x}$ and *s* when…

17. How does a multiplying data by a constant, affect the mean, median, IQR and range of data?

18. How does adding a constant to data, affect the mean, median, IQR and range of data?

19. The Data Analysis Toolbox (p93) is designed to help you organize your thinking when investigating a statistical problem involving data sets.

Summarize the Data Analysis Toolbox below:

Plot your data
Dotplot, Stemplot, Histogram

Interpret what you see
Shape, Center, Spread, Outliers

Choose numerical summary
$\bar{x}$ and s, Five-Number Summary