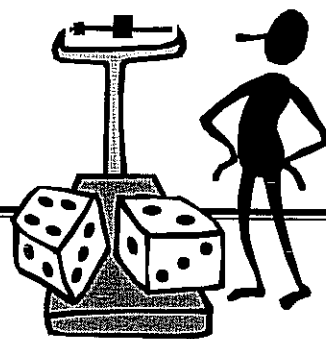


Chapter 1: Stats Starts Here

Chapter 2: Data



Key Vocabulary:

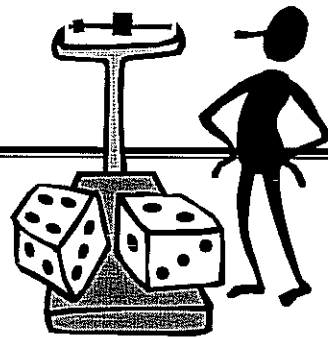
- | | | |
|---------------|---------------------|----------------|
| ▪ Statistics | ▪ subject | |
| ▪ data, datum | ▪ participant | |
| ▪ variation | ▪ experimental unit | |
| ▪ individual | ▪ observation | ▪ categorical |
| ▪ respondent | ▪ variable | ▪ quantitative |

Calculator Skills:

- | | | |
|------------------------|-------------------|-------------------|
| ▪ enter data in a list | ▪ delete a datum | ▪ recreate a list |
| ▪ change a datum | ▪ name a new list | ▪ copy a list |
| | ▪ clear a list | |
| | ▪ delete a list | |

1. Name three things you learned about *Statistics* in Chapter 1.
 -
 -
 -
2. The authors claim that this book is very different from a typical mathematics textbook. Would you agree or disagree, based on what you read in Chapter 1? Explain.
3. According to the authors, what are the “three simple steps to doing *Statistics* right?”
4. What do the authors refer to as the “W’s of data?”
5. Why must data be in context (the W’s)?
6. Explain the difference between a *categorical variable* and a *quantitative variable*. Give an example of each.

Chapter 12: Sample Surveys

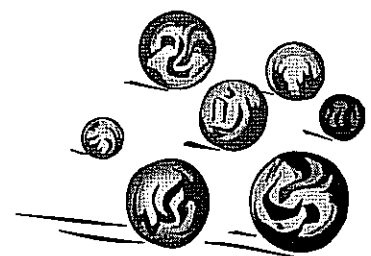


Key Vocabulary:

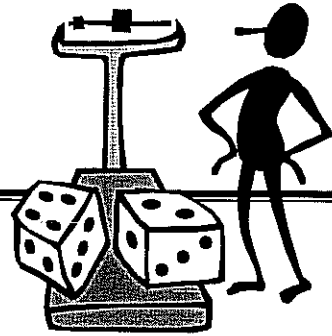
- population
- sample
- sample survey
- biased
- randomization
- census
- parameter
- statistic
- Simple Random Sample (SRS)
- sampling frame
- sampling variability
- homogeneous groups
- heterogeneous groups
- strata
- stratified random sample
- cluster sampling
- multistage sampling
- systematic sampling
- respondents
- voluntary response sample
- convenience sampling
- undercoverage
- nonresponse bias
- response bias

1. Explain the difference between a *population*, a *sampling frame*, and a *sample*.
2. What does it mean for a sample to be *representative* of a *population*?
3. What is meant by a *biased* sample?
4. What is the role of *randomization* in selecting a sample?
5. What is meant by a *census*? Why is a *census* often impractical?
6. Explain the difference between a *parameter* and a *statistic*.
7. A *Simple Random Sample* (SRS) must satisfy what two conditions?
8. What is meant by *sampling variability*?

9. When is *stratified random sampling* useful?
10. When is *cluster sampling* useful?
11. What is meant by a *multistage sampling*?
12. When is *systematic sampling* appropriate?
13. In what way are *voluntary response samples* often *biased*?
14. Why is *convenience sampling* unreliable?
15. What is meant by *undercoverage*? Give an example.
16. Explain the difference between *nonresponse bias* and *response bias*.
17. How can the wording of questions cause bias in a survey?



Chapter 13: Experiments



Key Vocabulary:

- | | | |
|-----------------------|-----------------------------|------------------|
| ▪ observational study | ▪ levels | |
| ▪ retrospective study | ▪ treatment | |
| ▪ prospective study | ▪ block | |
| ▪ experiment | ▪ completely randomized | ▪ double-blind |
| ▪ random assignment | ▪ experiment | ▪ placebo |
| ▪ subjects | ▪ statistically significant | ▪ placebo effect |
| ▪ participants | ▪ control | ▪ matching |
| ▪ experimental units | ▪ control group | ▪ confounding |
| ▪ factors | ▪ single-blind | |

1. Explain the difference between an *observational study* and an *experiment*.
2. Explain the difference between *experimental units* and *subjects*.
3. Why is it necessary to assign *subjects* to *treatments* at random?
4. Describe the four *Principles of Experimental Design*.
 - *Control*
 - *Randomization*
 - *Replication*
 - *Blocking*

5. Explain what is meant by a *control group*.

6. Define *statistically significant*.

7. What is the purpose of using a *single-blind* or *double-blind experiment*?

8. What is a *placebo*? What is meant by the *placebo effect*?

9. What is the purpose of using *blocking* in an *experiment*?

10. How might *confounding* affect the results of an *experiment*?

