Stats Unit 1 HW exercises #1-7,13,16,27

1. Sea Urchins (C) All the sea urchins near the plant.

2. Categorical (C) Flower color.

3. Quantitative (B) Flash drive capacity.

4. Type of voter - Categorical

5. Job situation - Categorical

6. 100 mg - quantitative

7. Heart rate increase - quantitative

13.   Who: 30 similar companies

         What: 401k contribution rates

16. Two variables: Distance from car to bikes is quantitative and helmet or no helmet is categorical.

27. Who- All auto manufacturers

         What- Vehicle type, weight, power, city mpg and highway mpg

         When- Currently being collected

         Where- US

         Why- The EPA uses information to track fuel economy.

         How- Data is collected for each model from each manufacturer.

         Quantitative data - weight, horsepower, city mpg and highway mpg

         Categorical data - manufacturer and type of car

Watch Out! What Can Go Wrong?

★ Don't label a variable as categorical or quantitative without thinking about the question you want it to answer.

★ Just because your variable's values are numbers, don't assume that it's quantitative (i.e., think about jersey numbers or zip codes).

★ Always be skeptical—don't take data for granted.

What have we learned?

- Statistics is about data
  - It helps us understand the world.
  - We seek to describe how much data varies.
- Data are information in a context.
  - The W's help with context.
  - We must know the *Who* (cases), *What* (variables), and *Why* to be able to say anything useful about the data.

What have we learned? (cont.)

- We treat variables as *categorical* or *quantitative.*
  - Categorical variables identify a category for each case.
  - Quantitative variables record measurements or amounts of something and must have units.
  - Sometimes we treat a variable as categorical or quantitative depending on what we want to learn from it, which means that some variables can't be pigeonholed as one type or another.

Name_____   *Statistics Chapter 1: Review A*

Without using your book, match each term with a description and one or more underlined parts of the examples below. Examples can be used for more than one term.

Term	Description	Example
Context	5	A
Data	6	C,D,F
Data table	1	■
Case	9	B
Population	7	E

Term	Description	Example
Sample	10	G
Variable	3	C,D,F
Unit	2	F
Categorical	8	C
Quantitative	4	D,F

Descriptions

1. information organized into rows and column
2. quantity using a standardized measurement
3. holds information about the same characteristic for all persons or things studied
4. types of values that are measurements
5. who, what, where, when, and how
6. information
7. the group of all the persons or things we wish we knew about
8. types of values that classify persons or things into separate groups
9. one person or thing for which we have information
10. the group of persons or things from which we can actually obtain information

Examples

- The <u>Federal Aviation Administration (FAA)</u> monitors <u>safety and customer service (A)</u>. For each <u>flight (B)</u>, the carrier must report the <u>type of aircraft (C)</u>, <u>number of passengers (D)</u>, whether or not the flights departed and arrived on schedule and any mechanical problems.

- The Entertainment Software Association published a study in 2014 about how the video game playing habits of <u>children and adults (E)</u> in the US. They surveyed the number of <u>hours spent playing video games (F)</u> of a "more than <u>2200 nationally representative households (G)</u>" and found that adult women play more video games than teenage boys.

Chapter 1 Notes – Stats Starts Here   *Homework*
                                         Quiz tomorrow

A. **Three Simple Steps to Doing Statistics Right**:

   1. Think - know where you're headed and why

   2. Show - calculate stats and make graphs

   3. Tell - explain your results to others so they can understand your
      conclusions

B. Data is useless without _____context_____ .

C. **The W's**:

   1. _____Who_____ (usually the __rows__ of a table)

   - Can be people, animals, plants, etc. This includes the individual cases
     about which we gathered the information.

   2. _____What_____ (usually the _columns_ of a table)

   - These are the variables (characteristics) being measured or recorded

   3. _____Why_____ - the purpose of the study (data)

   4. _____Where_____ - the place of data collection

   5. _____When_____ - when the data was collected

   6. _____How_____ - method of collecting the data

D. **Population** represents the _____entire_____ group of interest.

   Sample represents a ____portion____ of the group of interest.