Name:_____ Date:_____

Statistics Assignment #1

1. Identify each study as being either observational or experimental:
    a. Subjects were randomly assigned to two groups, and one group was given an herb and the other group a placebo. After six months, the numbers of respiratory tract infections each group had were compared
    Experiment because each group is assigned a variable
    b. A researcher stood at a busy intersection to see if the colour of the automobile that a person drives is related to running red lights

    Observation – no contact with those being observed

    c. A researcher finds that people who are more hostile have higher total cholesterol levels than those who are less hostile
    Observation – no controlled environment and nothing is done to the subjects

    d. Subjects are randomly assigned to four groups. Each group is placed on one of four special diets: low fat diet, high fish diet, a combination of low-fat diet and high fish diet, and a regular diet. After six months, the blood pressures of the groups are compared to see if diet has any effect on blood pressure
    Experiment because each group is assigned a variable

2. Researchers analyzed standardized test results and television viewing habits of 1700 children. They found that children who averaged more than two hours of television viewing per day when they were younger than 3 tended to score lower on measures of reading ability and short term memory. *(Seattle Times, July 6, 2005)*
    a. Is this an "Observation study" or "Experiment"?
    Observation – no controlled environment and nothing is done to the subjects

    b. Is it reasonable to conclude that watching two or more hours of television is the cause of lower reading scores? Explain?
    No, because there are other confounding variables involved. Ie: Kids that watch more tv before age 3 may have parents that are less supportive and spend less time fostering their kids' reading ability.

3. A study on children allergies led researchers to conclude that babies raised with two or more animals were about half as likely to have allergies by the time they turned six. (*San Luis Obispo Tribune*, August 28, 2002) . What are the potential confounding variables that illustrates why it is unreasonable to conclude that being raised with two or more animals is the cause of the observed lower allergy rate?

Kids who have pets may be more exposed to germs because of outdoor activies with pets. This may have built up their immune system against allergies.

4. Observational studies in recent years have concluded that moderate drinking of alcohol (espescially red wine) is the cause of reduced risk of heart disease. What are some of the confounding variables that can prevent us from making this conclusion?

   People who can afford to drink moderately may be more wealthy and also be able to afford better diets or medical care. Confounding variables →

5. The amount of protein (in grams) for a variety of fast food sandwiches is reported here. Construct:
   i) a frequency distribution using 6 classes ii) A histogram with a relative frequency distribution
   Iii) an ogive

23	30	20	27	44	26	35	20	29	29
25	15	18	27	19	22	12	26	34	15
27	35	26	43	35	14	24	12	23	31
40	35	38	57	22	42	24	21	27	33

6. State which graph: (Bar, Pie, or Line graph would be the best for each stituation)

   a. The number of stduetns enrolled at a local college for each year during the last five years

   b. The budget for the student activities department at a certain college for each year during the last five years

   c. The means of transportation the students use to get to school

   d. The percentage of votes each of the four candidates received in the last election

   e. The record temperatures of a city for the last 30 years

   f. The frequency of each type of crime committed in a city during the year