Designing Experiments

1. Pam decides that she wants to know what type of diet cola tastes best – Diet Coke, Caffeine Free Diet Coke, or Coca Cola Zero. So she invites a group of friends over for a taste test. She sets an unopened bottle of each type of soda on a table with some paper cups. Each of the participants pours some cola from each bottle into paper cups, marking the cups with the type of soda. Then they taste each type of diet soda and give Pam their rating – 1 (tastes awful) to 5 (tastes great).
    a.   Is this study an experiment? Why or why not?

    b.   What are some things she could do to make this study better?

2. It has been suggested that women and men differ in their political preferences. Women may be more likely than men to prefer Democratic candidates. A political scientist selects a large sample of registered voters, both men and women, and asks them whether they voted for the Democratic or Republican candidate in the last Congressional election.
    a.   Is this study an experiment? Why or why not?

    b.   What are some things the political scientist could do to make this study better?

3. Before a new variety of frozen muffins is put on the market, it is subjected to extensive taste testing. People are asked to taste the new muffin and two competing brands, and to say which they prefer. (The muffins are not identified in the test.)
    a.   Is this an experiment? Why or why not?

    b.   What are some concerns you might have regarding this study?

4. A group of students is interested in knowing if there is a correlation between attending an SAT Prep class and scores achieved on the SAT Examination. The students use a survey to collect their data from both students who took an SAT Prep class and those that did not take an SAT Prep class. A statistical analysis is performed.

      a. Is this an experiment? Why or why not?

5. Come up with and describe 2 different ideas for an Observational Study that you might be interested in completing.

      a. Idea One

      b. Idea Two