Name	Date	Period	DP

SAMPLING DATA WORKSHEET #2

1. Jamie is a hard-core computer programmer. She and all her friends prefer Jolt cola (caffeine equivalent to two cups of coffee) to either Coke or Pepsi (caffeine equivalent to less than one cup of coffee). Explain why Jamie's preference is not good evidence that most young people prefer Jolt to Coke or Pepsi?

- 2. One study of cell phones and the risk of brain cancer looked at a group of 469 people who have brain cancer. The investigators matched each cancer patient with a person of the same age, sex, and race who did not have brain cancer, then asked about the use of cell phones. Result: "Our data suggest that the use of hand-held cellular phones is not associated with risk of brain cancer."
 - a. Is this an observational study or an experiment? Justify your answer.
 - b. Based on this study, would you conclude that cell phones do not increase the risk of brain cancer? Why or why not?
- 3. An educational software company wants to compare the effectiveness of its computer animation for teaching biology with that of a textbook presentation. The company gives a biology pretest to each of a group of high school juniors, and then divides them into two groups. One group uses the animation, and the other studies the test. The company retests all students and compares the increase in biology test scores in the two groups. a. Is this an observational study or an experiment? Justify your answer.
 - b. If the group using the computer animation has a much higher average increase in test scores than the group using the textbook, what conclusions, if any, could the company draw?
- 4. What is the best way to answer each of the questions below: a survey, an experiment, or an observational study? Explain your choices. For each, write a few sentences about how such a study might be carried out.a. Are people generally satisfied with how things are going in the country right now?

b. Do college students learn basic accounting better in a classroom or using an online course?

- c. How long do your teachers wait on average after they ask the class a question?
- 5. Students in a high school mathematics class decided that their term project would be a study of the strictness of the parents or guardians of students in the school. Their goal was to estimate the proportion of students in the school who thought of their parents or guardians as "strict". They do not have time to interview all 1000 students in the school, so they plan to obtain data from a sample of students.
 - a. Describe the parameter of interest and a statistic the students could use to estimate the parameter.
 - b. Is the best design for this study a sample survey, an experiment, or an observational study? Explain your reasoning.
 - c. The students quickly realized that, as there is no definition of "strict", they could not simply ask a student, "Are your parents or guardians strict?" Write three questions that could provide objective data related to strictness.

d. Describe an **appropriate method** for obtaining a sample of 100 students, based on your answer in part (a) above.