Students in a South Central High School mathematics class decided that their term project would be a study of 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 an online questionnaire.

1. What type of study is this?

   This is a sample survey because they use a questionnaire to obtain the data.

2. Describe the characteristic of interest.

   The characteristic of interest is the topic that the researchers want to know more about. In this case it is whether students think their parents are strict.

3. Identify the population.

   The population is the group that the researchers want to draw a conclusion about. In this case it is the students of South Central High School.

4. Identify the sample.

   Students at South Central High School who take the online questionnaire.

5. State any bias you think might occur in this study.

   Since the questionnaire is posted online, only students that have access to the questionnaire can take it.

ADDITIONAL PRACTICE:

Match each definition to its corresponding term.

1. a study that gathers data about a characteristic of the population by simply observing and describing events in their natural settings	**a.** biased sample
2. a survey that poses one or more questions of interest to a sample of a targeted population	**b.** sample survey
3. members of the sample for an experiment	**c.** random sample
4. the specific question that you are trying to answer or the specific information you are trying to gather	**d.** characteristic of interest
5. a situation that occurs when there are other possible reasons for the results to have occurred that were not identified prior to the study	**e.** confounding
6. a sample that is not representative of the population	**f.** observational study
7. an experimental condition used on treatment groups	**g.** experiment
8. a process that gathers data on the effect of one or more treatments on the characteristic of interest	**h.** treatment
9. a sample that is selected from the population in such a way that every member of the population has the same chance of being selected	**i.** experimental unit

Identify the population and the characteristic of interest for each of the following:

1. In a survey, 100 randomly selected town residents were asked how many years they have lived there.

2. A yogurt company wants to know whether the amount of sugar in its yogurt has a significant effect on its taste. The company tests two different yogurts, one with less sugar, on 435 kids.

3. A study is being done to see whether body mass index (BMI) is linked to a higher risk of getting the common cold. A sample of 4565 American adults is surveyed. Their BMI and number of colds in the past year are recorded.

Classify each as a sample survey, an observational study, or an experiment. Explain your decision.

1. A principal at a school wants to determine whether playing in the band has an impact on students' grades. She used the school's database to determine the proportion of students in the band who have a GPA of 3.0 or higher.

2. A farmer wants to determine whether a nutritional supplement will have an effect on cows' milk production. For one week, he gives the supplement to half of his cows and then measures their milk output. Then, he compares the milk output of the cows that took the supplement with the milk output of the cows that did not get the supplement.

3. A random sample of registered voters are asked whether they will vote in the midterm elections.