

LESSON
8-3

Practice

Surveys, Experiments, and Observational Studies

Explain whether each situation is an experiment or an observational study. The first problem has been completed for you.

1. A park ranger measures the change in height of all trees of a similar species and age over a month. Half the trees are within a quarter of a mile from a large lake and half are further away.

Observational study; the park ranger gathers data without controlling the individuals or applying a treatment.

2. A park ranger plants 10 trees within a quarter of a mile from a large lake and 10 trees of a similar species and age further than half of a mile from the lake. He then measures the growth of all trees over a month.

3. A caretaker at a zoo records the sleeping habits of the wildcats at the zoo for a month.

The study described below is a randomized comparative experiment.

Describe the treatment, the treatment group, and the control group.

The first problem has been completed for you.

4. A researcher feeds one group of rats high-fat and high-calorie foods like cheesecake, bacon, and pastries. She feeds a second group of rats a normal, nutritious diet. For two weeks, the researcher records how many calories each rat eats daily, as well as how often it goes to its feeding bowl. She compares the data from the one group to the data from the other and finds that the rats that eat the nutritious food get hungry less often and eat a smaller number of calories overall.

The treatment is *feeding high-fat and high-calorie foods*. The treatment group is the rats that were fed the diet that was not nutritious. The control group is the rats that were fed the nutritious diet.

5. A college professor wants to know if students learn as well in an online class as in person. He decides to offer the same course both online and in a classroom. Students who sign up for the course are told they will be assigned to either class randomly. The professor then gives the same test to both classes and compares the scores.

Explain whether the research topic is best addressed through an experiment or an observational study. Then explain how you would set up the experiment or observational study.

7. Does being a smoker cause people to get minor sicknesses more often?