

**LESSON
6.5****Practice B**

For use with the lesson "Compare Surveys, Experiments, and Observational Studies"

Tell why the question may be biased or otherwise introduce bias into the survey. Describe a way to correct the flaw.

1. "Don't you agree that replacing the old chairs in our school's auditorium with comfortable new chairs will make the auditorium even better?"
2. "Do you support the mayor's tax proposal?"
3. A fireman asks students, "Do you have smoke detectors in every room in your house?"

Determine whether each situation is an example of an *experiment* or an *observational study*. Explain.

4. A professional painter wants to determine whether a paint additive will eliminate brush and roller marks on walls. She paints 2 walls with the additive and 2 walls without the additive without knowing which paint contains the additive.
5. A veterinarian studies the effectiveness of a flea-and-tick protection that is applied to dogs once a month by monitoring 50 randomly selected dogs that already use the protection and 50 randomly selected dogs that do not use the protection.
6. Determine whether the study described in the report at the right is a randomized comparative experiment. If it is, describe the treatment, the treatment group, and the control group. If it is not, explain why not and explain whether the conclusions drawn from the study are valid.

Racing Cyclists Prefer Disc Wheels

A recent study by a bicycle wheel manufacturer shows that disc wheels are more aerodynamic than regular spoked wheels. The study observed 75 randomly selected cyclists who rode bicycles with disc wheels in a wind tunnel and 75 randomly selected cyclists who rode bicycles with spoked wheels in a wind tunnel. The cyclists using disc wheels had less drag 83% of the time.

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

7. You want to know if students in your class will finish their math homework faster if they are allowed to use calculators.
8. You want to know if grocery stores in the city have higher prices than grocery stores in suburbs of the city.
9. Describe how you would set up a randomized comparative experiment to investigate the hypothesis below. Include any precautions you would take to ensure that your conclusions are valid.

Applying an anti-reflective coat to your eyeglasses will reduce the glare you see.