

Observational Field Studies

Goal • Collect and evaluate information about organisms in their natural environments.

Think About It

All scientific inquiries begin with observations. During a *field study*, a scientist observes organisms in their natural environments.

Safety Precautions

- Pay attention to the safety rules given by your teacher. Your teacher may ask you and your parent(s) or guardian to sign a Safety Contract before you begin your field study.
- Follow your teacher's instructions about what to bring for the trip. Wear appropriate clothing and shoes. Bring water to drink, sunscreen, and insect repellent if needed.
- When in the field, keep watch to avoid tripping, being poked by branches, or touching poisonous plants. Protect your face when you are walking among bushes or trees.
- Be particularly cautious near rivers, lakes, or dangerous land features such as cliffs.
- Try not to disturb the area of your study any more than you have to. If you must move something, do it carefully. Replace objects where you found them. If you are asked to remove organisms or nonliving material, be gentle. Take as little as possible.
- Treat living organisms with respect and caution. Avoid touching them if possible. It is best not to remove living organisms from their natural habitats, but if you are asked to do so, return them when your work is done. Make sure you treat all animals humanely.
- Wash your hands when you return.

What to Do

Follow these steps to conduct an observational field study.

1. **Choose a topic:** What organism or relationship between organisms will you study? (You may need to make a short visit to the site to decide on your topic and how you will study it.)

2. **Design and create a study plan.**

- (a) What question(s) will you investigate?

- (b) What do you expect to discover? Write a hypothesis and/or a prediction.

- (c) Where will you go to make observations and collect data?

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- (d) On a separate piece of paper, list the steps you will follow during your field study.
- (e) Prepare data tables or observation tables. Include a place to record the time and the weather conditions (sunlight, rainfall, wind) for each set of observations.
- (f) List the materials and equipment you will need.

- (g) If needed, do research on the organisms or habitats you will be observing.

3. Gather data and record observations.

- (a) Record the time and weather conditions when you start your observations.
- (b) You will probably take observations from several different *quadrats* (squares that mark off specific areas for study).
 - Choose a small area at random, and measure out a quadrat. Record the size of the quadrat. (Each quadrat must be the same size.)
 - Record your observations for that quadrat. Try to avoid disturbing the organisms and habitats.
 - When you are finished, measure out a new quadrat and repeat your observations. Record your data and observations.

4. Analyze your data.

- (a) If you used information from more than one quadrat, calculate the average values for your measurements. (See the sample calculation in Investigation 1-E, page 21 of your textbook.)
- (b) Look for patterns in your observations and data. (What is most common? least common?)
- (c) Present your results using tables, drawings, and/or graphs.

5. Conclude and evaluate.

- (a) Prepare a written or oral report of your findings.
- (b) Discuss your results with the class.
- (c) Evaluate your study. What would you change if you could repeat the investigation?
