Name _____ Class _____ Date _____

Exploration Lab

FIELD ACTIVITY

Exploring Local Biodiversity

Biodiversity might mean little more than that there are many different species of living organisms on Earth. But if this were all it meant, why should we try to conserve or protect wild plants and animals? Why should we care if an undiscovered beetle or unknown weed becomes extinct? Biodiversity on many levels is an important environmental resource. Human beings depend on other species for food, clothing, building materials, medicines, and the other necessities and comforts of life.

Living creatures work together to provide valuable services such as purifying our air and water, preventing soil erosion, recycling energy and nutrients, and replenishing the oxygen that we need to breathe. They may even affect local climate and weather conditions. Endangered species of plants and animals may have properties still undiscovered that can combat disease or provide new food sources. In this field activity, you will find and classify a variety of different organisms from your school environment. Then you will consider the importance of the organisms that you identify to the ecosystem and their value to human society. You may work in teams or in small groups of three to four members.

OBJECTIVES

Locate organisms in a local area.

Organize data into categories.

Differentiate organisms by taxonomic classifications.

Appraise the value of different species.

MATERIALS

- bug boxes
- clipboards
- collecting jars, wide-mouth
- field guides
- forceps or tweezers
- gloves, disposable
- hand lens
- nylon stocking or cheesecloth
- paper or notebook
- pen or pencil
- plastic bags for leaves
- rubber bands
- tote bag
- yardstick or meter stick or tape measure

Procedure

1. Go outside with your teammates to an area near your school selected by your teacher. Take along a yardstick, meter stick, or tape measure. Use a branch to mark out an observation square in the earth the length of the measuring stick on each side. Groups that study trees should map out an appropriate area.

2. Your assignment is to find as many different kinds of organisms (plants/animals/fungi or other soil organisms) as you can in 10 minutes. Use the hand lens and the data table below to keep track of your observations. Place larger organisms in a bug box or collecting jar to observe. You could use a tick mark to record each new organism discovered in your observation area.

Location of study _____	
Species type	**Number of organisms observed**
Plants	
Animals	
Fungi and other soil organisms	

3. Select a reporter for your team. As a group, make a list of those organisms that team members have spotted. Only list those organisms that all team members saw during the observation period. Organize your findings into more specific categories such as birds, insects, grasses, trees and so on. Record your findings below.

_____

_____

_____

_____

_____

4. If your team does not know the name of any organism observed, do one of the following:

a. Write a simple description of the organism and include its measurements.

b. Make a simple drawing or take a photograph of the organism. Give its approximate dimensions. Use the space provided below to record your group descriptions and any drawings of the organisms observed.

_____

c. If practical, collect the organism itself or bring back a part of it (without causing any harm). Treat all living things gently. To bring a live insect or other small animal specimens back indoors, place it into a collecting jar. Make the collecting jar as much like the organism's natural home as possible (with damp soil, leaves, plants, and a place to hide). Cover the jar with a nylon stocking or cheesecloth to provide air and secure it on the jar with a rubber band. Return any specimens to the site when you have finished with them.

5. After you have completed the field survey, put away your materials and restore the site. If you lifted any stones or branches to examine organisms, be sure to return the object to the same position when you are done observing.

6. Return to the classroom. Sit with your team. Your group reporter should share your findings with the entire class. If possible, enlist the aid of other students in identifying unknown specimens. Make a class list of all the different organisms recorded by all the field survey teams. Write them on the chalkboard or chart paper, use an overhead projector, or find another place where all class members can see the list.

Analysis

1. Classifying Data Spend about 15 minutes placing the entire list of organisms into groups that have the most similarity. Place the organisms into taxonomic groups. If your team does not know taxonomic classification, place them into broad groups that seem to make sense to your team members. You could use field guides to help with this organizational task. Describe the organizational scheme your group selected below.

2. **Making Evaluations** Spend about 8–10 minutes deciding which organism from your group's list is the most important and which organism is the least important. After that task is completed, spend another 10 minutes deciding which organisms from the total class list are the most and least important. Record your rankings and your reasoning.

3. Share your group decisions with the class about which organism from the class list is the most important and which organism from the class list is the least important. Discuss how each team arrived at their rankings.

Conclusions

4. **Defending Conclusions** Working on your own, review the rankings of species made by your classmates. Then make a list ranking the five key species in the area around your school, from most important to least important. Identify the values you used for the ranking process. Record your rankings and justify them below.

5. **Applying Conclusions** People make similar value judgments every day. How might value judgments influence decisions about environmental issues? Recall how the interdependence of species affects the balance of ecosystems. Record your ideas below.