

# Earth Connections



Ecology is the study of plants and animals—including people—and their environment. If you love nature—trees, animals, plants, raindrops, whatever—then you'll love the activities in this badge. You must do activity 1 in order to complete this badge.



## 1. Be an Ecologist: Your Study Area

Visit a natural area near where you live, such as a park or campsite. Mark out an area that is no larger than 20 paces square. This will be the "ecosystem" or community that you will study.

- List the plants and animals you observe in your ecosystem. Or count the number of different types present.
- Determine if you have different levels of plant life in your ecosystem, such as groundcover, shrubs, and trees. How do you think the different levels affect each other?
- Using a thermometer that measures air temperature, or your hand, take or feel the temperature at ground level and chest level in at least three different places within your ecosystem. Where is it the warmest, the coolest? What causes differences in temperature?
- Dig a small hole in the soil and note the different layers of soil. Feel and find out if there are differences in what the soil is made of and how it feels.

## 2. Traveling Through Time

Ecological succession—when one community replaces another over a period of time—is a natural process of change. A pond might fill in to become a meadow or a meadow might grow into a forest. Think of yourself as a time traveler. Draw what you might see in the future for two of the following sites:

- Lake or pond that has a marshy area at one end
- Fallen tree
- Vacant lot or a meadow
- Burned forest

## 3. Identify That Tree

Learn to identify ten tree species using leaves, seeds, fruit, and bark as a means of identification. Describe the kind of ecosystem where each is likely to be found.

## 4. Reading the Rings

Find a tree stump where you can read the growth rings. A year's growth consists of a light and a dark ring. In order to figure out how old a tree was when it died, count each dark ring and add five to the total number (for the early years when growth is hard to see). Look for years of rapid growth (the wider rings) and years of slow growth. What might have caused the differences in growth years?



## 5. Eco-Games

Help others understand relationships within an ecosystem by playing a game that shows how plants and animals depend upon each other. *Games for Girl Scouts* might help you.

## 6. Saving Animals and Plants

Visit a zoo or game preserve. Find out why the zoo or preserve exists, and if the zoo or preserve is doing any research to learn about and preserve species.

## 7. Adapt or Perish

Look for some examples of ways that plants or animals have developed or adapted in order to survive in their habitat. You might consider environments with little water or lots of water, those that are very hot or very cold, or even those environments that have been changed by humans.

## 8. Plants and People

Learn to identify five different plants that are native to your area.

Find out if American Indians or early pioneers used these plants for food, medicine, or something else, such as bedding or fuel. *Note:* Do not pick or eat any plants that you are studying without the supervision or permission of an adult.

## 9. Observing Change

Find out how animal or plant groups change. Make observations over a period of time by doing one of the following:

- Return to your study area during a different season and make the same observations. Look for examples of change.
- Keep track of the kinds and numbers of birds coming to a feeding station or special spot over several months. Are there differences at different times of the year?
- Choose a tree in your area. Record the changes you observe during a school year. Include signs of change, visitors, and anything else you notice.

## 10. Earth as an Ecosystem

Most environmental problems don't stop at state or country boundaries. Consider one of the following problems and learn what is being done in this country and abroad to protect the earth's ecosystems:

- Air pollution
- Mass cutting down of trees in rain forests
- Oil spills
- Over-fishing
- Running out of landfill sites for garbage

Come up with some ideas about what you might do as a creature in the earth's ecosystem to help ensure the survival of your habitat, and act on one of them.