

An Ecosystem is More than Its Parts

Essential Questions:

What is an ecosystem?

How do the different parts of an ecosystem work together to more than they can alone?

At a Glance:

Learners will work together to complete a puzzle. Each puzzle piece depicts a different biotic or abiotic (living or non-living) component of the Garden Earth ecosystem.

Background Information:

The term “ecosystem” can be difficult to grasp, especially to young learners. An ecosystem is composed of interacting parts, both living (plants, animals, fungi, and microorganisms) and non-living (water, soil, rocks, air, and sun), within a defined area.

Every place on planet Earth is an ecosystem. There are desert ecosystems, lake ecosystems and even urban ecosystems. Although we can think of ecosystems as fairly large entities, an ecosystem can be as small as a backyard pond. And, of course, every school site is part of an ecosystem.

A critical part of the ecosystem concept is that all parts of an ecosystem are connected, and what occurs in one part of the ecosystem will influence other parts. Healthy functioning ecosystems are in balance.

In the Garden Earth Naturalist curriculum, there are seven eco-services or ‘Departments’. These departments are Air Cleaning, Food Production, Pest and Disease Control, Water Purification, Soil and Recycling, Pollination, and Biodiversity. Each department is represented by a character who acts as manager for workers that help keep the department functioning efficiently with the work they do in their daily activities.

Getting Ready:

This activity involves a puzzle with 24 pieces. Depending on the number of participants, you may need to assign learners more than one puzzle piece, or there may be adult helpers that would like to participate too! Decide ahead of time what will work best with your group. The puzzle can be accessed from the GEN website at gen.uga.edu/index.html

Procedure:

1. Explain to learners that they will be working together to complete a puzzle.
2. Pass out puzzle pieces to learners.
3. Allow learners to each have a turn telling about the picture on his or her piece.
4. Ask a participant to start the puzzle by laying their piece on the floor or a large table.
5. Next, ask learners to raise their hands if they think they have a piece that belongs beside the first piece. You may need to guide learners in recognizing this.
6. Repeat step 5 until the puzzle is complete.
7. Tell learners that their pieces have worked together to make an ecosystem. Before each learner had only one part of an ecosystem, but when the parts are put together, they represent a whole ecosystem.

Location: Indoors or outdoors

Objective: Learners will

- 1) work together to complete a puzzle.
- 2) define the term of ecosystem.

Skills: cooperation

Supplies:

- GEN puzzle pieces

Subjects: science

Time: 15 minutes

8. Ask if learners have heard the word “ecosystem” before. Ask them to repeat it after you. Explain “ecosystem” by saying, “an ecosystem is a group of living and non-living parts that work together to do a lot of jobs. These jobs are: cleaning the air that we breathe; making the food we eat; making sure the flowers are pollinated so that there are fruits, seeds and baby plants; purifying the water we drink; recycling waste by decomposing things (breaking big things down into smaller parts that can be reused); keeping pests in balance; and making sure there is diversity among living things. (An ecosystem needs the differences of diversity to stay strong; the ecosystem would be weaker if everything looked the same and did the same work.) An ecosystem needs all of its workers to get all of its work done, and the workers cannot do the work of an ecosystem alone. Together the parts of an ecosystem make planet Earth a healthy place to live.”
9. Ask learners for examples of ecosystems that they may know about. Guide them in realizing that their yard at home is an ecosystem, the park is an ecosystem, and even their school yard is an ecosystem.
10. Tell learners that one way of explaining how an ecosystem works is to learn about the Garden Earth ecosystem. In Garden Earth, there are department managers that make sure that the work gets done to keep the ecosystem healthy. Introduce the department managers and the work that they are in charge of by pointing to their pictures on the puzzle pieces.

Department Manager	Department
Old Man Spruce	Air Cleaning
Madame Squirrel	Food Production
Ms. Mantis	Pest and Disease Control
Sugar Magnolia	Pollination
Oli Earthworm	Soil and Recycling
Great Blue Heron	Water Purification
Dr. Arrow	Biodiversity

Discussion/Assessment:

- Did you find all of the department managers in the puzzle?*
- Who or what else do you see?*
- What is their job?*
- What living things are on your school site?*
- What non-living things are on your school site?*
- Can you find places on your school site where ecosystem work is happening?*
- Are you part of an ecosystem?*
- What is your job?*

