



Pre-Program Resource

Garden Detectives

2nd-5th Grade

What is an Ecosystem? Mini Lesson & Craft

Duration: 30 minutes

Objective: To prepare students for their field trip to Tudor Place by introducing key vocabulary and concepts. Students will learn what plants and animals need to survive and grow. Students will explore the ways plants and animals live together in an ecosystem and need each other. Students will apply learning by drawing their own ecosystem.

NGSS Standards Met:

LS2.A: Interdependent Relationships in Ecosystems

- Plants depend on water and light to grow. (2-LS2-1)
- Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.

LS4.C: Adaptation

- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

LS4.D: Biodiversity and Humans

- There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

LS4.D: Biodiversity and Humans

- Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

Materials Needed:

Ecosystem craft template or blank drawing paper
Drawing materials (colored pencils, markers, crayons, etc.)

Introduction to Ecosystems Mini-Lesson

- Divide students into five or six groups. Assign each group a plant or animal that lives in the forest. Students will have three to five minutes to brainstorm what that plant or animal needs to live.
 - Tell students to be specific: don't say food, say berries, squirrels, etc.
 - *Example Groups:* Dandelion flower, blackberry bush, deer, rabbit, bear
 - *Guiding Questions for group brainstorming:*
 - What does it eat? What does it drink? Where does it sleep?
 - How does it get food? How does it protect itself? Does it have a home?
 - What does it breathe? Does it need water?
- At the end of the brainstorming time, have the groups share out what their plant or animal needed.
 - Write what each animal needs in a column on the board.
 - After all the groups have shared, ask students what they notice about the lists.
 - The different columns should, hopefully, list the other animals/plants as things needed to survive.
 - Ex) The Bear column might list blackberries, deer and rabbits as food.
 - Ex) The Rabbit column might list dandelion and blackberry bush as food.
 - They should all mention water, air and a place to live.
 - Ask students: Based on the lists, what do all of the plants need?
 - Water, sun, soil, air (If missed by the students, add these in.)
 - And what do all the animals need?
 - Food, water, air, a place to live (If missed by the students, add these in.)
- Explain that all of these plants and animals live together in the forest. This is called their **ecosystem**.
 - An **ecosystem** includes all of the living things, like plants and animals, and all of the non-living things in an environment.
 - What kind of things are in our forest ecosystem that *aren't* living? Encourage students to look at the lists on the board for ideas.
 - Students may list the plants. Remind them that plants are living. They are different than animals, but both plants and animals are living things.
 - Water, air, soil
 - What else? Rocks, mountains, waterfalls, etc.
- Ask students: In an ecosystem, do plants and animals need each other? How do you know?
 - Encourage students to cite the lists that they made as evidence.
 - This is called **interdependence**. Both plants and animals need each other to survive.
 - Ask students how the animals and plants in the forest they learned about are **interdependent**.
 - Ex) Bears eat blackberries, deer and rabbits.
 - Ex) Deer and rabbits eat dandelion flowers and blackberries.

- Ask students: What else lives in the forest? What else would be in the ecosystem with their plant/animal?
 - Write a list on the board of as many plants and animals as possible.
 - Ask students: What if there was a bad fire and half of these living things went away? (Then, erase half of them.)
 - Would the ecosystem be more healthy or less healthy? Why or why not?
 - Ecosystems are healthier when they have many types of plants and animals in them. The number of different plants and animals in an ecosystem is called **biodiversity**.
 - If there are many types of living things, the ecosystem can handle change better. This is called **resilience**.

Recap with students:

Option: Use the Ecosystem Review worksheet (below) and have students review either as small groups, one group or independently.

- Write a definition of an ecosystem in their own words.
 - Ex) An ecosystem is all of the living things (plants and animals) and all of the non-living things (rocks, water, air, etc.) in an environment.
- Write a definition of interdependence in their own words.
 - Ex) Interdependence is when plants and animals need each other to survive.
- Write a definition of biodiversity in their own words.
 - Ex) Biodiversity is how many different types of plants and animals lives in an ecosystem. More is usually better.
- What do plants need to live?
 - Soil, Sun, Water, air, a place to grow
- What do animals need to live?
 - Food, water, air, a place to live

Ecosystem Craft

Students will apply their knowledge of ecosystems to create an ecosystem of their own. They can draw on blank paper or use the ecosystem template below.

- Remind students this activity includes living and non-living things.
- *Challenge:* Try to make the ecosystem **biodiverse** by including as many different types of plant and animal species as possible that would logically exist in the same place.
 - Put as many ocean animals in the ocean as possible – don't put a moose in the ocean.

If time allows, have students share what place they chose, one plant, one animal and one non-living thing.

Glossary

Biodiversity: How many different plant and animal species live in an ecosystem. More is usually better.

Ecosystem: All of the living and non-living things in an environment.

Interdependence: When plants and animals need each other to survive.

Resilience: The ability of an ecosystem to handle change and thrive. It is connected to biodiversity.

Ecosystem Review Worksheet

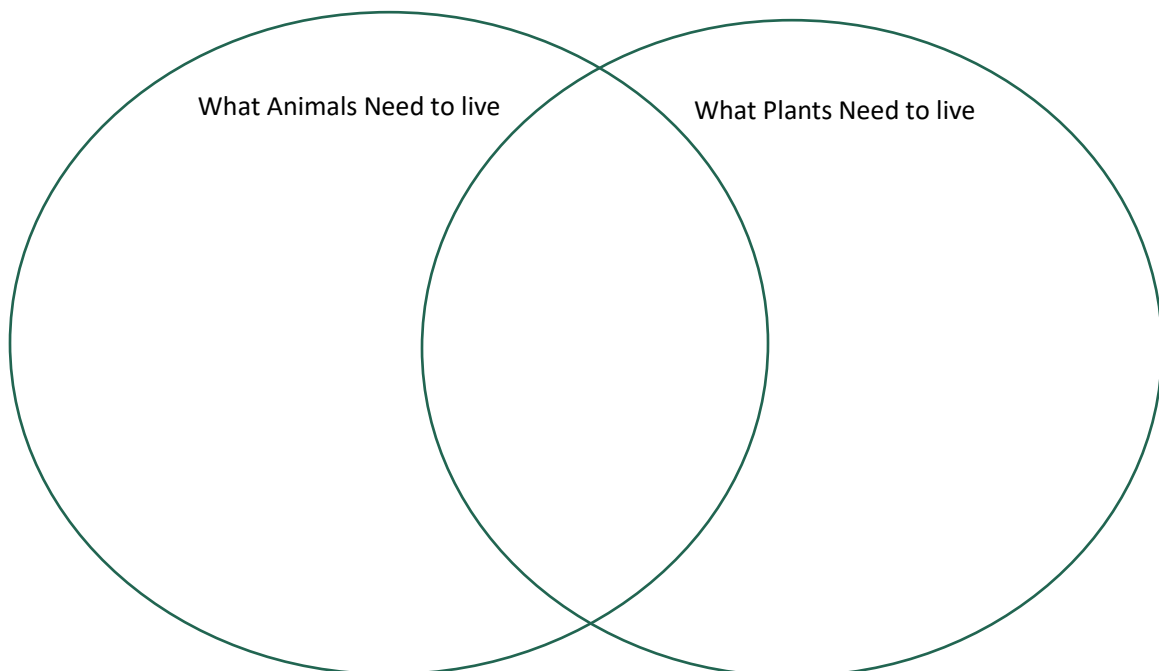
Name: _____

Instructions: Define the words using a full sentence. Then, fill out the Venn Diagram.

Ecosystem -

Interdependence –

Biodiversity –



's Ecosystem
