

PHILADELPHIA ZOO

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Pre-visit activity

Ecosystems (6th-8th)

In-School Activity

Food Webs and Ecology: Part I

Use the included worksheets to have students complete the following tasks.

As individuals: Have students work as individuals to describe a local ecosystem. They should include all the biotic and abiotic factors they can think of. This activity can be done outdoors and in the actual ecosystem if available. If not, research in books or on a computer works. Lists can be as specific as desired, and if time allows students can thoroughly research the different species that are found in their ecosystem.

In groups: Have students who worked on similar ecosystems work together to create food webs. Students should either write names or draw pictures of the plants and animals they want to include, then draw arrows from food to consumer. The arrow should point at the consumer and start from the food. Encourage students to think about all the relationships that occur within the ecosystem – it is rare that an animal only eats one type of food, or that a type of food only supports one type of consumer.

Standards

PA Academic: 3.1 A2, 3.1 A8, 3.4 B2, 3.4 E2, 4.1 A, 4.1 C, 4.1 D, 4.1 E, 4.3 B, 4.4 A, 4.4 D, 4.5 A, 4.5 B, 4.5 C, 4.5 D

Next Generation Science: MS-LS2-1, MS-LS2-3, MS-LS2-4, MS-LS2-5, MS-LS4-4, MS-LS2-2, MS-ESS3-3, MS-ESS3-4

New Jersey Core Curriculum: 5.1, 5.3C, 5.4G

Common Core: CCSS.ELA-LITERACY.RST.4, CCSS.ELA-LITERACY.RST.7, CCSS.ELA-LITERACY.W.7, CCSS.ELA-LITERACY.SL.1

Vocabulary

Ecosystem: All the biotic and abiotic factors interacting as a system

Environment: the interaction between physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon and organism or community to determine its survival

Sustainable: utilizing a resource so that the resource is not depleted or permanently damaged

Abiotic: All the non-living things in an environment

Biotic: All the living things in an environment

Recommendations

Read:

["The Lorax"](#) – Dr. Seuss

["Not Your Typical Book About the Environment"](#) – Elin Kelsey

Research:

- Items that are and are not recyclable in your school or town
- Ecosystems that have been impacted by an unsustainable practice

Discuss:

- What are some examples of sustainable choices that you or your family have made?
- What are some ways that we can help local ecosystems?

Food Webs and Ecology: Part I

- Students can work as individuals or in groups.
- Time needed: **60 minutes (2 30-minute parts)**
- Materials needed: writing utensils, scissors

Background Information

Most people are familiar with the concept of a 'food chain,' but food chains can never show the entire picture of an ecosystem. In real-life ecology, there are many complex and variable relationships among predators and prey. For this activity, students will explore a local ecosystem (either in person or through research) and construct a food web based on the living things they find there. Food webs display all the relationships between predator and prey in an ecosystem. They also show us how complex an ecosystem is, and begin to show us how important it is for all the parts of an ecosystem to balance the entire system.

Ecosystems can be any size and are truly found everywhere. An ecosystem can be a small pond, a stream in a forest, a backyard, or a schoolyard. Ecosystems can also be any one of the biomes found throughout the planet, including grasslands, rainforests, tundra, and deserts.

When students have completed this activity, you can ask them to think about the following questions:

1. What is the smallest example of an ecosystem you can think of?
2. Do humans belong to any ecosystems? If so, which ones?
3. What could happen to an ecosystem if one or more of the parts are removed? Can you think of any examples of this happening?

Describe your ecosystem

Choose an ecosystem and list all the plants and animals you can find there. If possible, use a local ecosystem and explore it in person!

Type of ecosystem: _____

Mammals

Birds

Reptiles & Amphibians

Insects & Fish

Plants & Fungi

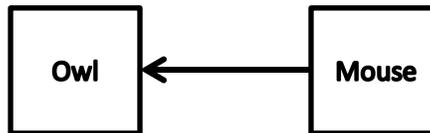
Abiotic (non-living)

Build a Food Web

Form a group with other students who worked on the same or similar ecosystems. Compare and contrast your lists of biotic and abiotic factors. Using the space below, draw a food web based on your ecosystem with these guidelines:

1. Draw boxes or circles to represent each part of your ecosystem. You do not have to include every part of the ecosystem, but you should include as many as possible.
2. Connect the parts of your food web using arrows. An arrow should be drawn **from food to consumer**.

Example: A mouse is prey for an owl.



3. Be sure to include all possible relationships. It is very unlikely that an animal only eats one type of food, and it is also unlikely that a type of food only supports one consumer.
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