

Outdoor Science! Week 1

Day 2: Investigating Ecosystem Interactions

Teacher/Parent Background:

- In this activity, students will complete an investigation to describe the levels of organization in your community's ecosystem. Student's will make observations of the ecosystem and use their knowledge of biotic and abiotic factors to explain how the organisms interact.

Related Standards:

- Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.

Key Terms:

Abiotic Factors

Biotic Factors

Ecosystems

Biosphere

Habitat

Niche

Species

Population

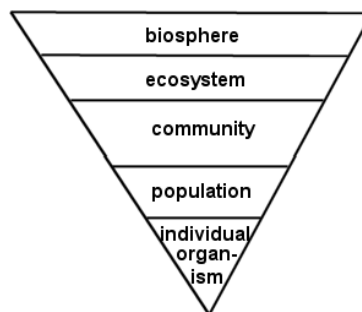
Materials List:

- Thermometer
- Spoon
- Hand lens
- Gloves
- Hula hoop

Activity Description:

Identify an area outside to be used for the field investigation. Look for areas that would have a variety of species. Coat hangers, wooden skewers, or hula hoops work well to stake an area.

- Identify one organism in your ecosystem. Draw a picture of your organism.
- Count the number of organisms you chose, in your investigation site, as accurately as possible. Draw a population of your organisms and describe the characteristics of the population.
- Identify other living organisms in your ecosystem. Think about how they interact with each other. Draw a picture of the community of your organisms and list all of the populations.
- Identify abiotic factors within your ecosystem. Record any data that you collect. This can include the temperature, soil color, and the presence of water.
- Describe the interactions of the different populations with each other in the space provided for biotic factors and the interactions with the non-living aspects of the ecosystem in the space provided for abiotic factors. Draw a picture of the ecosystem.



Closure:

Ask students the following questions:

-What is an ecosystem? How is it distinguished from a population and a community?*An ecosystem is a complete community of living organisms and non-living factors in a particular region. A population is one species. (Examples are lions, zebra, particular type of plant, etc.) A community is more than one species living in the same area.*

-How are you able to tell the difference between biotic and abiotic components, and why they are important to one another? *Biotic factors are living. Biotic components of an ecosystem are all living organisms, such as plants and animals. Abiotic factors are non-living components, such as sunlight, soil, water, and temperature. Living things rely on non-living things for survival.*

-Explain why it is not possible for different population types in the community to occupy the exact same niche within an ecosystem? *A niche is a very particular environment in which organisms of a population have evolved to live. Its position within the ecosystem is unique and as such does not support the needs of different populations within the community.*

Extension:

Watch & Play!

[-Levels of Organization](#)

[-Abiotic and Biotic Factors](#)

Using Technology-Energy Pyramids: Take pictures of all levels of organization in your ecosystem. Upload all images to a computer and create an energy pyramid using the images.