

Ecosystems 101 Grades 5-7

DESCRIPTION

Calling all nature explorers! Join a museum educator and discover the diversity to be found in how organisms transfer energy within an ecosystem. Next, head on into the Evolving Life Wing to investigate how ecosystems maintain balance. Save time after your program to explore our galleries and outdoor spaces to examine more findings!

OBJECTIVES

- While using a flipbook to guide thoughts, students begin to familiarize themselves with the terms used to describe different roles within an ecosystem.
- By making stops around the Perkins Wildlife Center to identify different types of producers and consumers, students will discover real-world examples of how energy is transferred between ecosystem roles.
- Through participation in a movement-based activity in the Evolving Life gallery, students will explore the ecosystem roles of once-living Museum specimens and predict what will happen to an ecosystem's balance when various factors are introduced.

OHIO'S LEARNING STANDARDS

GRADE 5

Science: Life Science – Interconnections within ecosystems

- 5.LS.1 Organisms perform a variety of roles in an ecosystem.
- 5.LS.2 All of the processes that take place within organisms require energy.

GRADE 6

Science: Life Science – Cellular to Multicellular

- 6.LS.4 Living systems at all levels of organization demonstrate the complementary nature of structure and function.

GRADE 7

Science: Life Science – Cycles of Matter and Flow of Energy

- 7.LS.1 Energy flows and matter is transferred continuously from one organism to another and between organisms and their environment.
- 7.LS.2 In any particular biome, the number, growth, and survival of organisms and populations depend on biotic and abiotic factors.



Before your Program

If this will be your first trip to the Museum for some of your students, you may want to discuss the following questions:

- What is a Museum? Why are we going to the Cleveland Museum of Natural History?
- How should we handle objects at the Museum?
- Use the vocabulary and additional resources provided in this Teacher Guide to preview or review program content with your class.

VOCABULARY

abiotic – non-living parts of the environment (ex. rocks).

biotic – living components of an environment, relating to or resulting from living things. (ex. Plants, birds, fish).

carnivore – a primarily meat-eating animal. Carnivore teeth are all sharp and pointed.

consumer – an organism that feeds on plants or other animals for energy.

decomposer – an organism that breaks down organic materials (Fungus, Bacteria & Invertebrates).

ecosystem – A community of organisms (biotic factors) and their non-living physical environment (abiotic factors) interacting with and depending upon one another in a specific area.

energy – The ability to do work.

food chain – the transfer of energy by an organism consuming another.

food web – A complex network of interconnected food chains in an ecosystem.

herbivore – a primarily plant-eating animal. Herbivores have teeth that tend to be flat or rounded.

omnivore – an animal that readily eats both plants and meat. Omnivores tend to have many different teeth with many different shapes.

organism – Any living thing.

photosynthesis – The process by which plants and certain other organisms take the energy from sunlight to convert carbon dioxide and water into glucose and oxygen (i.e., creating



their own food by storing light energy as chemical energy).

predator - An organism that hunts and eats other organisms.

Prey - An organism that is hunted and eaten by another organism.

producer - a living organism that makes its own food from sunlight, air or soil.

scavenger - An organism that primarily feeds on dead or decaying organisms.

trophic level - An organism's position within a food chain, with the lowest level being producers (like plants) and higher levels being consumers.

EXTENSION ACTIVITIES

ECOSYSTEMS SCAVENGER HUNT

- Get your students exploring the outdoors – this can be any park, green space, or even just your school's property.
- Students should be asked to find different types of living and non-living organisms. Teachers may create the list, but some ideas include:
 - A producer
 - A consumer
 - A decomposer
 - Something non-living (i.e., an abiotic factor)
 - Something living (i.e, a biotic factor)
 - A living thing interacting with a non-living thing
 - Two living things interacting with each other
- This activity can be done as a whole class, or teachers can send groups of 2-3 students out. Afterwards, return to the group and talk about what you found!

BE A NATURALIST

- Take students outside to a predetermined area – like the scavenger hunt activity, this can be at a local park, green space, or your school property. Aim to find somewhere that has different types of plants, animals, and nonliving things if possible.
- In small groups, toss a hula hoop onto the ground and have students draw and take notes about what they see inside the hula hoop. After a set amount of time, each group should share what they found.
- This can be a standalone activity or may be paired with the scavenger hunt. If pairing activities, consider tossing the hula hoops and having students see if they can find the items on the scavenger hunt, but only within their hula hoops to add a layer of difficulty.



ONLINE RESOURCES FOR TEACHERS AND STUDENTS

Click the link below to find additional online resources for teachers and students. These websites are recommended by our Museum Educators and provide additional content information and some fun, interactive activities to share with your class.

CMNH Educators regularly review these links for quality. Web addresses often change so please notify us if any links have issues.

[Cleveland Museum of Natural History](#)

[National Geographic Education](#)

[U.S. Geological Survey - Educational Resources](#)

[Laney Lee -- Middle School Ecosystem Lesson Ideas](#)

Cleveland Museum of Natural History <http://www.cmnh.org>

