Ecosystems

Lesson Plans and Activities for your Classroom and while Visiting the Utica Zoo

UTICA ZOO

Ecosystems

Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect. ~Chief Seattle, 1855

Subject
Science

Grade
4th -8th

Standards:
Key Idea : Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

LS1.C: *Organization for Matter and Energy Flow in Organisms*

* All animals need food, air, and water in order to live, grow, and thrive. Animals obtain food from plants or from other animals. Plants need water, air, and light to live, grow, and thrive.

ESS2.E: *Bio-geology*

* Plants and animals can change their environment.

ESS3.C: *Human Impacts on Earth Systems*

* Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.

Overview:

A habitat is the place where an organism naturally lives and grows. An ecosystem is all of the interacting parts of a natural area or habitat, including biotic (living) and abiotic (non-living) factors. A mouse's habitat might be the field where it lives. The ecosystem would include all of the plant and animal species in the field, as well as the precipitation, streams and soil. An ecosystem relies on a healthy balance of producers and consumers and predators and prey.

As students explore the zoo, they will identify what the animals at the zoo eat, record data, and draw conclusions about what they see.

Concepts:

♦ An ecosystem is an area of any size in which a community of organisms (biotic) and its environment (abiotic) interact and through which nutrients and energy cycle.

♦ Organisms can be categorized by the functions they serve in an ecosystem: producers, consumers or decomposers.

♦ Organisms in an ecosystem have dependent and interdependent relationships.

♦ Essential elements of an ecosystem include both the organisms within the ecosystem and the physical attributes of the ecosystem, including weather and climate.

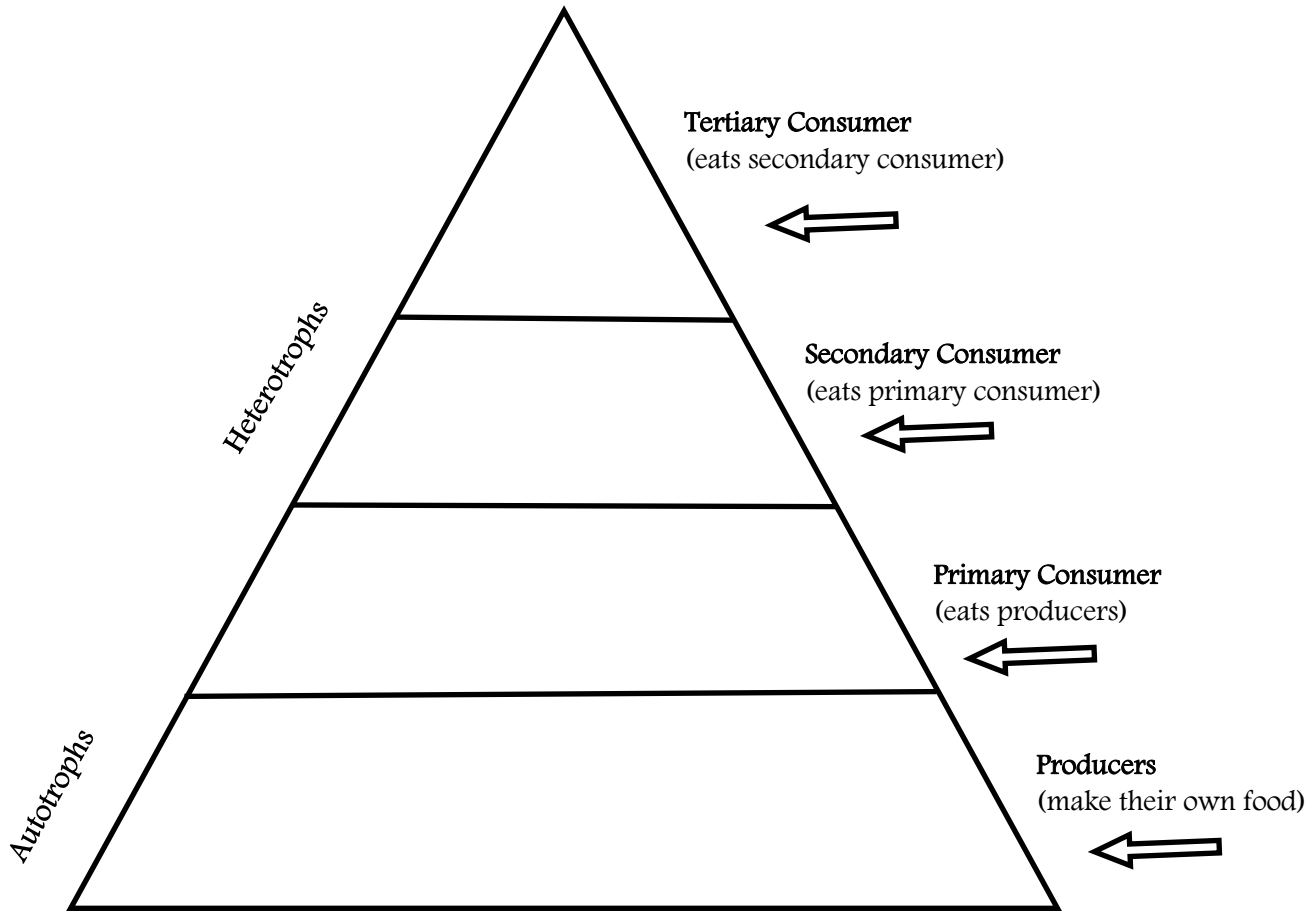
Vocabulary:

Autotroph: an organism that makes its own food
Carnivore: an animal that kills and eats other animals
Community: all of the plants and animals that live in an area .
Consumer: name given to animals because they must eat food to get energy
Ecosystem: an area of any size in which a community of organisms and its environment interact and through which nutrients and energy cycle.
Food Chain: is the sequence of who eats whom in an ecosystem.
Herbivore: an animal that feeds on producers such as plants, algae or lichens
Heterotroph: An organism that eats other organisms (plants or animals)
Interdependence: the reliance of plants and animals on each other for survival
Omnivore: an animal that eats both plant and animal matter
Predator: an animal that obtains food by killing and eating other animals
Prey: an animal that is killed and eaten by other animals.
Producers: a name given to green plants because they can make their own food
Scavenger: an animal that feeds on other dead animals for all or part of its diet.

Essential Question: How do different parts of the environment interact with each other?

Ecosystem Interactions

The food of almost any kind of animal can be traced back to plants. Some animals eat plants for food, and some animals eat the animals that eat plants. While visiting the zoo, write the names of the animals you see in the pyramid below.
To place them in the correct tier, consider what that animal eats. If you have time, you may also draw a few of the animals you saw in the pyramid.



1.) In the pyramid above, plants belong in the _____ level.
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2.) Animals that eat grass are _____ consumers.

3.) Lions are _____consumers.

4.) Which consumer level did you see the most of today? Why do you think that is the case?

5.) Does matter (energy) move up or down the pyramid as organisms are consumed?

Food Chains

Ecosystems will only survive
If balanced food chains keep species alive
Too much of this, too little of that,
Threatens a healthy habitat. ~ Pass the Energy Please by Bar~

EXPLORE AND FIND

A small carnivore (meat eater) and a large carnivore.

_____

What hunting strategies do you think these two carnivores use? How could large size be an advantage? How could small size be helpful?

A small animal that is prey (eaten by other animals) and a large animal that is prey.

_____

What adaptations do these animals have that might help them avoid predators? If you were a predator, how would you capture the small animal? What new challenges would you have trying to catch the large animal?

An omnivore (meat and plant eater).

_____

What adaptations does this omnivore have for feeding? How does being an omnivore help an animal survive?

Food Chains ~ Page 2

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An herbivore (plant eater) eating plants.

_____

Is this herbivore grazing (eating grasses) or browsing (eating shrubs and bushes)? What part of the plant is it eating?

Draw an example of a food chain that you see at the zoo.