This Old Habitat Activities

Part II - Interdependence and This Old Habitat

To prepare for this activity read the background information on *Activity Page #2C*. With the students, discuss the concept of interdependence. It is not important to discuss the different kinds of interdependence at this time. Hand out *Activity Sheet #2A* to each student. Review the instructions, and have them work on the activity while watching the video.

After watching the video, ask students to name examples of interdependence they recorded while watching *This Old Habitat*. List these examples on the board. Using the Interactions Checklist, *Activity Page #2B* and the video review some of the interactions that the students did not record or recorded incorrectly.

Hand out *Activity Page #2C, the Background Information* sheet. Read through the information as a class. Now go back to the examples of interdependence identified in the video and classify each example of interdependence as mutualism, predator/prey, etc. Have students record the type of interaction on their *Activity Sheet #2A.*

Activity Page #2A

Examples of Interdependence in *This Old Habitat*

The show, *This Old Habitat,* has many examples of animals and plants that depend on each other.

As you watch the show, record as many examples of interdependence as possible.

Activity Page #2B
Interactions Checklist

Examples of interactions given in *This Old Habitat*, (with location on video.)

Waterfall Glen
03:35 Grasshopper eats grass (producer / consumer)
02:50 Birds and animals eat grasshopper (predator / prey)
03:10 Grass provide cover for grassland birds, and nesting (commensalism)
03:30 Shelter and runways under grass (commensalism)
04:00 Birds nest and forage in trees (commensalism)
04:10 Deer browsing (producer / consumer)
05:10 Acorns eaten by squirrels, wood ducks, deer, birds (producer / consumer)
05:20 Fly larvae live in acorn (parasitism)
05:30 Mice eat acorns (producer / consumer)
05:30 Hawks eat mice (predator / prey)
06:00 Little animals eat the plants (producer / consumer)
06:40 Shelf fungus living off dead, decaying log (decomposer)
07:15 Carrion flower pollinated by flies (mutualism)

Mayslake
11:55 Mice chew on bones to get calcium (scavenger)
13:00 Milkweed beetles eat milkweed seeds (producer / consumer)
13:15 Bird or predatory insect may eat milkweed beetle (predator / prey)
13:30 Monarch butterfly dependent on milkweed
Eggs laid and larvae feed on leaves (producer / consumer)
Chrysalis formed on plant by larvae (commensalism)
Note: Adult Monarch butterfly pollinates flowers for nectar (mutualism)
Note: unlike many other co-evolution plant-insect cases of larvae adapted to eating certain plants, the monarch goes a step further and serves as a pollinator when an adult.
14:25 (repeat) Insects eaten by birds, larger insects (predator / prey) and rodents eaten by hawks (predator / prey)

Oak Savanna, Indiana Dunes National Lakeshore
17:40 Preying Mantis egg case on plant (commensalism)
19:05 Paper Wasp nest on tree or shrub (commensalism)

Activity Page #2C
Background Information

All organisms within a habitat play a certain role in the food chain; they are either producers, consumers, or decomposers. A food chain is really an energy chain. Energy from the sun is captured by the producers and passed on to the consumers. A producer is a green plant able to make its own food by photosynthesis. A consumer is an organism that depends on producers or other consumers for its food needs. Consumers that eat plants (producers) are called herbivores. Consumers that eat animals (consumers) are called carnivores. Carnivores that eat dead animals are called scavengers and help keep an ecosystem clean. Consumers, like ourselves, that eat both plants and animals are called omnivores.

An additional component of food webs are the decomposers. These organisms are bacteria, fungi, and small invertebrates that break down the remains of dead organisms into smaller molecules that are then available to plants and other organisms as nutrients. For example, fungi digest wood fibers into simple sugars as a food source. Nutrients and elements such as carbon and nitrogen recycled by decomposers are then available for the plant producers to turn back into food for themselves and the consumers. Without decomposers plant material such as logs and leaves would pile up and choke the habitat.

Though each organism within an ecological system may only play one role, all organisms are part of complex webs that link organisms together. The relationship between plants, fungi, and animals that interact with one another is called interdependence. There are many different types of interdependence. In some of these relationships both organisms benefit, and in others only one organism benefits. Below are six types of interdependence and roles in food webs.

Producer/Consumer
A relationship where one organism, the consumer (typically an animal), eats or ingests a plant, the producer. Plants are called producers because they make their own food and serve as the basis of any food chain.

- A deer is a consumer that eats plants, the producers.

Predator/Prey
A relationship where one organism, a consumer called a predator, eats or ingests another organism, the prey. The prey in this case is also some type of consumer.

- A hawk is a predator that eats prey such as mice, voles, and rabbits.

Mutualism
A relationship in which two different species benefit and are dependent upon the relationship.

- Carrion flowers have an unpleasant odor resembling rotten meat. The odor attracts flies, which gain nutrients from the flower by drinking its nectar. The flies help pollinate the plant by carrying pollen, which sticks to the fly, from one plant to another. This, like many pollination stories, is an example mutualism.

Activity Page #2C
Background Information (continued)

Parasitism
A relationship between two species in which one species, the parasite, nourishes itself to the harm of the other species, the host.

- Mistletoe is a plant that is a parasite on trees. The mistletoe can make its own food, but it also gets nutrients from the tree. Too much mistletoe can seriously harm the tree, so it is called a parasite.

Commensalism
A relationship in which one species derives food, shelter, or protection from another species without harming that organism or providing any benefits in return.

- For example, a blue jay building a nest in a tree gains protection and a place to live. The tree, however, is not affected.

Decomposer
A role in the food web where an organism breaks down dead plant, fungus, or animal material and releases the trapped carbon, nitrogen, and other molecules for use by other organisms.

- The earthworm is an animal that eats dirt and dead leaves, digesting the material for food and in the process breaking down the organic matter and releasing nutrients in the soil.