
SYNOPSIS:

As humans change the land on Earth to meet our growing needs, the habitats of wildlife and plants are disappearing. In this program we will discover why preserving nature's fragile ecosystems is important to our own survival on the planet.

We will also learn how every element in the Earth's food chain, from the tiniest microscopic organisms to the largest plants and animals, is needed to maintain nature's delicate balance. In addition, we will see what different organizations are doing to protect plants and animals, and how the responsibility for the care of the Earth and all its life forms belongs to each one of us.

CURRICULUM UNITS:

Biology
Ecology
Earth Science
General Science

CAREER OPPORTUNITIES:

Animal Keeper
Biologist
Botanist
Conservationist
Ecologist
Environmental Engineer
Environmental Planner
Farmer / Rancher
Forester
Naturalist
Wildlife Ecologist
Zoologist

PROGRAM OVERVIEW:

This program heightens a students' awareness of their environment and help them develop responsible attitudes and actions toward it. It includes concepts related to the importance of our planet's delicate ecosystems and how they can be maintained. It may be helpful to discuss some of these concepts before students view the program.

Event the tiniest, microscopic ORGANISMS (microorganisms) can be vital to the ecosystem. They are the first link in our planet's FOOD CHAIN. They provide NUTRIENTS that more advanced forms of life need in order to survive. Eventually the nutrients move up the food chain, through different life form, into the largest plants and animals, including us. So, each life form depends on others in its food chain to survive.

The program explains that the part of an ecosystem in which an organism lives is called its HABITAT. Plants and animals develop ADAPTATIONS that help them fit into their habitats and survive within their ecosystems. If its habitat is changed or disappears, an organism may not survive and the species could disappear forever, becoming EXTINCT. This could upset the balance in a delicate ecosystem and cause its entire destruction. Habitats may disappear naturally, give way to the expanding human population, or be lost as resources are taken up by EXOTIC or NON-NATIVE plants and animals which upset an ecosystem's natural balance. The program visits several areas where careful burning, cutting and HERBICIDES are restoring natural habitats overrun by exotic plants.

ISSUES AND CRITICAL THINKING

After showing this program, ask your students the following:

What is the difference between a habitat and an ecosystem?

What is a "food chain"?

Why is it important to protect even the tiniest form of life in an ecosystem?

How might an ecosystem be affected if a plant or animal within it becomes extinct?

The program showed a scientist called an ecologist collecting samples in a stream. What can be learned from the samples?

Introduce the terms "raw material", "product", "producer" and "consumer". Ask students to imagine that a tree is a factory. Just how does the factory produce the products we need to live? Show students pictures of some of the Earth's ecosystems (such as a bee-hive or a pond), and ask students to identify producers and consumers.

Recall the video's segments on Willapa Bay, the hills near the University of California, and Hook National Refuge. Review what can happen when non-native or exotic plants are introduced to an area. How might non-native species get into an area? Are they always harmful? Find out if any have become established in your area, how they have affected your ecosystem and whether there have been any attempts to remove them.

What kinds of wildlife live in your area? Have students research the kinds of species that may have lived there at some time but are no longer seen. What may have happened to them?

As you lead a discussion of kinds of life forms that live in and around pools, help the class construct a simple diagram of the food chain for a pond ecosystem. What happens if any link in the chain is broken? Have students break into groups and use their imaginations to design their own ecosystem. Then have each group explain how the links in their created food chain.

Have each student choose an extinct plant or animal and try to find reasons it may have become extinct.

Should humans protect every species from extinction, even those that might be considered pests (i.e., weeds, rats etc.)? Ask your class "What is a good mosquito?"

Ask the class to recall the plants and animals shown in the video, and write them on the board. Discuss adaptation and how each of these species is particularly suited to its habitat. What could be its place in the ecosystems food chain? Have students think of other examples of adaptations in plants and animals.

GLOSSARY:

ADAPTATION- An adjustment developed by an organism that makes it well-suited for its habitat and helps it survive in its ecosystem.

ECOLOGIST- A scientist who studies the relationships between organisms and their environments.

ECOSYSTEM- All of the plants, animals, other organisms and non-living things in an area that are in some way linked together.

EXOTIC- From another area, non-native.

EXTINCT- Organisms of which no specimen now lives.

FOOD CHAIN- A group of organisms within an ecosystem and in which each species feeds upon its lesser and is in turn eaten by a more advanced form.

HABITAT- The part of an ecosystem in which an organism lives and to which it is adapted.

HERBICIDE- A substance that kills plants.

NON-NATIVE- From another area, exotic.

ORGANISM- A living individual that can metabolize, grow, respond to stimuli and reproduce.

WETLANDS- Habitats such as marshes and swamps.



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The Wonders of Ecology & Conservation



K4482DVD

NATURE'S DELICATE BALANCE

