
SYNOPSIS:

Some scientists speculate that, due to exponential human population growth, within fifty years one out of every four species of plants and animals currently on Earth will become extinct. Learn why biodiversity may be crucial to the survival of the survival of the entire web of life on Earth and see efforts to identify and protect the organisms on Earth that are most at risk. Then observe researchers studying biodiversity at an environmental research facility, in the London Museum of Natural History, in the rainforest of Belize and on one of the world's largest coral reefs.

CURRICULUM UNITS:

Ecology
Environment
General Science
Life Science

CAREER OPPORTUNITIES:

Biologist
Cancer Researcher
Chemist
Ecologist
Entomologist
Environmental Engineer
Marine Biologist
Medical Researcher
Naturalist
Pharmacologist

PROGRAM OVERVIEW:

Our planet is considered one giant ecosystem, called the biosphere. Despite its size, this global ecosystem is fragile, and many of its life forms could be in dan-

ger, especially because of loss of habitat from human encroachment. The disappearance of a habitat, such as the destruction of a rainforest, can affect not only the people, animals, plants and other organisms within that ecosystem, but life outside of that ecosystem as well.

This program will take you to an environmental research facility where researchers have created mini ecosystems of low, medium and high biodiversity, in special, computer-controlled and monitored chambers. The researchers have discovered that many life forms depend on other kinds of life forms to survive, and that plant growth rate and consumption of carbon dioxide (as in polluted air) are greater in the chambers with the highest biodiversity. Thusly, the higher the biodiversity of an ecosystem, the better that ecosystem is able to fight against pollution, produce food for its inhabitants and generally thrive.

Then go to a rainforest and a coral reef to see how researchers go about conducting biodiversity surveys, which are being undertaken all over the globe. New species are being found, new information about known species is coming to light and complex life webs are being mapped. It is hoped that all of the data being collected will help maintain worldwide biodiversity—as well as the precious web of life of which we are all a part.

ISSUES AND CRITICAL THINKING

After viewing the program ask your students:

What is biodiversity?

How has human population growth affected many ecosystems?

Why is the survival of forests important to worldwide biodiversity?

How many species of life are thought to exist on Earth today? How many have we identified and studied?

What life forms are the foundation of the food chain in marine ecosystems?

Lead a discussion about the biodiversity in the area surrounding your school. Have student teams look for and list the various types of organisms that may be found there.

Recall the video segment which showed how scientists set up chambers representing ecosystems with various levels of biodiversity. Have students create a low diversity chamber in the classroom, using common, non-threatened area species.

Have students explore the types of species that can be found in other parts of the world and create a display that reflects the variety of different types of plant and animal life in those regions. How have the species in each of the various ecosystems developed as a whole? What commonalities might they display? Discuss several extinct species of plants and animals and the reasons they may have become extinct. Talk about the possible effects of the extinction of an organism, and how even those that seem insignificant may actually be an important part of an ecosystem's food chain.

Arrange to have an agricultural extension agent visit the school and discuss the importance of biodiversity as it relates to the local environment.

GLOSSARY:

Algae- A primitive but diverse group of photosynthetic organisms.

Biodiversity- The variety of life forms found in an ecosystem.

Canopy- A term used to describe the dense covering of foliage high above forest floors, formed by the intermeshing branches of the trees.

Carbon Dioxide- A gas made up of one part carbon and two parts oxygen, which is a byproduct of our own breathing, as well as combustion and natural decay. Plants absorb carbon dioxide and convert it into oxygen during photosynthesis.

Decompose- To rot or decay.

Ecosystem- All living and non-living things in a certain area that are in some way linked together and often dependent on one another for survival.

Extinct- A species of organism that no longer exists in living form; a species that has entirely died out.

Food Chain- A group of organisms within an ecosystem that depend on one another for food. One species eats another, lesser species, and is in turn eaten by a more advanced species. The first and lowest link on the food chain is plant life, which provides food either directly or indirectly for all the other organisms in the chain.

Habitat- The place within an ecosystem where an organism naturally lives and to which it is adapted.

Herbivore- An animal that eats only plants.

Organism- A living thing. Animals, plants, fungi, amoebae and bacteria are all examples of organisms.

Parasite- An organism that causes harm or discomfort to another organism, called the host, by feeding off of it and often living on or inside of it.

Rainforest- A dense forest that receives a large amount of rain during the year.

Species- A group of organisms that share a characteristic or group of characteristics that is unique to their group and is inheritable. For two organisms to be members of the same species, they must be able to produce fertile offspring together.

Ultraviolet- A portion of the light spectrum not visible to humans.

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