#8635

BIOLOGICAL SEAT BELTS-
CONSERVING BIODIVERSITY

Grade Levels: 10-13+
29 minutes
CHIP TAYLOR COMMUNICATIONS 1999

DESCRIPTION

Some conservationists believe that perhaps half of all species on earth will become extinct in the next 50 to 100 years. To prevent that, several groups work to assist efforts at conserving biodiversity. Some of the efforts include taxonomy (cataloging species), managed retreat (letting nature retake areas), saving seeds, and propagating endangered plants. Man's efforts toward destruction and development must be balanced with sustainability.

ACADEMIC STANDARDS

Subject Area: Nature of Science

- Standard: Understands the scientific enterprise
  - Benchmark: Understands that science involves different types of work in many different disciplines (e.g., scientists in different disciplines ask different questions, use different methods of investigation, and accept different types of evidence to support their explanations; many scientific investigations require the contributions of individuals from different disciplines; new disciplines of science, such as geophysics and biochemistry, often emerge at the interface of older disciplines)

Subject Area: Life Sciences

- Standard: Standard: Understands relationships among organisms and their physical environment
  - Benchmark: Knows ways in which humans can alter the equilibrium of ecosystems, causing potentially irreversible effects (e.g., human population growth, technology, and consumption; human destruction of habitats through direct harvesting, pollution, and atmospheric changes)
  - Benchmark: Knows how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years (e.g., growth of a population is held in check by environmental factors such as depletion of food or nesting sites, increased loss due to larger numbers of predators or parasites)
- Standard: Understands biological evolution and the diversity of life

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- Benchmark: Understands the concept of extinction and its importance in biological evolution (e.g., when the environment changes, the adaptive characteristics of some species are insufficient to allow their survival; extinction is common; most of the species that have lived on the Earth no longer exist)

INSTRUCTIONAL GOALS

1. To emphasize the importance of biodiversity.
2. To examine the rolls different scientists play in conservation and biodiversity.
3. To illustrate the impact of humans and technology on the environment and its inhabitants.
4. To emphasize the importance of the interdependence of species.
5. To emphasize what extinction of species does to the ecosystem.

VOCABULARY

1. anatomy
2. biodiversity
3. botany
4. classifications
5. ecosystem
6. endangered species
7. entomologist
8. entomology
9. erosion
10. extinct
11. extrapolate
12. genera
13. horticulture
14. indigenous species
15. managed retreat
16. Maya period
17. micropropagation
18. sediment
19. species
20. sustainability
21. taxonomy

BEFORE SHOWING

1. Preview video for unfamiliar vocabulary and concepts.
2. Discuss the concept of biodiversity.
3. Gather and display information on endangered species.
4. Study the local wildlife. Create lists of the different plants, animals and insects indigenous to the area. Save for AFTER SHOWING ACTIVITY.

AFTER SHOWING

Discussion Items and Questions

1. What is the meaning of biodiversity?
2. What does the phrase "we must think globally, yet act locally," mean?
3. How has man and technology influenced the biodiversity of the earth?
4. How can individuals act to protect biodiversity?
5. What is an ecosystem?

6. What happens to an ecosystem when one species dies?
7. What actions of man have direct influences on the sustainability of a species?
8. How does research help protect endangered species?
9. What is taxonomy? Entomology? Botany?
10. Why was taxonomy viewed as an esoteric pursuit in the early part of the twentieth century? Why has that thinking now changed?
11. How can historical information play a part in protecting biodiversity?
12. How do researchers use bug and butterfly collections from many years ago in their current research?
13. What importance is there in cataloging the geometrid moths?
14. The rain forest is home to at least half of all species. With the reduction of the rain forest, what impact will this have on all living things?
15. What is sustainable use?
16. Predict what changes will occur when certain species become extinct.
    a. How will the change affect man?
    b. How will the change affect animal life?
    c. How will the change affect plant life?
17. What industries have a negative impact on the ecosystem?
18. How do changes in the environment change the ecosystem?
19. What is managed retreat? How is it being used to gather scientific data?
20. What is the concept of reintroduction? How is it being used today?
21. What is the Millennium Seed Bank? What is its goal?
22. Explain the statement, "Any initiative however small, will have a profound impact. It is still not too late."

Applications and Activities

1. Study the local wildlife. Update the lists of the different plants, animals and insects indigenous to the area from BEFORE SHOWING ACTIVITY.
2. Read and discuss works on or by people who have contributed to the study of and protection of the environment and wildlife. Such as:
    a. Charles Darwin
    b. Linnaeus
    c. Rachel Carson
    d. Margaret Murie
3. Discuss the following quotes concerning biodiversity:
    a. For if one link in nature's chain might be lost, another might be lost, until the whole of things will vanish by piecemeal. -*Thomas Jefferson*
    b. What is man without the beasts? If all the beasts were gone, men would die from great loneliness of spirit. For whatever happens to the beasts, soon happens to man. All things are connected. -*Chief Seattle*
    c. The wilderness holds answers to questions man has not yet learned to ask. -*Nancy Newhall,* quoted in John McPhee's*, Encounters with the Archdruid,* 1971.

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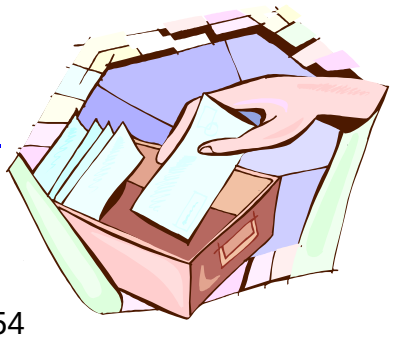
4. Have a panel discussion on biodiversity. Invite scientists such as a botanist, taxonomist and entomologist to participate.
5. Keep a journal of all the different birds, animals, insects or plants that are seen. Include sketches, descriptions and photos when possible.
6. Research and report on current laws regarding the environment and wildlife.
7. Write an essay on *thinking globally, but acting locally.*
8. Visit a botanical garden. If possible, arrange to visit the research and propagation areas.
9. Visit a zoo. If possible, arrange for one of the zookeepers to talk about protecting animals in the wild.
10. Research and report on an endangered animal or plant. Focus on the following questions.
    a. Where is it found?
    b. What factors are endangering the existence of this species?
    c. What is being done to protect it?
    d. If it becomes extinct, what impact will it have on the ecosystem?
11. Investigate local agencies that help protect the environment. Explore ways to become involved.
12. Visit a museum to study extinct animals such as dinosaurs.
13. Create a bulletin board to display information on endangered species or recycling.
14. Discuss the progress that has occurred toward environmental protection. Predict probable future progress toward protection.
15. Research careers that will promote biodiversity.
16. Contact the local forestry agency to gather information on reforestation projects and controlled burning.



RELATED RESOURCES

Captioned Media Program

- Nature's Delicate Balance #8833
- Making a Difference: Restoring the Earth Around Us #3054
- Rachel Carson's Silent Spring #3287
- Earth LTD #2604
- Problems of Conservation: Acid Rain #2514
- Protecting Endangered Animals #2000
- Mozambique #3630
- Everglades: Conserving a Balanced Community #2378

World Wide Web

The following Web sites complement the contents of this guide; they were selected by professionals who have experience in teaching deaf and hard of hearing students. Every effort was made to select accurate, educationally relevant, and "kid-safe" sites. However, teachers should preview them before use. The U.S. Department of Education, the National Association of the Deaf, and the Captioned Media Program do not endorse the sites and are not responsible for their content.

- **EARTHPULSE: NATIONAL GEOGRAPHIC'S HOME FOR CONSERVATION**

http://www.nationalgeographic.com/earthpulse/

Includes interactive maps of most critical regions of the world for conservation, lesson plans and much more.

- **AMERICAN MUSEUM OF NATURAL HISTORY CENTER FOR BIODIVERSITY AND CONSERVATION**

http://research.amnh.org/biodiversity/

Comprehensive information and links to current information on biodiversity.

- **LIVING WITH BIODIVERSITY: WHAT YOU CAN REALLY DO FOR THE ENVIROMENT**

http://research.amnh.org/biodiversity/LivingWithBiodiversity/intro/Introduction.html

An online pamphlet on ways to help protect the environment through foods consumed, water use and energy use. Includes informational facts and addresses for more information.

- **BIOGEMS: A PROJECT OF THE NATIONAL RESOURCE DEFENSE COUNCIL**

http://www.savebiogems.org/

An initiative aimed at saving wild lands of exceptional natural value in North and South America.