

Follow-up Discussion

Research indicates that students will retain their previous misconceptions about a topic, in preference to new information, until they actively recognize and correct their own errors. Therefore, it is important to have your students re-examine the facts/beliefs they put on their "Everything We Think We Know About..." list. It might also be helpful to review the list by marking each entry with a "+" or "-" to show which facts were correct and which were incorrect.

Discussions that ensue from thought-provoking questions provide a good way to assess the overall depth of student understanding. The following are some suggested discussion questions.

1. What is meant by the statement, "An animal doesn't decide to adapt"? Explain.
2. If animal extinction is a natural occurrence, why should humans interfere?

Follow-up Activities

- Assemble a collection of about 100 colored toothpicks, with each color symbolizing a different species of insect. Count the number of each color. Before the class joins you outdoors, sprinkle all the toothpicks around an area of the school yard. Tell the students that they are hungry birds and have two minutes to find all the insects that they can. Count the number of each color found, and discuss which "insect species" survived the best. Have the students relate this to the show.
- Have each student choose a favorite endangered or threatened animal to research and ask them to create a presentation that includes a written report and diorama of the creature in its normal habitat.
- In the hallway or classroom, create a wall display with the theme, "Extinction is Forever — Endangered Means There Is Still Time." Ask students to use the information gathered when researching reports along with their creative abilities to create a display that will convey the theme in an engaging manner.

Internet Resources

Periodically, Internet Resources are updated on our Web site at www.libraryvideo.com

library.thinkquest.org/25014/english.index.shtml

Endangered Species 2000 is an award-winning Think Quest site designed by students with an enormous amount of information on endangered and extinct creatures.

www.bagheera.com/inthewild

This page discusses endangered species and highlights some animals that have been forced into extinction using case studies.

(Continued)

www.nwf.org/nwf/wildlifeweek/1999/edguide.pdf

This printable teacher's guide profiles endangered animals and explains what is being done to protect them and foster environmental stewardship.

www.worldwildlife.org/species/species.cfm?sectionid=124&newspaperid=21

This site contains a partial list of endangered animals, complete with interesting facts on each animal and links to more complete lists and other excellent resources for students.

Suggested Print Resources

- Aronson, Billy. *Betting on Forever*. McGraw Hill, New York, NY; 1996.
- Facklam, Margie. *And Then There Was One: The Mysteries of Extinction*. Little Brown, New York, NY; 1993.
- Lessem, Don. *Dinosaurs to Dodos: An Encyclopedia of Extinct Animals*. Scholastic Trade, New York, NY; 1999.
- Markle, Sandra. *Gone Forever! An Alphabet of Extinct Animals*. Simon & Schuster, New York, NY; 1998.

TEACHER'S GUIDE CONSULTANT

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Endangered & Extinct Animals

Grades 5-8

Students in grade 5-8 classrooms possess a wide range of background knowledge. Student response to this video program is sure to be varied, so the teachers for these grades need all the help they can get! This guide has been designed to help science teachers in grades 5-8 by providing a brief synopsis of the program, pre-viewing and follow-up questions, activities, vocabulary and additional resources.

Before Viewing: Extensive research tells how important it is for the teacher to discover what the students know — or think they know — about a topic, before actually starting a new unit. Therefore, after prompting discussion with the pre-viewing questions, lead your class to create a "Everything We Think We Know About..." list. You may also wish to preview key vocabulary words, and have students raise additional questions they hope will be answered.

After Viewing: Have your students share video excerpts that fascinated or surprised them, then challenge your students to prove or disprove the accuracy of the facts they put on their "Everything We Think We Know About..." list. Discuss what else they learned and use the follow-up questions and activities to inspire further discussion. Encourage students to research the topic further with the Internet and reading resources provided.

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Program Summary

Most of the animals and plants that once lived on Earth no longer exist. They are extinct! Extinction is a natural occurrence that has been going on since life on Earth began. However, since humans appeared, the rate of this process has increased. Scientists estimate that as many as one plant or animal species becomes extinct every hour! An animal species usually does not disappear overnight. Most animals appear, thrive for a period of time, and then enter a period of decline, during which they are unable to repopulate their numbers, and finally die out. But there have also been sudden catastrophic changes in the environment that have led to rapid mass extinctions.

Scientists have come up with labels for living things whose populations are in danger. A species is considered threatened when its population is abundant in some areas but total numbers are in serious decline. The grizzly bear, the southern sea otter and the American alligator are all threatened. However, there is still time for these animals to recover. If the population of a species continues to dwindle, getting closer to the point of no return, that species is considered endangered. The tiger, the manatee and the California condor are all endangered species. When the last member of a species dies, like the dodo, the woolly mammoth, and the dinosaurs, that species is considered to be extinct, never to return again. Today there are almost 500 animal species officially listed as threatened or endangered in the United States alone. It is important to realize that the survival of any species depends upon their members' ability to meet basic life needs. When a species cannot meet all of these basic needs, its numbers begin to decrease. There are only three alternatives for animals in this situation: they can die, move, or adapt. Over time, animals acquire subtle changes that make them better suited for their environments and can eventually lead to the creation of a new species.

Though humans are not entirely to blame for species extinction, they are responsible for escalating this process through the destruction of habitats, poaching and pollution. However, through laws like the Endangered Species Act of 1973, international agreements, the actions of zoos and environmentalist organizations, and even the recycling efforts of citizens, humans are also responsible for turning this process around. A visit to the Exotic Feline Breeding Compound in California makes these helpful efforts clear.

Vocabulary

The following words are included for teacher reference or for use with students. They are listed in the order in which they appear in the video.

species — A group of related organisms that are capable of breeding with each other to produce fertile offspring but are not capable of breeding with members of other species. *(Continued)*

exotic — A term that describes a species that humans introduce to an area that was previously outside of that species' geographic range.

threatened — A term describing animals or plants that may be abundant in one area but whose total numbers are declining and on the way to becoming endangered.

endangered — A term describing animals or plants whose numbers are so few that they are in immediate danger of becoming extinct.

extinct — A term describing organisms that no longer exist.

extinction — The complete disappearance of a species due to changes that it cannot adapt to.

habitat — The specific environment in which an animal lives. This includes physical and biological factors such as temperature, climate, light and the presence of food and shelter.

adaptation — A trait, inherited by members of a species over a long period of time, that increases the ability of an organism to survive and reproduce.

migration — The movement of an animal or group of animals in search of better environmental conditions. Migration is an inherited genetic behavior in many animals.

mass extinction — When the majority of all plant and animal species die due to catastrophic environmental changes.

Homo sapiens — The scientific name for modern human beings thought to have evolved over 400,000 years ago.

poaching — Illegal hunting, capturing, or collecting of wildlife.

pesticides — Chemicals used to kill insect pests. Pesticides also kill and injure many animals that they were not intended for.

Endangered Species Act — U.S. law passed in 1973, designed to prevent extinction of animals and plants by labeling and protecting threatened and endangered species.

nitrites — Chemicals containing nitrogen that come from sewage, fertilizer, and industrial waste. Nitrites are toxins that can injure and kill animals.

Pre-viewing Discussion

Before students generate their list of "Everything We Think We Know About..." for this topic, stimulate and focus their thinking by raising these questions so that their list will better reflect the key ideas in this show:

1. What does extinction mean? How does it happen?
2. How do humans contribute to the extinction of animals?
3. What are some ways that people can protect animals from becoming endangered?

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After the class has completed their "Everything We Think We Know About..." list, ask them what other questions they have that they hope will be answered during this program. Have students listen closely to learn if everything on their class list is accurate and to hear if any of their own questions are answered.

Focus Questions

1. Is every animal species that has ever existed on Earth alive today? What happened to those that are no longer in existence?
2. What is a mass extinction?
3. Why is extinction considered a natural occurrence?
4. What are the three labels used to categorize animals in danger?
5. What does it mean when a species is labeled "threatened"?
6. What is an example of a threatened animal species?
7. What does it mean for a species to be "endangered"?
8. What are some animals currently listed as endangered?
9. What does it mean for a species to be "extinct"?
10. What are some examples of animals that are extinct?
11. About how many animal species are currently listed as threatened or endangered in the United States?
12. Though it is true that most species became extinct without the help of humans, can you name at least two species that were made extinct by humans? Explain.
13. What are some factors that put animal populations in danger of extinction?
14. What happened to the dodo bird in the 1600s?
15. How can an animal respond to environmental changes?
16. How does adaptation lead to the development of new species?
17. What is an example of an animal species that has survived through the long process of adaptation?
18. How did modern horses evolve?
19. How has the loss of habitat affected animals like the panda and the koala?
20. How does migration help animals survive?
21. How do scientists think the woolly mammoth became extinct?
22. How can animals cause the extinction of other animals?
23. What is the most common reason that large animals like tigers and elephants are endangered?
24. What are some reasons that humans have increased the rate of extinction of many plant and animal species?
25. What are some of the positive things humans are doing to reverse the population decline of some species?