Follow-up Activities

- Students can create a desert terrarium in the classroom for observation. Using a sunlamp, sandy soil and a collection of cacti and other succulents, have students design and maintain this unique environment. The inclusion of a tarantula, crickets and some rock ledges would give it a more authentic feel. Have students observe the terrarium over time, measuring the amount of water, plant growth and numbers of crickets eaten by the tarantula. Have them draw illustrations of the different plants, and tell how they differ from "typical" classroom plants.
- Have students in small groups engage in a creative problem-solving situation, in which they must prepare to survive in a desert for one full week, taking with them only as much as they can carry on their backs. Have them list what supplies they would plan to take along with them and the purpose of each supply. Have them describe what behavior/clothing changes they would have to make (as opposed to living at home), and have them rate how successful they feel they would be.
- Create a display that compares the different speeds of the animals that live in deserts and grasslands. Have students come up with an explanation for why speed is important for survival in the grasslands.
- There are many different types of grasses. Secure a large variety of grass seeds, and have students grow them in similar conditions, to determine how they are alike and different. Have students research differences in grasses used in lawns by perhaps interviewing an expert in this area.
- Create dioramas depicting a grassland or desert animal in its natural habitat.

Suggested Internet Resources

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

- **www.brainpop.com/science/ecology/desert/**
  The Brain POP Web site has a movie addressing many aspects of the desert, including location, climate and plant and animal life.
- **mbgnet.mobot.org/sets/grasslnd/index.htm**
  The Evergreen Project Web site discusses topics about grasslands, such as where grasslands are located and what plants and animals live in this ecosystem.
- **horizon.nmsu.edu/ddl/kids.html**
  The Digital Desert Library offers activities, guidance and know-how in investigating the resources of dry environments. ***(Continued)***

TEACHER'S GUIDE

- **www.ajschools.com/teachers/create/Rt66WebAdv1Guide.pdf**
  These pages take students on an ecological adventure through grasslands and deserts.

Suggested Print Resources

- Arnold, Caroline. *Watching Desert Wildlife.* Carolrhoda Books, Inc., Minneapolis, MN; 1994.
- Knapp, Brian. *What Do We Know About Grasslands?* Peter Bedrick Books, New York, NY; 1992.
- Pallotta, Jerry. *Desert Alphabet Book.* Charlesbridge Publishing, Watertown, MA; 1994.
- Pipes, Rose. *Grasslands.* Raintree Publishers, Inc., Austin, TX; 1998.
- Wright-Frierson, Virginia. *A Desert Scrapbook: Dawn to Dusk in the Sonora Desert.* Simon and Schuster, New York, NY; 1998.

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TITLES

- **ALL ABOUT DESERTS & GRASSLANDS**
- **ALL ABOUT FOREST ECOSYSTEMS**
- **ALL ABOUT WATER ECOSYSTEMS**

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TEACHER'S GUIDE

Ecosystems for Children

All About Deserts & Grasslands

Grades K–4

This guide is a supplement, designed for educators to use when presenting this program in an instructional setting.

Before Viewing: Research in learning suggests that it is important for the teacher to discover what the students know — or think they know — about a topic, at the start of a new unit, so that their accurate conceptions can be validated and reinforced, and their misconceptions identified and corrected. Therefore, after reviewing the pre-viewing discussion questions provided for your class, create an "Everything We Know About…" list. Preview key vocabulary words and have students raise additional questions they hope will be answered by this program. Most importantly, students should be told that as "science detectives" they must listen closely, so that after viewing the program, they will be able to tell whether or not the facts/beliefs they put on their list were scientifically accurate.

After Viewing: After a brief discussion about the program, challenge your "science detectives" to prove or disprove the accuracy of the facts they put on their "Everything 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.

SCHLESSINGER SCIENCE LIBRARY

Program Summary

Ecosystems are places where plants and animals live, interacting with the non-living things around them, like soil and air, water, temperature and sunlight. Deserts and grasslands are two of the many types of ecosystems on Earth.

Deserts are the driest places on Earth. With only about 25 centimeters (10 inches) of rain each year, there is not enough moisture for large trees or large animals to survive. Most deserts are sandy or rocky, and hot during the day while cold at night. The Sahara Desert in northern Africa is the largest desert in the world and is covered by sand dunes and gravel. Deserts in North America, like the Chihuahuan Desert in the American Southwest and Mexico, and the beautiful Sonoran Desert, are rocky with cacti and sagebrush.

Plants and animals have to be well adapted to live in a desert ecosystem. Desert plants have to live with very little water. Many of these plants have very shallow roots, so that they can soak up every bit of any rain that falls. Others have very deep roots, which grow down to as much as 30 meters (100 feet) to reach underground streams. Desert animals have also adapted to survive in the harsh desert environment. Many are nocturnal, or only active at nighttime. Creatures such as scorpions, tarantulas and many snakes are venomous. Many animals of the desert are cold-blooded, or have a body temperature the same as their surroundings. There are small, warm-blooded mammals in the desert, too, such as mice, hares and small foxes, with special adaptations to help them survive. Deserts are difficult places for humans to live, but some people have found ways to irrigate or water the land of the desert so that they can grow crops. In fact, if desert land is watered over a long period of time, it could actually turn into another ecosystem called a grassland.

Grasslands receive more rain or snow than deserts — between 25 and 88 centimeters (10 to 35 inches) each year — but not enough moisture for large trees to grow. As a result, grasslands are covered with thousands of different types of grasses, flowering plants and low shrubs. Grasslands are located all over the world but are given different names in different places, like "prairies" in North America, and "savannas" in Africa. People mostly depend upon grasslands to grow their crops and to graze their cattle. However, when grasslands are poorly managed over time, or if climate patterns change, producing less rain, grasslands can turn into deserts. Because of this, the Sahara Desert grows larger each year.

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.

ecosystems — Places where communities of living things interact with each other and with nonliving components, such as soil and water. A forest is an example of an ecosystem.

desert — The driest ecosystems on Earth, receiving less than 10 inches of rainfall each year. Many are sand-covered, while some are rocky. On most of the world's continents, deserts have high daytime temperatures and high wind; nighttime temperatures can be quite cold. Desert plants and animals are highly adapted to survive in this ecosystem.

habitat — The area where a plant or animal lives.

adaptation — Changes in an animal's body structure or behavior that occur over long periods of time that make the animal more fit for living in its environment.

camouflage — A coloring adaptation that helps animals to blend in with their surroundings, and avoid being noticed by hungry predators.

predators — Animals that hunt and eat other animals, called prey.

nocturnal — Animals that rest or hide during the day and are active at nighttime.

cold-blooded — Animals whose bodies do not provide heat to keep them warm. Many desert animals like snakes and lizards are cold-blooded.

venomous — Having a poisonous bite or sting.

niche — The "job" or the role of animals in a given ecosystem.

irrigation — A farming method for watering the land in order to grow crops.

grasslands — An ecosystem described by wide, windy stretches of flat or rolling land with many different grasses, but few trees because of insufficient rainfall.

herbivores — Animals that eat only plants.

Pre-viewing Discussion

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

- What are deserts?
- What are grasslands?
- How are deserts and grasslands alike? Different?

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. What is an ecosystem? Describe the living and the non-living parts of an ecosystem.
2. Name some different types of ecosystems.
3. Why are deserts different from other ecosystems?
4. What is the largest desert in the world? Where is it located?
5. Why can it be so hot during the day in a desert and so cold at night?
6. What is an adaptation? Why are adaptations necessary?
7. Name as many desert plant adaptations as you can.
8. Why is camouflage considered to be an animal adaptation?
9. What adaptation does the oryx, the African desert antelope, have for living in the desert?
10. What adaptation does the camel have that makes it so successful in the desert?
11. What can happen to deserts if they get more moisture over a long period of time?
12. What are some different names for grasslands around the world?
13. What makes it possible for grasslands to have many more types of plants and animals than can be found in deserts?
14. Why are grasslands so important to humans?
15. What can happen to grasslands if they receive less moisture over a long period of time?

Follow-up Discussion

The most important part of this segment is to examine both the facts and beliefs generated by the class in their "Everything We Know About…" list. Research indicates that students will retain their previous misconceptions — in preference to the new information — until they actively recognize and correct their own errors. Because of this, it is important to lead students to the correct ideas while identifying and correcting any misconceptions from the class list. After reviewing the list, encourage students to share the answers they got to the questions raised, before viewing the program.

Raising a thought-provoking question is a good way to assess the overall depth of student understanding. A couple of suggestions are listed below:

- What do deserts and grasslands have in common? How are they different?
- If you could choose to live in a desert or grassland, which one would you select? Why?