

The Jeff Corwin Experience

Arizona: A Desert Ecosystem

Teacher's Guide

Grade Level: K-8

Curriculum Focus: Life Science

Lesson Duration: Two class periods

Program Description

With its combination of dry cracked earth, stifling hot temperatures, and wide vistas, the Arizona desert may seem a barren wasteland. But Jeff Corwin discovers that this region is crawling with creatures well equipped to thrive in these harsh conditions.

Video Index

Segment 1: At the Base of the Chiricahua Mountains (15 min.)

Description

Welcome to Arizona, land of extremes. Check out snakes unique to this region, as well as bats, nocturnal creatures that pollinate desert plants.

Pre-viewing question

Why do you think Arizona is called a land of extremes?

Answer: Students' answers may include the fact that Arizona can be very hot or very cold, and it is either very dry or very rainy.

Post-viewing question

Why was Katie collecting pollen samples from the long-nosed and long-tongued bats?

Answer: To determine which plants each bat species pollinates.

Segment 2: In the Desert (10 min.)

Description

Observe the horny toad in the wild and in captivity. See its spiky back, excellent for defense, and watch how it eats insect.

Pre-viewing question

How do animals in the desert defend themselves from predators?

Answer: Students may say that animals use camouflage to keep them hidden, spikes as defense, or venom to kill their prey.

Post-viewing question

What is "toad-like" about the horny toad?

Answer: When it eats, the horny toad moves its tongue way a toad does.

Segment 3: Life in an Airfield (6 min.)

Description

In Arizona, life thrives everywhere—even in an airfield. Observe a family of owls and see how a spadefoot toad digs itself an underground home.

Pre-viewing question

Why would animals live in an airfield?

Answer: Answers may include that as habitats change, many animals can adapt and continue to thrive.

Post-viewing question

What is one interesting characteristic of the gecko in Arizona?

Answer: It has eyelids and it can blink.

Segment 4: Visiting Sonora National Park (6 min.)

Description

Explore Sonora National Park and one of the local snakes. Meet a scientist who tracks snakes, and observe Jeff assist in snake surgery.

Pre-viewing question

Why do scientists study snakes?

Answer: Answers may include learning more about their habits or how they survive.

Post-viewing question

Why did the snake undergo surgery?

Answer: The transmitter inside the snake had to be replaced so the scientist could continue tracking it.

Segment 5: Saguaro National Park (6 min.)

Description

Visit Saguaro National Park, named for the giant cacti that grow there. Meet a desert tortoise, an animal that has adapted well to the dry habitat.

Pre-viewing question

Why do saguaro cactus plants grow so tall?

Answer: Answers will vary; some students may learn that these plants live a long time.

Post-viewing question

How has the desert tortoise adapted to its environment?

Answer: Students may mention that tortoises use camouflage or how they use their bladders as a water reserve.



Lesson Plan

Student Objectives

- Research animals that live in the desert in Arizona.
- Investigate how animals have developed unique adaptations for survival in a desert environment.
- Create a class scrapbook that features desert animals in Arizona.

Materials

- *The Jeff Corwin Experience: Arizona: A Desert Ecosystem* video and VCR, DVD and DVD player
- Computer(s) with Internet access
- Newsprint and markers

Procedures

1. Begin the lesson by asking students what they know or imagine about life in the desert of Arizona. Is the weather always dry, or does it ever rain? How can animals and plants survive there? Write their ideas on a sheet of newsprint.
2. Tell students that in *The Jeff Corwin Experience: Arizona: Desert Ecosystem* they will see animals that live in the harsh desert environment. Show segments 2 ("In the Desert") and 5 ("Saguaro National Park") so that students can see how animals adapt.
3. Give students an opportunity to learn more about the desert animals. Group students into pairs, and have each pair select an animal to research. Suggest choosing an animal from the list below, all of which are featured in the video.
 - Texas horned lizard, also called horny toad
 - Couch's spadefoot toad
 - desert tortoise
 - Western diamondback rattlesnake
 - Mojave rattlesnake
 - Arizona mountain king snake
 - Coleonyx gecko
 - Gila monster
4. The following Web sites have additional information about these animals:
 - <http://www.desertusa.com/maq98/dec/stories/desmuseum.html>
 - http://www.blueplanetbiomes.org/sonoran_desert.htm
 - <http://www.desertusa.com/animal.html>



5. Have students complete their research at home. During the next class period, have each pair develop a page for a class scrapbook about Arizona desert animals. Each page should include the following:
 - a photograph or illustration of the animal
 - a description of the animal
 - one or two sentences explaining its adaptation to desert life
6. Some animals may have more than one scrapbook page, depending on the number of students. If a pair finishes early, ask them to design a scrapbook cover.
7. At the end of this period, collect each page and assemble them with the cover to share with the class. Leave the scrapbook for visitors to the class.

Assessment

Use the following three-point rubric to evaluate students' work during this lesson.

- **3 points:** Students were highly engaged in class and small group discussions; researched the topic carefully and thoroughly; produced a creative, informative, and accurate scrapbook page that included all of the requested information.
- **2 points:** Students participated in class and small group discussions; researched the topic adequately; produced a satisfactory scrapbook page that included most of the requested information.
- **1 point:** Students participated minimally in class and small group discussions; did not research the topic adequately; produced an incomplete scrapbook page, with little or none of the requested information.

Vocabulary

adaptation

Definition: A body structure or a behavior that enables an animal to survive in its environment

Context: The animals of the Arizona desert have developed unique adaptations that enable them to survive in a harsh environment.

Arizona mountain king snake

Definition: A snake that belongs to the constrictor group, which kill prey by strangling it

Context: The Arizona mountain king snake's dangerous-looking bands of color send a message to predators to stay away.

desert

Definition: An environment that is hot and dry, with little or sporadic rainfall each year

Context: The desert is such a harsh place, so only the hardiest and well-adapted animals can survive there.

desert tortoise

Definition: A burrowing tortoise of the arid western United States that can go without water for long periods

Context: Jeff Corwin didn't pick up the desert tortoise because it might waste precious water it holds in its bladder.

Gila monster

Definition: A rare lizard that has toxic venom, an unusual trait for this kind of reptile

Context: The Gila monster is highly venomous, so try to avoid encountering one in the desert.

Texas horned lizard

Definition: A type of lizard; nicknamed "horny toad" because it eats in much the same way as a toad

Context: The Texas horned lizard takes full advantage of rainfall by using the surface of its body to channel water into its mouth.

Academic Standards

National Academy of Sciences

The National Academy of Sciences provides guidelines for teaching science in grades K-12 to promote scientific literacy. To view the standards, visit this Web site:

<http://books.nap.edu/html/nses/html/overview.html#content>.

Grades K-4

- Life Science: Organisms and environments

Grades 5-8

- Life Science: Populations and ecosystems, Life Science: Diversity and adaptations of organisms

Mid-continent Research for Education and Learning (McREL)

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit

<http://www.mcrel.org/compendium/browse.asp>.

- Language Arts – Viewing: Uses viewing skills and strategies to understand and interpret visual media; Writing: Gathers and uses information for research purposes



Support Materials

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the Discoveryschool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>

