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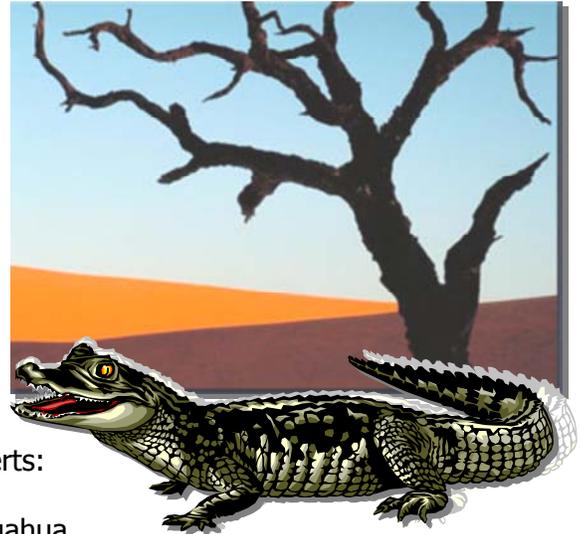
THE LIVING SANDS

AMBROSE VIDEO PUBLISHING

2000

Grade Levels: 9-13+

52 minutes



DESCRIPTION

Focuses on animal life in four extremely inhospitable deserts: the Namib's adaptive elephant, a dromedary roundup in Australia's outback, fish in thermal lakes in Mexico's Chihuahua desert, and the Sahara's Ennedi crocodiles. Survival is an eternal challenge to any life in these places.

ACADEMIC STANDARDS

Subject Area: Science: Life Sciences

- Standard: Understands relationships among organisms and their physical environment
 - 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
 - Benchmark: Understands the concept of natural selection (e.g., when an environment changes, some inherited characteristics become more or less advantageous or neutral, and chance alone can result in characteristics having no survival or reproductive value; this process results in organisms that are well suited for survival in particular environments)

INSTRUCTIONAL GOALS

1. To list physical features and capabilities of the desert elephant, gemsbok, warthog, ostrich, dromedary, pupfish, and crocodile.
2. To research how these animals survive in their environment.

BACKGROUND INFORMATION

Evolutionary Adaptations

Desert Elephant of the Namib Desert (Namibia):

- "Snowshoe feet" provide a soft wide track on sand.
- It survives days without water while the elephants of the savanna of East Africa drink 40 to 50 gallons a day.

- It has a longer trunk than its African cousins with 40,000 muscles for eating bark as well as vegetation and can use it as a dowsing rod for digging deep into sand for water.
- Shows “ancestral wisdom” in recalling long-past activities (“elephant memory”).
- Emits infrasound, a low-frequency rumbling noises for communicating over great distances.

Gemsbok (Oryx Gazella):

- Exposes as little of body surface as possible toward sun.
- Does not sweat until body heat reaches 109°F.
- Has a circulation system to cool blood 5°F by evaporation.

Warthog:

- It covers its body with insulating mud.
- Like others, postpones rivalries when water is scarce.

Ostrich:

- Its throat condenses water from its breath, like a camel.

Dromedary Farms in Australia’s Outback

- The one-humped domesticated Arabian dromedary is distinguished from the two-humped Bactrian camel of central Asia and Africa which is wild in some places.
- Its hump stores fat for long periods without food. It can lose 40% of its body weight and regain it in minutes.
- Its broad two-toed feet make for sound footing in sand.
- Its long eyelashes and nostrils, which can be closed, help to protect it from blowing sand.
- Thick, fat lips are for eating coarse plants.
- Long legs hold its body high above the hot sand.
- It can survive for almost a year without water, getting moisture from plants.
- It prospers in Australia because there are no predators.

Pupfish in the Sierra de San Marcos, Chihuahua Desert

- Also found in Death Valley and the Mediterranean Coast.
- Quatro Cienega—Four Marshes—are warm mineral springs which were once the floor of a prehistoric sea.
- Eight of 16 species, *Cyprinodon milleri*, are only found here.
- Subterranean aquifers emit 100°F water which is kept warm at the surface by the sun’s rays.
- Through morphological adaptation, they have learned to feed from different sources and manage their territoriality by occupying separate areas.
- Suspended animation slows metabolism when pools dry.

Adaptation of Crocodiles in the Sahara Desert in Chad

- Found in Arkai Gorge pools on the Ennedi Plateau.
- They are 7 feet long, or less, compared to their Nile River cousins which are 20 feet long. Their body temperature is 15°F cooler because the pools are sheltered.
- Growth is limited due to lack of food. Fecal pellets contain camel dung and fish. Camel herders stop there.
- Extinction is likely as the colony seems too small to breed.

AFTER SHOWING

Discussion Items and Questions

1. What did the video's narrator in the elephant segment mean by, "It takes genetics and nurture for survival," or "In the desert everything works on margins"?
2. Why is the dromedary called the "ship of the desert"?
3. Why did the Australians say the feral dromedary herd was "freed by the automobile"?
4. Is raising dromedaries in the more fertile land and shipping them back to Arabia making their adaptation difficult?
5. Should man be spending so much time and resources to preserve the crocodiles or the pupfish?
6. Why were crocodiles able to survive the dinosaurs?
7. What is the "ultimate evolutionary sentence"?

RELATED RESOURCES



Captioned Media Program

- The Desert #2372
- North Africa: The Great Sahara #2507
- Southwest Africa: The Forgotten Desert #2583



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.

- **DESERTUSA**

<http://www.desertusa.com/>

Numerous subheadings to choose from main headings on desert life, such as "Animal & Wildlife" which is then broken down into subheadings of "Mammals," "Birds & Fish," "Reptiles & Amphibians" and further broken down into specific animals. Click on "Desert Animal Survival," "Desert News Flash," and much, much more!

- **THE A—Z OF CAMELS**

<http://www.arab.net/camels/>

As the title states, read all about camels (the dromedary). Body temperature, color, speed, weight, and other letters in between.

- **THE DESERT BIOME**

<http://www.mbgnet.mobot.org/sets/desert/menu.htm>

Click on "Desert Animals" to read a brief description of certain animals, such as the addax, chuckwalla, verdin, and others.