



Exploring Adaptations

A forty-five or ninety minute Discovery Class
program

To the Teacher:

Thank you for making the “*Exploring Adaptations*” Desert Discovery Class a part of your curriculum. During this exciting educational program, students will see live desert animals, handle many different types of native plants, and work with classmates to draw conclusions based on the questions posed to them during the program.

This packet contains pre- and post- program information and activities along with a vocabulary list and suggested resources. These materials were developed to help you extend this class topic with both introductory and follow-up lessons. The pre-visit information will introduce students to some of the basic concepts presented in *Exploring Adaptations*, and help prepare them for the class. We hope you’ll find this information useful and easy to incorporate into your science curriculum. For more information about the Desert Museum and the Sonoran Desert, visit our website at www.desertmuseum.org.

Sincerely,
ASDM Department of Conservation Education and Science

Exploring Adaptations

Desert plants and animals display a fascinating variety of adaptations that help them thrive here. In the classroom, learn about plant adaptations through hands on exploration followed by live animal encounters to better help students identify their secrets to success as desert dwellers.

Class objectives:

Through the examination of desert plants, live animals, and preserved specimens, students will:

- Explain what factors contribute to the Sonoran Desert's aridity.
- Understand that adaptations allow plants and animals to live in particular environments (Grades 3-7)
- Understand that adaptations are heritable traits expressed by populations of organisms through time (Grades 8-12).
- Describe at least 3 adaptations cacti have that enable them to survive the aridity, scant and variable rainfall, and temperature extremes of the desert climate.
- Describe how native shrubs and trees are adapted for desert survival.

- Describe some behavioral and physiological adaptations resident animals have for desert survival.
- Consider what effects rapid environmental change (i.e. global warming) could have on organisms adapted to specific environmental condition

ARIZONA ACADEMIC STANDARDS IN SCIENCE CORRELATION

Science Standards:

Strand 1: Inquiry Process

Concept 1: Observation, Questions, and Hypothesis

Concept 3: Analysis and Conclusions

Strand 4: Life Science

Concept 4: Diversity, Adaptation and Behavior

Activity Books – Activity Guides - Magazines

- Braus, J., ed. Ranger Rick's NatureScope: *Discovering Deserts!* Washington D.C.: National Wildlife Federation, McGraw-Hill Companies, 1985. (For ordering information call: 1-800-722-4726)
- Braus, J., ed. Ranger Rick's NatureScope: *Endangered Species.* Washington D.C.: National Wildlife Federation, McGraw-Hill Companies, 1987.
- National Science Teachers Association. *Science and Children.* 1840 Wilson Blvd. Arlington, Virginia 22201-3000.
- *OBIS.* 12 Simon Street. Nashua, New Hampshire. Delta Education.

Books for Students

Buxton, Jame H. *Creatures of the Desert World.* Los Angeles: Intervisual Communications, Inc., 1987.

Gibbons, Gail. *Deserts.* New York: Holiday House, 1996.

Kalman,, Bobbie. *How do animals adapt? The science of living things.* New York: Crabtree Publishing, 2000

McCarthy, C. *Eyewitness Books: Desert.* New York: Alfred A. Knopf, 1991. (Many other books in the *Eyewitness* series contain information on desert species.)

Murphy, Julie. *Desert animal adaptations.* Capstone Press, 2011

Silver, Donald M. *One Small Square: Cactus Desert:* New York: Learning Triangle Press 1995

Slade, Suzanne. *What do you know about animal adaptations?* Powerkids Press, 2008

Townsend, John. *Would you survive? Animal and plant adaptations.* New York Raintree Fusion, 2005

Wallace, Marianne D. *America's Deserts: Guide to Plants and Animals.* Colorado: Fulcrum Publishing 1996

Web sites/Organizations

- Arizona-Sonora Desert Museum: <http://desertmuseum.org/kids/oz/long-fact-sheets/>
- Desert USA: www.desertusa.com/animal.html

Vocabulary words

Adaptation: A physical or behavioral feature of a plant or animal that helps it survive in its environment. For example, a hawk's talons help it catch and kill its food.

Behavior: The response of an individual, group, or species to its environment.

Burrow: A hole or excavation in the ground made by an animal (such as a rabbit) for shelter and habitation.

Camouflage: Concealment by means of disguise or a behavior designed to deceive or hide.

Crepuscular: Usually active at dawn or dusk.

Deciduous: Falling off or shed seasonally or at a certain stage of development in the life cycle such as *deciduous* leaves on a plant.

Diurnal: Active chiefly in the daytime.

Drought: A period of dryness especially when prolonged; *specifically:* one that causes extensive damage to crops or prevents their successful growth

Estivate: To pass a significant part of the summer in a state of torpor.

Migrate: To pass usually periodically from one region or climate to another for feeding or breeding.

Nocturnal: Active chiefly at night.

Omnivore: An animal that feeds upon both plants and animals

Photosynthesis: Formation of carbohydrates from carbon dioxide and hydrogen from water in the chlorophyll-containing cells of green plants exposed to light.

Predator: An animal that kills to obtain its food.

Torpor: A state of lowered physiological activity typically characterized by reduced metabolism, heart rate, respiration, and body temperature that occurs in varying degrees, especially in hibernating and estivating animals.