# **Explore the Science of Everyday Life** with your family this fall!

DOWNLOAD RESOURCES TODAY!



Subscriber Login

Passcode/New Users

Help

**STORE** 

**Administrators** 

**Teachers** 

**Parents** 

**Students** 

Classroom Resources > Lesson Plan Library

Lesson Plans Library

6-12 > Life Science

# Make it a Habitat

6-8, 9-12 Grade Level

Subject Area

Curriculum Focus nature/wildlife, animal behavior, genetics

**Duration** 2-3 hours

# Objective

Students will consider the adaptation of life forms through natural selection to fill various niches and accommodate changing environmental conditions.

# Materials

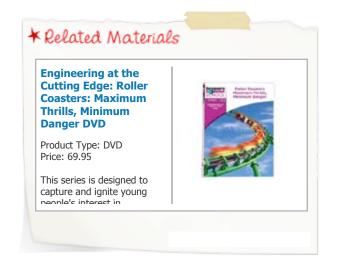
paper and pencil, resources for research (such as the Internet)

# Motivation

Sharks, whales, snakes, bears, dogs, cats, killer bees, elephants and great apes! Oh my! What do these animals have in common? Like humans, they have successfully evolved to share our planet. Each is uniquely designed and intimately connected to the environment in which it lives. Whether invertebrate or vertebrate, warm-blooded or cold-blooded, scaly or covered with fur, each has a unique origin and evolutionary history a history that continues to evolve as the result of the interaction between genetics and the environment.

# **Procedure**

Part I





1. As a class, discuss the concept of a dynamic ecosystem a community of plants, animals and microbes interacting with each other and their environment. The

term ecosystem describes both the living and non-living components of an area that interact with one another. An ecosystem may be aquatic or terrestrial. Learn about several different biomes on thebiomes page.

- 2. Form small groups of four students each. Each group should select one of the ecosystems on the biomes page and conduct research to provide as much detailed information as possible about the chemical, geological and physical features of the environment. Consider the sunlight/energy, temperature, waves and other physical features of the system. This research will enable you to design an organism suited for living in the biome you select.
- 3. Now, investigate several types of adaptation on theadaptations page. In order to design an organism for your biome, it is important to know what characteristics enable it to survive. Make a list of the traits you feel are most important for an organism in this biome.
- **4.** You are now ready to design an organism uniquely adapted to the environment you selected. Designing both internal and external body parts, your small group should consider:

body design/symmetry
diet/acquiring food
shelter/protection/skeleton
mobility
sensory ability
communication
reproduction/life cycle
temperature regulation/respiration/metabolism
digestion
waste removal/water regulation
other unique adaptations/behaviors

- 5. Prepare a group oral presentation complete with a sketch or model of your organism in its environment. The presentation should answer the following questions:
  - 1. How does each adaptation function with respect to the environment?
  - 2. Which adaptations are the most significant (i.e., have the most adaptive value)?

After each group has made a presentation, the following discussion questions might be used:

- What are some similarities between the organisms designed by each group?
- 2. Could the organisms co-exist in the ecosystem by occupying different habitats and niches?
- 3. What happens when two species try to occupy the same niche?
- 4. How do animals reduce competition when food resources become limited?

#### Part II

Enter an environmental stressor into the ecosystem such as a volcanic eruption, drought, soil erosion, toxic waste, storm, etc. Each group should reevaluate their



Sponsored Links

### **Google Advertising**

Attract More Visitors to Your Site. Sign Up for Google AdWords Today.

www.google.com/AdWords

♦ designer organism ♦ as to how well its features would allow it to adapt to the new environment. Discuss as a class which organisms would survive and why. Explain how the process of natural selection impacts your organism and the chosen biome.

## Closure

Prepare an ecosystem (either aquatic or terrestrial) in a glass container (fish bowl, aquarium, etc.) Describe the abiotic (nonliving) factors present. Write up the rationale for the selection of organisms that you include. Describe their adaptations and interactions with each other and the environment. Over time, depending on the animals kept, explore the following:

natural history of different phyla feeding habits social interactions coloration/camouflage competition predator/prey relationships adaptations reproduction food chains

How do the features observed enhance the survival of the organisms? Integrate these studies with studies of the chemical and physical properties of your minienvironment. Note: the collection or purchase of organisms ought to be a model of sound conservation practices and environmental ethics!

# Credits

Our thanks to Sue Mealiea, a science teacher at Woodbridge Senior High School in Woodbridge, Virginia, and Lisa Wu, a science teacher at Thomas Jefferson High School for Science and Technology in Alexandria, Virginia.

Terms of Use | Privacy Policy | Contact Us | About Us | Check Requirements | Download Adobe Reader | Online Closed Captioning | Careers @ Discovery Education

ADMINISTRATOR RESOURCES

Curricular Resources
Assessment Resources
Instructional Services
Customer Success

FREE TEACHER RESOURCES

K-5 Teacher Resources 6-8 Teacher Resources 9-12 Teacher Resources

Puzzlemaker

Brain Boosters
Clip Art
Kathy Schrock's Guide
Learning Adventures

FREE PARENT RESOURCES

Motivation Station Homework Help WebMath

Featured Programs &

FREE STUDENT RESOURCES

Homework Help WebMath Puzzlemaker Clip Art **DE SUBSCRIBERS** 

Login

Passcode/New User

### Make it a Habitat - Lesson Plan Library

Professional Development Discovery Educator Network Hardware Solutions Lesson Plans Featured Programs & Contests Discovery Student Adventures Science Curriculum Center WebMath Worksheets to Go Contests
Puzzlemaker
Clip Art
Ready Zone H1N1

Featured Programs & Contests

Copyright © 2013 Discovery Education. All rights reserved. Discovery Education is a subsidiary of Discovery Communications, LLC.