



CINCINNATI ZOO & BOTANICAL GARDEN



Indiana Academic Standards Addressed By Zoo Program

Nocturnal Adventures – Animal Adaptations

Program description:

During the Animal Adaptations Overnight students will investigate the definition of adaptation. Have you ever wondered why a mouse scurries snugly against the wall as it runs or why a dog has a wet nose? Have you ever thought about how hard it would be to get dressed for school if you had no thumbs? Nocturnal Adventures' Animal Adaptations will answer all those questions and more!

Indiana Science Standards addressed by this program:

GRADES K-6th

Standard 1: The Nature of Science and Technology

The Scientific Enterprise

1st Grade

- 1.1.3 Recognize that and demonstrate how people can learn much about plants and animals by observing them closely over a period of time. Recognize also that care must be taken to know the needs of living things and how to provide for them.

Standard 4: The Living Environment

Diversity of Life

1st Grade

- 1.4.2 Observe and describe that there can be differences, such as size or markings, among the individuals within one kind of plant or animal group.

2nd Grade

- 2.4.1 Observe and identify different external features of plants and animals and describe how these features help them live in different environments.

3rd Grade

- 3.4.1 Demonstrate that a great variety of living things can be sorted into groups in many ways using various features, such as how they look, where they live, and how they act, to decide which things belong to which group.

- 3.4.2 Explain that features used for grouping depend on the purpose of the grouping.

6th Grade

- 6.4.3 Describe some of the great variety of body plans and internal structures animals and plants have that contribute to their being able to make or find food and reproduce.

Interdependence of Life

1st Grade

- 1.4.3 Observe and explain that animals eat plants or other animals for food.

- 1.4.4 Explain that most living things need water, food, and air.

2nd Grade

- 2.4.2 Observe that and describe how animals may use plants, or even other animals, for shelter and nesting.
- 2.4.3 Observe and explain that plants and animals both need to take in water, animals need to take in food and plants need light.
- 2.4.4 Recognize and explain that living things are found almost everywhere in the world and that there are somewhat different kinds in different places.

Interdependence of Life and Evolution

3rd Grade

- 3.4.5 Give examples of some kinds of organisms that have completely disappeared and explain how these organisms were similar to some organisms living today.

4th Grade

- 4.4.2 Investigate, observe, and describe that insects and various other organisms depend on dead plant and animal material for food.
- 4.4.3 Observe and describe that organisms interact with one another in various ways, such as providing food, pollination, and seed dispersal.
- 4.4.4 Observe and describe that some source of energy is needed for all organisms to stay alive and grow.
- 4.4.6 Explain how in all environments, organisms are growing, dying, and decaying, and new organisms are being produced by the old ones.

5th Grade

- 5.4.4 Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all.
- 5.4.5 Explain how changes in an organism's habitat are sometimes beneficial and sometimes harmful.
- 5.4.7 Explain that living things, such as plants and animals, differ in their characteristics, and that sometimes these differences can give members of these groups (plants and animals) an advantage in surviving and reproducing.

6th Grade

- 6.4.8 Explain that in all environments, such as freshwater, marine, forest, desert, grassland, mountain, and others, organisms with similar needs may compete with one another for resources, including food, space, water, air, and shelter. Note that in any environment, the growth and survival of organisms depend on the physical conditions.

7th Grade

- 7.4.6 Explain how food provides the fuel and the building material for all organisms.

Standard 6: Common Themes

Systems

3rd Grade

- 3.6.1 Investigate how and describe that when parts are put together, they can do things that they could not do by themselves.
- 3.6.2 Investigate how and describe that something may not work if some of its parts are missing.

BIOLOGY I

Standard: Principles of Biology

Evolution

- B.1.32 Explain how natural selection leads to organisms that are well suited for survival in particular environments, and discuss how natural selection provides scientific explanation for the history of life on Earth as depicted in the fossil record and in the similarities evident within the diversity of existing organisms.

Ecology

- B.1.46 Recognize and describe that a great diversity of species increases the chance that at least some living things will survive in the face of large changes in the environment.
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ADVANCED LIFE SCIENCE: ANIMALS (L) STANDARDS

Standard: Animal Genetics and the Environment

Evolution

- AS.4.14 Compare and contrast adaptations of animals for survival in different environmental conditions.