Standards-Based Lesson Planning
Springfield Schools

Standard(s) Science and Technology/Engineering

Strand #2: Life Science (Biology)
Learning Standard# 6: Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive, e.g., shape of beak or feet, placement of eyes on head, length of neck, shape of teeth, color.

Standard(s): English Language Arts

Strand: Language
Learning Standard #2: Questioning, listening, and contributing – Students will pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions or interviews in order to acquire knowledge.

Desired Results

Scope and Sequence

Topic: Changes in Nature: Adaptations of Plants and Animals
Suggested Time Frame: Two day outdoor environmental education experience at **ECOS (Environmental Center for Our Schools)** in Forest Park, Springfield, MA

Essential Questions	Content and Skills (Progress Indicators)
How do physical characteristics of particular plants and animals confer fitness (survival value) for those plants and animals in their particular environments?	• Compare and contrast the physical characteristics of plants or animals from different environments (desert vs. tropical plants, aquatic vs. terrestrial animals). • Explore how each plant or animal has adapted to its habitat.

Assessment Evidence

- Given skulls of different mammals, students will be able to assess whether the mammal is a carnivore, herbivore, or omnivore.
- Given pictures of several different seeds, students will be able to categorize them on the basis of how they disperse (by wind, water, animals, hitchhiking, or exploding).
- Given pictures of various invertebrates, students will be able to label body structures that are adaptive to the organism's environment.

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Learning Activities

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- Students will examine the skulls of a typical carnivore (coyote), herbivore (beaver), and omnivore (raccoon). They will discuss how the structures of the teeth are adapted to the feeding habits of the animal.
- Students will collect seeds and examine them to determine how they disperse (by wind, by water, by animals, by hitchhiking, by exploding).
- Students will collect small invertebrates, and after examining them with hand lenses, will discuss how their anatomical structures provide fitness in their particular environments,
- Students will discuss the importance of the opposable thumb as an adaptation of Homo Sapiens. Students will attempt to accomplish small motor tasks (e.g. tying shoelaces) without using their thumbs.
- Students will observe various animals in different habitats and discuss the various anatomical structures and other characteristics (such as cryptic coloration) that confer fitness in their particular environment (e.g. duck in a pond, woodpecker on a tree, salamander under a log).