



Quarrybrook
EXPERIENTIAL EDUCATION CENTER

Program Title: Nature's Toolbox

Audience: 3rd grade students

Program Theme: Over time, animals can evolve to have body parts and even behavior patterns which are uniquely designed to help them adapt to a specific environment.

Program Goals: Through simulations and explorations students will investigate ways that animals adapt to their environment through learned behavior patterns and specialized body parts. Students will experience the challenges of consuming different food types by mimicking a feeding bird, using fabricated bird beaks to collect materials representing different foods. Students will also explore the area around a beaver pond and observe the effects of this animal's behavior on its environment.

Next Generation/Common Core Connections:

Topic: 3-LS3 Heredity: Inheritance and Variation of Traits

Crosscutting Concepts: Patterns, Cause and Effect

Program Outline:

Activity 1: BIRD BEAK BUFFET (30 min.) – All animals need to eat to survive, and they all have specific features which help them collect the food they need. This is a fun relay race exploring the beak adaptations birds have in order to feed on specific food sources. Using several implements, students will take turns trying to pick up different objects representing different types of food. They will see that some beaks work for specific foods and other beaks do not, leading to a discussion on these real-life challenges.

Objective: Students will know three to five ways that birds adapt to their environments.

Intended Outcome: Students will be able to explain why it is important for animals to have their specific tools (body parts), for collecting food, surviving, and reproducing.

Activity 2: HABITAT IDENTIFICATION WALK (45 min.) – We will then take a walk through the woods to a beaver pond. Students will observe the general appearance of the forest and together we will establish a basic profile of the landscape. This will help the students to notice the more dramatic interruptions in this profile as we get closer to the beaver pond (i.e., evidence of flooding, partially-submerged trees, chewed and felled trees, once dry locations now underwater, etc.). They will begin to see how radically a beaver's adaptive behaviors can affect, and even completely change, the habitat around them.

Objectives: Students will be able to identify three to five body parts of a beaver that assist in its survival. Students will be able to explain three to five ways that a beaver impacts its habitat. Students will be able to explain the reasons why beavers engage in pond-building activities.

Intended Outcomes: Students will identify evidence of beaver activity in the landscape and record their observations. Students will be able to distinguish between structural and behavioral adaptations and understand that adaptations allow an organism to succeed in its environment.

Activity 3: BUSY AS A BEAVER (45 min.) – Next, students will work in teams to build shelters, reinforcing that beaver families build their homes. Each team will have rope, sticks, and a tarp to use to build their shelter.

Objective: Students will work in teams to design and construct a shelter using simple tools and materials.

Intended Outcome: Student teams will be able to explain to the other groups how they built their shelter, and why they decided to design it that way.

Conclusion/Wrap-up: We will review the adaptive structures and strategies of a beaver, as well as the adaptive body designs and habits of birds.

Successful completion of this program will help support your students' proficiency in NGSS

Performance Expectations:

3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.

3-LS4-2 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.