Quarrybrook
EXPERIENTIAL EDUCATION CENTER

Program Title: **Lifecycles**

Audience: K2 students

Program Theme: Animals and plants are living things with specific needs and varying lifecycles.

Program Goals: After learning about the lifecycle changes that a frog goes through, students will act out the sequence of its stages in a simulation game. Then we'll take to the woods to investigate the lifecycle changes that a tree goes through! Learning stations along the trail will help us explore the actions involved in a tree's lifecycle, from seed to decomposing log.

Next Generation/Common Core Connections:

Topics: K-LS1 From Molecules to Organisms: Structures and Processes
K-ESS3 Earth and Human Activity

Dimensions: Patterns, Cause and Effect, Systems and System Models

Program Outline:

Activity 1: FROG LIFECYCLE TAG (30 min.) – We will begin by learning about the different stages in a frog's lifecycle. Then students will practice acting out the sequence of changes that a frog goes through. Then we'll add teachers and chaperones as predators!

Teachers are always welcome to make any classroom-connecting comments that contribute to student understanding.

Objectives: Students will experience the changes that a frog's lifecycle takes it through, and some of the hazards they face!

Intended Outcomes: Students will act out the lifecycle stages of a frog, and be able to sequence the stages in their accurate order.

Activity 2: "LIFE OF A TREE" WALK (60 min.) – Before heading out on the trails, we will discuss how plants also go through different lifecycle stages. Along the journey students will encounter learning stations that highlight each stage of a tree's lifecycle via learning cards that contain information and directions for a related hands-on activity. We will travel through the forest, seeing and interacting with examples of each stage of a tree's lifecycle.

- Seeds & Soil Station – Students will search for seeds and count how many they can find. We will talk about the role of soil and nutrients in seed development.

- Seedlings & Water Station – Students will look for the youngest trees, which have only two leaves. They will count the number of specimens they see. We will discuss the importance of water for a plant's growth and survival, and then have students point out water sources nearby.
- Saplings & Sun Station – Students will be challenged to find a tree with a trunk small enough for their hand to fit around. They will count the number of saplings in the area. We will talk about how plants compete for sunlight.
- Mature Trees & Space Station – Students will look for places in trees where they could make a home if they were an owl. They will also look for their tree's seeds on the ground, to show the continuation of the cycle. We will discuss how much space a mature tree needs and how large a shadow it can cast, challenging the saplings of the forest.
- Nurse Log Station – Students will explore a rotting log to see how it is decomposing into the forest floor. They will also look for any seedlings that could be sprouting from the dead log, making it a "nurse log."

Teachers and chaperones will each lead a sub-team of students, as we walk the trail together, keeping the students on-task to complete each activity at the different learning stations.

Objective: Students will go on an identification hike that highlights a tree's basic needs, the different stages of its growth cycle, and the contributions that plants make to the environment.

Intended Outcome: Students will be able to describe the basic stages of a tree's lifecycle, using the correct vocabulary and order (seed, seedling, sapling, mature tree, decomposing log).

Conclusion/Wrap-up: Students will re-order the lifecycle stage cards, and reiterate the correct sequences for frogs and trees.

For the review, we will ask the adults to hold up cards (standing in a line but out of order) and then have the students change their standing order to reflect the correct lifecycle sequences.

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

K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS3-1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.