Quarrybrook
EXPERIENTIAL EDUCATION CENTER

Program Title: **Migrate, Hibernate, or Live It Up!**

Audience: 5th grade students

Program Theme: Animals try to survive winter by a wide variety of strategies, all of which are challenging to the individual involved!

Program Goals: Students will comprehend the great variety found in the strategies that animals employ to try to live through the winter. Students will know that investigating an animal's body part adaptations and its food sources will give them the data to decide which survival strategy that animal is likely to use. Students will understand that all strategies are challenging to the animal involved, and that migration is not an easy way out! Students will know that among overwintering animals (those that don't migrate), whether they are cold-blooded or warm-blooded determines much of what their body will have to do to survive winter. Students will know the different activity levels of overwintering animals: true hibernators, light sleepers, dormant, or ACTIVE! Students will know that the specific habitat needs of an overwintering animal are based on their activity level and their body part adaptations.

Next Generation/Common Core Connections:

Topic: 5-PS3 Energy

Dimensions: Energy and Matter

Program Outline:

Activity 1: ANIMALS IN WINTER CHARADES (40 min.)

Objectives: Students will comprehend that different animals have very different avoid-or-confront strategies to live through the winter season, all of which are challenging. Students will understand the preparations involved to survive winter, for several species with varying strategies. Students will know that investigating an animal's body part adaptations and its food sources will give them the data to decide which survival strategy that animal is likely to use.

Steps: Working in sub-groups, students will use animal fact cards to plan and present short charades to the rest of the group, showing what their designated animals do to survive winter. The rest of the group will guess each animal's ID and its winter survival strategy. Group discussion will convey the surprising facts of the efforts required by each species to try to live through the winter season.

Intended Outcome: Student sub-groups will be able to teach each other the survival strategies and the preparations involved, for their designated species, through role-playing.

Teachers and chaperones will be helpful in asking students inquiring questions about their designated animals, as they assist sub-groups in planning charades which will convey info to the rest of the group.

Activity 2: HIBERNATION LEVELS SORT (20 min.)

Objectives: Students will know the specific challenges faced by overwintering (non-migrating) species. Students will understand that whether an animal is cold-blooded or warm-blooded determines much of what their body will have to do to survive winter. Students will know the four different activity levels of overwintering animals.

Steps: Students will learn about the different levels of activity that different overwintering species engage in during the winter, ranging from true hibernation to light sleep, dormancy, or ACTION! Students will then sort the animals learned about in Activity 1 into groups based on their level of activity.

Intended Outcome: Students will be able to group animals according to their level of activity during winter, based on facts learned about how much control they have over their body temperature, their cold-management adaptations, and their food resources.

Teachers are encouraged to add comments connecting what we're learning about with what is being studied in the classroom.

Activity 3: EVIDENCE SEARCH – WHERE DO I SPEND THE WINTER? (50 min.)

Objectives: Students will apply what they learned in Activity 2 to search for potential habitat locations of overwintering species. Students will know that the different habitat needs of overwintering animals depend on their level of activity and their body part adaptations to managing the cold.

Steps: Students will investigate the Quarrybrook woodlands and wetlands to find specific locations suitable as winter homes and evidence of which animals overwinter there. Zones such as the subnivean (under-the-snow) layer, leaf litter, the soil below the frostline, within galls, and the mud below a water body, will be explored or discussed. Sub-groups will make a drawing of each specific habitat location they find. After the investigation sub-groups will combine their drawings, forming a habitat mural. Students will then match the species learned about in the previous activities plus additional species, with their specific winter home locations.

Intended Outcome: Students will be able to match overwintering species with the specific location where they spend their winter.

All adults will work with designated sub-groups on our Evidence Search, to ensure that students are noticing the potential winter homes all around them, and that care is being taken to investigate but not change those habitats, for the animals depending on them.

Conclusion/Wrap-up: (10 min.) We'll finish with discussing how there is winter life everywhere!, and how no one survival strategy solves all needs but each serves a specific organism for its role in the overall system. To review their new discoveries about how hibernating or active animals take care of themselves in winter, each student and adult will write or draw their response to the following prompt:

"I'd like to be a _____ in winter, and I'd stay warm because I would _____."

Students and adults will then have the option of sharing their response with the rest of the group.

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

5-PS3-1 Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

LS1.C Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion.