Winter Adaptations

Overview

Students will observe how organisms adapt to a winter climate. Beginning with personal human adaptations, they will then watch a video about adaptations ending with a hike outside to observe adaptations. The class will create a concept map on Kidspiration to organize their learning. Finally, each student will create a comic strip to illustrate how one (or more) organism(s) are adapted to survive Maryland's winter.

Lesson Planner

Time Required	1 hour
Key Concepts/Terms	Structural Adaptation, Behavioral Adaptation, Natural Resources
Prerequisites	• Knowledge of expectations for outdoor classroom conduct. • General understanding of ecosystems, climate, and adaptations.
Setting	• 10-minute field study outside • Remainder of lesson inside

Standards

MD VSC 5th Grade Science

3.A.1 Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.

Objectives

Students will create a comic strip to demonstrate how one or more organisms adapt to survive Maryland's winter climate.

Materials Required

- Clipboards with notepaper or notebooks
- Pencils
- Kidspiration software with projector
- Copies of comic strip templates with critical thinking questions on back

Background Information

The following are specific objectives from the VSC that should help guide the lesson and student discussion.

3.A.1

a. Identify and describe features and behaviors of some of the plants and animals living in a familiar environment and explain ways that these organisms are well suited to their environment.
b. Based on information about the features and behaviors of animals and plants from very different environments describe reasons that they might not survive if their environment changed or if they were moved from one environment to another.

Bloom's Taxonomy:

- Comprehension – Students will identify ways that they and other organisms adapt to Maryland's winter climate.
- Application – Students will illustrate how organisms adapt to Maryland's winter climate.
- Analysis – The class will categorize adaptations in a concept map on Kidspiration.
- Synthesis – Students will hypothesize why some deer will not survive Maryland's winter climate.
- Evaluation – Students will justify their identification of what animals are adapted to survive Maryland's winter.

Gardner's Multiple Intelligences:

- Visual-Spatial – Students will create a comic strip to illustrate animal adaptations to winter.
- Linguistic – Students will respond to the critical thinking questions.
- Natural – Students will conduct part of the lesson outdoors, looking for evidence of winter adaptations.

Procedure

Follow the steps in the table below to conduct the activity. **Sentences in bold are suggestions for what teachers might say to students.** *Items in italics are possible teacher answers to questions.*

Phase	Step	Action
Engage	**1**	Ten Minute Exercise: Introduction to concept maps/outdoor learning. If students are unfamiliar with concept maps and/or using the schoolyard as a classroom, begin by creating a concept map together as a class to go over rules and expectations for learning outside. As you go through the concept map, think aloud for how you are choosing where to draw your bubbles to connect different concepts on the map. For instance, **"I am going to write the idea first and then put a bubble around it to make sure my bubble isn't too big or too small for my information."** Or **"I am going to connect this idea to that one instead of the main topic since they are related."** Or **"That's a good idea! Where would you connect that idea on our concept map?"** Have in mind some expectations for outdoor learning specific to your schoolyard that you want to be sure students include. For instance, • *Regular school rules still apply (respect each other, listen to the speaker, follow directions, etc.)* • *No yelling, screaming, tapping on/waving into windows that will disrupt class learning inside the school building.* • *"Look, learn, and let go" when you see insects.*

	2	Five-Minute Brainstorm Have students discuss how we adapt to the winter climate. Begin a concept map on Kidspiration and add student ideas to the concept map.
	3	Five-Minute Video plus discussion (10 minutes) Show a five minute video clip demonstrating fall and winter adaptations. Have students add to their concept map other ways that organisms might adapt to a winter climate.
Explore	4	Directions (5 minutes) Have students set up their notepaper (name, date, etc.). Give students directions for what to do outside. **"When outside, you will be looking for evidence of living organisms and how they have adapted to the winter climate. Take notes on what you find."**
	5	10-Minute Field Study Bring students outside. Split into groups according to how many adults are present.
Explain	6	Concept Maps (10 minutes) Once back in the classroom, have a class discussion about what the groups observed outside and add more information to the concept map about adaptations observed outside.
Evaluate	7	Comic Strip (15 minutes) Have students select a comic strip template. Give students directions for completing their comic strips. **"Choose one or more living organisms. Illustrate how they have adapted to survive Maryland's winter climate."**
Elaborate	8	Essential Questions (5 minutes) Have students respond to the following questions: 1. Explain why some deer will have a hard time surviving through the winter in Maryland. 2. What animals can adapt to our winter climate in Maryland? Justify your response.

Vocabulary Understanding of the following terms is required in this activity.

Term	Definition
Structural Adaptation	changed body parts that help the organism survive in its ecosystem
Behavioral Adaptation	inherited behaviors that help animals survive
Natural Resources	Something from the natural environment (water, air, trees, fuels) that is used to meet one's needs and wants.

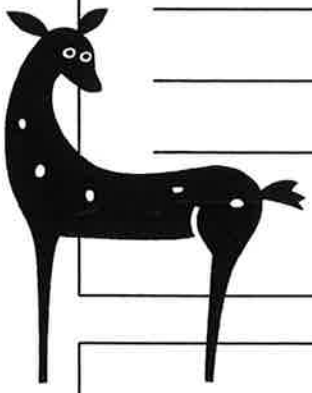
Written by Christa Haverly
In collaboration with Tangela Scales, Accokeek Academy

Alice Ferguson Foundation
2001 Bryan Point Road
Accokeek, Maryland 20607

Name: _____ Date: _____

Critical Thinking Questions

1. Explain why some deer will have a hard time surviving through the winter in Maryland.



2. What animals can adapt to our winter climate in Maryland? Justify your response.