

Preparing for Winter with adaptation

Grade 5

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References:

- Columbus Public School Curriculum Guide
- Google Images
- National Geographic

Benchmarks & Objectives:

LS-4: Summarize that organisms can survive only in ecosystems in which their needs can be met (e.g. food, water, shelter, air, carrying capacity and waste disposal). The world has different ecosystems and distinct ecosystems support the lives of different types of organisms.

LS-5: Support how an organism's patterns of behavior are related to the nature of that organism's ecosystem, including the kinds and numbers of other organisms present, the availability of food and resources, and the changing physical characteristics of the ecosystem.

Materials:

- Shoebox of leaves- fresh and fallen
- Various cut outs and images of bears, hares, whales, and birds
- Lab Sheet (attached)

Initial Demonstration:

Put up an overhead of the massive migration of Monarch Butterflies. Explain that in the winter these butterflies are unable to meet their basic needs up north because all of the flowers are dead. This forces them to adapt, and they fly south for the winter.

Target Observations:

- Cold weather in an ecosystem forces many organisms to adapt
- Cold weather prevents many animals from meeting needs of food and water.

Target Concept:

- Organisms adapt in many different ways, but all help the organism survive better.
- Without basic needs, organisms are unable to survive.

Procedure:

After giving the initial demonstration, explain that today we will be doing a lab. Break the class into four different groups and distribute the lab sheets. Explain that we will be looking at the effect that winter has on various animals and how they adapt. Go through the purpose and a few key definitions first. Then go through an example of monarch butterflies that you did in the introduction.

Distribute the folders of pictures of and box of leaves. There should be folders with pictures of whales and whale migratory routes, birds and bird migratory routes, bears hibernating, and brown (summer) and white (winter) snowshoe hares. Rotate as needed until everyone is complete. Next work on the extensions or assign as homework.

Discussion/Summary:

1. What are some other changes (dynamics) to an ecosystem that would cause organisms to adapt?
2. What would happen if an ecosystem changed quickly? Would the organisms be able to adapt?

Lab # 4 - Adaptation to changes in ecosystem

Purpose: _____

Key Definitions

Migration: _____

Hibernation: _____

Adaptation: _____

Organism 1: _____

- A. What change (dynamic) to the ecosystem is forcing the organism to modify itself or its behavior?

- B. Is there a basic need (food, water) that this change (dynamic) reduces/eliminates?

- C. How does the organism adapt when the ecosystem changes?

- D. What is the benefit of this adaptation to the organism?

- E. If the organism did not adapt, what might happen to the organism?

Organism 2: _____

- A. What change (dynamic) to the ecosystem is forcing the organism to modify itself or its behavior?

- B. Is there a basic need (food, water) that this change (dynamic) reduces/eliminates?

- C. How does the organism adapt when the ecosystem changes?

- D. What is the benefit of this adaptation to the organism?

- E. If the organism did not adapt, what might happen to the organism?

Organism 3: _____

- A. What change (dynamic) to the ecosystem is forcing the organism to modify itself or its behavior?

- B. Is there a basic need (food, water) that this change (dynamic) reduces/eliminates?

- C. How does the organism adapt when the ecosystem changes?

- D. What is the benefit of this adaptation to the organism?

- E. If the organism did not adapt, what might happen to the organism?

Organism 4: _____

- A. What change (dynamic) to the ecosystem is forcing the organism to modify itself or its behavior?

- B. Is there a basic need (food, water) that this change (dynamic) reduces/eliminates?

- C. How does the organism adapt when the ecosystem changes?

- D. What is the benefit of this adaptation to the organism?

- E. If the organism did not adapt, what might happen to the organism?

Extension

- 3. What are some other changes (dynamics) to an ecosystem that would cause organisms to adapt?

- 4. What would happen if an ecosystem changed quickly? Would the organisms be able to adapt?