

Adaptations and Preparations – how Vermont animals prepare, adapt or behave for the cold of winter
Kindergarten: Camouflage

Description

Students gather information to learn how some animals prepare, adapt or behave in order to help them survive in their habitats. Specifically, students will focus on the seasonal camouflage of animals that turn white in winter. Students then illustrate a hairstyle for themselves that can help them hide in a chosen setting. Students will present their drawings and explain the colors, patterns and why they chose them for their particular setting.

Lesson

- Read “Woolly Bear Winter: How North Woods Creatures Weather the Cold” to hook students into the lesson.
- Students gather information to learn about the seasonal camouflage of animals that turn white in winter.
- Students name the animals with this trait and identify which of these animals live in Vermont.
- Have students look at photos of the Snowshoe Hare in different seasons and observe the differences that they see between the seasons.
 - >Students can access information through books from their library / learning center or via on-line resources.
 - >Help students search for, and organize, content with graphic organizers or simple worksheets.
- Ask students to explain why they think the Snowshoe Hare changes color in the winter and how that helps them to survive in their particular environment.
- Extension: students hypothesize what would happen if the Snowshoe Hare were living in a snowless winter.
- Ask students what they know about other Vermont animals as they might prepare for winter. Read the story “Woolly Bear Winter” to make connections between what they have learned in this lesson and a greater context of how different animals that live in the same environment prepare for the cold.
- Have students consider an environment or setting that they like very much. Have them design and illustrate a hairstyle that would help camouflage them in their chosen setting.
- Students will present their drawings and explain the colors and/or patterns and why they chose them for their particular setting.
- Students can group based on common traits and see other places that they might also be able to easily hide with this hairstyle.

Performance Expectations

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

Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.

Tips for Including the Performance Expectation

In this lesson students are describing how some animals change hair color in the winter in order to understand the role of camouflage in survival. These animals need white coats in order to survive in their particular environment. In this way, this lesson describes an interdependent relationship between some northern animals and their seasonal environment. To go deeper with this Performance Expectation, students could describe the consequences of placing the animal in a different environment where its camouflage would not be effective (e.g. a snowless winter).

Science and Engineering Practices

Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.

Tips for Including the Science and Engineering Practice

To connect with Science and Engineering Practice, students must complete the last part of the lesson in which they are asked to illustrate a hairstyle for themselves that can help them hide in a chosen setting. Students will present their drawings and explain how their design and its function interact in the setting they selected. This allows connections to be made between information learned, application of individualized creative design, and communication of learned concepts through verbal presentations, and illustration.

Disciplinary Core Ideas

All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.

Tips for Including the Disciplinary Core Idea

Teachers need to emphasize the idea that an animal has biological

reactions to their environment. Their physical features, such as their coats, can alter due to that environment. In the case of the snowshoe hare, light is needed to change the color of the fur and allow them to camouflage in their environment. Resource:
<http://scienceblogs.com/twominds/2008/03/04/colorchanging-rabbits-and-phot/>

Crosscutting Concepts

Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.

Tips for Including the Crosscutting Concept

Be sure to follow the lesson all the way through to get to the Crosscutting Concept. The final activity allows students to identify and compare the specific color adaptations of specific northern animals and features in the environment, as well as the adaptations of their peers to their settings. To reinforce this Crosscutting Concept, have students group their drawings and explain the reasons for their choices.

Common Core State Standard Connections

ELA/Literacy

W.K.7 – Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).

Mathematics

K.MD.A.2 – Directly compare two objects with a measurable attribute in common, to see which object has “more of” / “less of” the attribute, and describe the difference.

Assessment:

General assessment of the intended goals of the lesson is easily achieved through monitoring students' discussion, their answers to guided questions, and their final drawings and explanations. It is also quite easy to revisit portions of the lesson in order to strengthen student understanding.

Note: This lesson originally appeared in the NGSS@NSTA website titled “Cats and Their Coats” with free access. To view this resource in it's entirety and without changes visit:

<http://ngss.nsta.org/Resource.aspx?ResourceID=121>