

Kindergarten: Life Science

ANIMAL COATS: Seasonal Change

Background Information

Animals and plants may be affected by winter. Many survival techniques enable the organisms to survive this season. Hibernation is a survival technique for some animals. Body systems, such as respiration and heart rate, are slowed and body temperature is lowered until conditions are supportive of coming out of hibernation. Other strategies for winter survival include dormancy, living at the bottom of a body of water, burrowing into the ground, migrating, and changing of body coloring to blend in with the snowy landscape. Other animals may change colors to better blend in with the winter landscapes.

Both plants and animals are dependent upon their environments for survival. However, in order to get the sustenance they need, organisms often must alter their environment to meet their needs. Some animals gather and store food for a season due to times of extreme temperatures, ground conditions, and availability. Many bury food in the ground, while others store food in plants.

Usually, the limbs or hollowed out sections of the trunks of trees are used, though some animals do store their food in densely populated areas of low plants.

<http://www.discoverwildlife.com/british-wildlife/how-identify-animal-food-stores> provides a detailed list of some animal actions, while images of and facts about animals may be found at <http://www.nationalgeographic.com/animals/index/> and <http://www.pbs.org/wnet/nature/the-animal-house-introduction/7194/>.

Animals, such as humans, also alter the environment for their survival. Prior to a home being built, ground needs to be prepared, whether it is leveling, digging, or removing plant life. Some animals build homes from leaves and other flora. Shells are used by others. Streams, lakes, ponds, and precipitation collection areas provide water for animals. Leaves are also a source of water.

Performance Expectations

K-LS1-1 From Molecules to Organisms: Structures and Processes

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

<https://www.nextgenscience.org/dci-arrangement/k-ls1-molecules-organisms-structures-and-processes>

Disciplinary Core Idea

LS1.C: Organization for Matter and Energy Flow in Organisms: 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.

Science and Engineering Practices

Scientific Knowledge is Based on Empirical Evidence: Scientists look for patterns and order when making observations about the world.

Crosscutting Concepts

Patterns in the natural and human designed world can be observed and used as evidence.

Objectives

- Students will make observations of organisms at various times of the year.
- Students will identify needs of living organisms to survive.
- Students will identify and discuss challenges of obtaining food and water in winter.

Materials

Animal Coat Change Cards – 1 Set per Group of 4

Suggested Implementation

Begin a class discussion with questions such as the following:

- *What do plants and animals need to live? (Note: this would have been covered in previous summer/fall lessons.)*
- *During the winter in Illinois, where would plants and animals get what they need to live?*
- *Would finding food, and water be easier or harder during the winter in Illinois? Why do think so?*

Students will work in groups of four to complete this activity. Share directions for the activity with the students.

You and your partners will:

1. *Place all the cards face up on your tables/desks for all to see.*
2. *Look at the animal cards. Share with your group what you notice about the animals. (An alternative is to have each student responsible for one card.)*
3. *Talk about how you would you put the cards into groups.*
4. *Put the pictures into groups.*

Distribute a set of the animal sorting cards to each group of students. Assist groups as needed. (**Note: There may be different groupings. For example, some may put cards into winter and not winter, while others match the two cards for each animal.*) You may wish to have students complete a gallery walk to see how other groups classified the cards.

Host a class discussion using questions such as the following:

- *What did you see in the pictures?*
- *Was anything different among the pictures? Share what you saw.*
- *Was anything the same among the pictures? Share what you saw.*
- *How did you decide what groups to use for sorting the cards?*
- *Tell us about the way you grouped the animals.*

Next have students return to their groups. This time groups look at the pictures to come up with ideas as to how seasonal color change may help an animal get what it needs in order to live. Assist groups as needed. After students have had sufficient time to develop ideas as a group, hold a class discussion regarding their ideas.

Debrief Discussion Questions

- *These pictures were taken at different times of the year. When do you think they were taken?*
- *Which ones do you think are from the winter?*
- *Why would an animal's fur change colors from one season to another?*
- *How might this help an animal survive? Get food?*

Resources

From: <http://www.kbs.msu.edu/wp-content/uploads/2017/02/NGSS-Interactive-Read-Alouds.pdf>

Barrett, J. (1988). *Animals should definitely not wear clothing.*

Beginning with a porcupine whose quills stick through a piece of clothing, this book goes through the reasons that humans wear clothes – and animals already have their own. A great way to discuss animal adaptations and needs.

Mazer, A. (1994). *The salamander room.*

A boy finds a salamander in the woods and his mother asks him how he will provide what the salamander needs to survive. Extend to talk about what all animals need.

Cannon, J. (1993). *Stellaluna.*

A fruit bat is separated from her mother and has to survive with a family of birds, mimicking the behavior of this different species.

Stewart, M. (2014) *Feathers: Not just for flying.*

Young naturalists meet sixteen birds in this elegant introduction to the many uses of feathers. Explore informative sidebars, which underscore specific ways each bird uses its feathers.

Assessment

The following single point rubric can be used to assess student understanding. For each of the criteria listed below, either circle the proficient description or add notes to a box indicating why the student's performance was either lacking or exceptional.

Areas that need improvement. Developing Performance	Criteria for Proficient Performance	Evidence of exceeding standards. Advanced Performance
	Explain different ways that animal coats help them to adapt to winter conditions.	
	When asked "how do animals find food and water in winter?" students reference observations from the discussions.	