

Winter Adaptations in the Black Hills

Lesson Plan Description:

Objectives:

1. Students will use images, descriptions, and definitions to compare and contrast the different strategies animals use to survive in their environment.
2. Students will be able to apply the knowledge of adaptations and critical thinking skills from this lesson to other animals and environments.
3. Students will be able to communicate verbally and in writing their scientific ideas and observations, both in small group and large class settings.

Content Standards:

2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.

2.W.2 Write informative/explanatory texts that: a. introduce a topic. b. use facts and definitions to develop points. c. use grade level appropriate linking words and phrases to connect ideas. d. provide a concluding statement or section.

2.W.8 Use background knowledge and/or information gathered from sources to respond in writing to a question

3-LS4-3 Construct an argument with evidence how some organisms thrive, some struggle to survive, and some cannot survive in a particular habitat.

3-LS2-1 Construct an argument that some animals form groups that help members survive.

3.W.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure in which related ideas are grouped. b. Provide reasons that support the opinion. c. Use grade level appropriate linking words and phrases to connect opinion and reasons. d. Provide a conclusion.

3.W.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include text features when useful to support comprehension for the reader. b. Develop the topic with facts, definitions, and details. c. Use grade level appropriate linking words and phrases to connect ideas within categories of information. d. Provide a conclusion.

Materials List

Black Hills in Winter PowerPoint

Writing Paper for observations

Animal Packets

- Bison
- Elk
- Fox
- Mountain Goat
- Prairie Dog

Writing Prompt Worksheet

Lesson Plan

Phase One

Introduce the Black Hills of South Dakota by showing the PowerPoint of the landscape during winter. Have the students write down observations by asking the question, ***“What do you see?”*** Collect a few brief observations from the class after showing the winter landscape.

Follow up with the question: ***“What challenges would there be for animals living in the Black Hills during winter?”*** Write the answers in a permanent, visible place as small groups will work to answer these challenges in phase two. Encourage students to expand on their ideas in detail. For example, expand the challenge of “the cold” into “low temperatures,” and “high winds and snow storms,” or expand “finding food” to “plants die or become covered in snow,” and “water freezes in the winter.”

Phase Two

Break into small groups (preferably 3-5 students per group). Each group will be focusing on an animal found in the Black Hills of South Dakota: bison, mountain goats, elk, prairie dogs, or foxes. Using pictures, text, and background knowledge, the students will work as a group to identify how they overcome the winter challenges the class has just listed.

Encourage students to work together to find how their animals overcome challenges they have come up with as a large class or challenges that they discover within their small animal group. It is expected that no one group will be able to “answer” every winter challenge or fill both sheets, but groups should work to discover as many winter adaptations as possible for 5-10 minutes or until conversation dwindles.

Keeping the students in their animal groups, go through the recorded challenges and have each animal group share the “solutions” of their respective animal. Draw attention to how some animals may have similar strategies but also how some are different and diverse. Use questioning techniques that involve all groups and multiple students from each group.

“These ways to overcome winter challenges are called adaptations. An adaptation is an ability or behavior that helps an animal survive in its environment. There are two different types of adaptations, physical and behavioral. Let's look at the list of animal adaptations we have discovered and shared to sort them into if they are behavioral or a physical

ability.” As a large class, sort previously identified adaptations into physical abilities and behaviors. For example: bison using their head to move snow is a physical adaptation, while staying in a herd is a behavior. Facilitate dialog about the diversity of adaptations.

Phase Three / Post Assessment:

Now that they understand what an adaptation is, have students work individually or in teams to answer any of the following writing prompts at your discretion.

Think of other animals that might live in the Black Hills or an area with mountains during the winter. Why do you think this animal would be adapted to survive in that environment?

If you don't live near the Black Hills of South Dakota, would your group's animal be able to survive where you live? Why or why not?

If you do live near the Black Hills, think of a different environment like the coast near the ocean or the desert. Would your animal's adaptations help it survive there? Why or why not?

Write a letter to your friends or family as your group's animal. In your letter be sure to share what a winter day is like in the Black Hills of South Dakota. How do you spend your winter day? What are some things that you do to survive?

Draw a picture story of your group animal surviving in the winter. What would a winter day look like for your animal? Show at least two adaptations.

Sources:

Bison

<https://www.nps.gov/articles/15-facts-about-bison.htm>
<https://www.flickr.com/photos/yellowstonenps/albums/with/72157647226010727>
<https://www.flickr.com/photos/grandtetonnp/albums/with/72157672187284051>
<https://www.nps.gov/articles/bison-bellows-12-31-15.htm>
<https://www.nps.gov/wica/learn/nature/bison-buffalo-bison-bison.htm>

Fox

<https://www.flickr.com/photos/yellowstonenps/albums/72157647586160006/with/33756228056/>
<https://www.nps.gov/articles/red-fox.htm>
<https://www.nps.gov/yell/learn/nature/red-fox.htm>
[Larry Lamus Fox Pic](#)
<https://www.flickr.com/photos/mountrainiernps/albums/72157629258022792/with/7030763293/>

Elk

<https://www.flickr.com/photos/grandtetonnp/albums/72157672764423802>
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<https://www.nps.gov/romo/learn/nature/elk.htm>
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<https://www.flickr.com/search/?text=aspen&license=2%2C3%2C4%2C5%2C6%2C9>
<https://www.nps.gov/wica/learn/nature/elk.htm>
<https://www.nps.gov/media/photo/gallery.htm?pg=3047410&id=F0B77AF2-B7DE-4B4C-AF55-A16619E9F948>

Mountain Goat

<https://www.flickr.com/photos/naturenps/albums/72157674625719356>
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<https://www.nps.gov/moru/learn/nature/mammals.htm>
<https://www.nps.gov/yell/learn/nature/mountain-goat.htm>
<https://www.nps.gov/articles/mountain-goats.htm>

Prairie Dogs

<https://www.nps.gov/wica/learn/nature/blacktail-prairie-dog-cynomys-ludovicianus.htm>
<https://www.nps.gov/media/photo/gallery.htm?pg=3024146&id=0A2F43BD-AD77-4DCD-9647-A825A789A6E6>
<https://www.nps.gov/thro/learn/nature/prairie-dogs.htm#:~:text=There%20are%20five%20species%20of,far%20back%20on%20their%20heads.>
<https://www.nps.gov/articles/prairie-dogs.htm>