

1: Can You Adapt?

Based on the Montana quarter reverse



OBJECTIVE

Students will understand that behavioral and physical adaptations allow animals to respond to life needs, which include methods of gathering and storing food, finding shelter, defending themselves, and rearing young.



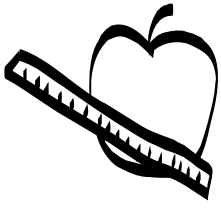
MATERIALS

- 1 overhead projector (optional)
- 1 overhead transparency (or photocopy) of the “Montana Quarter Reverse” page
- “Animal Adaptations” worksheets
- “Golden Eagle Adaptations Web” worksheet
- 1 class map of the United States
- 1 relief map of Montana or the United States
- 1 copy of a text that gives information about mountains, such as:
 - *The Living World: Mountains* by Clive Catchpole
 - *Living in the Mountains* by Trudy J. Hammer
 - *Mountains* by Dougal Dixon
 - *Mountains* by Philip Sauvain
- 1 copy of a text that gives information about golden eagles, such as:
 - *The Book of Eagles* by Helen Roney Sattler
 - *Eagles* by Aubrey Long
 - *Birds of Prey* by Jill Bailey
- Chart paper
- Markers (two colors)
- Pictures of golden eagles and other animals that live in Montana (grizzly bear, Rocky Mountain goat, deer, moose, bison, elk)



PREPARATIONS

- Make an overhead transparency (or photocopy) of the “Montana Quarter Reverse” page.
- Make copies of each of the “Animal Adaptations” worksheets (1 per student). There are 5 different sheets, so make enough copies for each student to have 1 animal.
- Make copies of the “Golden Eagle Adaptations Web” worksheet (1 per student)
- Locate a text that gives information about mountains (see examples under “Materials”).



Can You Adapt?

- Locate a text that gives information about golden eagles (see examples under “Materials”).
- Gather pictures or images of the golden eagle and other animals found in Montana (see “Materials”).



GROUPINGS

- Whole group
- Small groups
- Pairs
- Individual work



CLASS TIME

Three 30- to 45-minute sessions



CONNECTIONS

- Science
- Social Studies



TERMS AND CONCEPTS

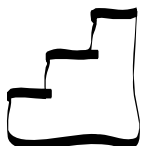
- | | | |
|---------------|-----------------------|-------------------------|
| • Quarter | • Obverse (front) | • Reverse (back) |
| • Mountain | • Physical adaptation | • Behavioral adaptation |
| • Adaptations | • Relief Map | • Landform |



BACKGROUND KNOWLEDGE

Students should have a basic knowledge of:

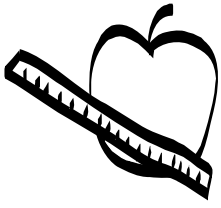
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|---------------|---------------|-------------|
| • Shelter | • Predator | • Prey |
| • Environment | • Hibernation | • Migration |
| • Herding | • Rectangular | • Hexagonal |



STEPS

Session 1

1. Describe the 50 State Quarters® Program for background information, if necessary, using the example of your own state, if available. Then display the transparency or photocopy of the “Montana Quarter Reverse” page. Tell the students that the back of the coin is also



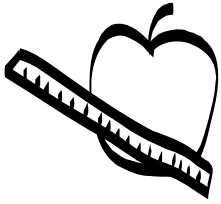
Can You Adapt?

called the reverse, and “obverse” is another name for the front of a coin. Locate Montana on a classroom map. Note its position in relation to your school’s location.

2. With the students, examine the design on this coin’s reverse. Have the students identify the images and writing included in this coin design. Focus the students’ attention on the mountain featured on the coin. Explain to the students that Montana means “mountain” in Spanish. Ask the students why these symbols may have been chosen. (There are a lot of mountains in Montana.) Show the students a relief map of Montana or the United States. Explain that a relief map shows how high and low the land is. It shows mountains and valleys. Explain to the students that much of the western portion of Montana is covered by the Rocky Mountains.
3. Tell the students that a mountain is an example of a landform. Explain to the students that a landform is any natural physical feature of the earth’s surface. Ask the students for words that can be used to describe mountains. Start a web with the word “mountain” in the center on the chart paper.
4. Introduce the students to the selected text about mountains. As a group, preview the text. Read the text aloud to the students. Attend to unfamiliar vocabulary and concepts.
5. During the reading, have the students add words to the web that describe mountains. Include animals and plants found there.
6. Have the students use the words from the web and write a few sentences or a short paragraph describing the mountains on writing paper. Have them illustrate their writing.

Session 2

1. Review the web and text from the previous session. Have students recall from the reading the names of animals or plants that live in the mountains.
2. Ask the students what might possibly make the mountains a harsh environment to live in. Refer back to the web from the previous session (cold weather, lack of vegetation, strong winds).
3. Show pictures of various animals and plants that live in the mountains. Explain that these animals have had to adapt to the harsh environment that can be found in the mountains. An adaptation helps an animal to survive. Adaptations help the animals find and catch food, find shelter, defend themselves from other animals, and even help them raise their young.
4. Explain to the students that there are two types of adaptations: physical and behavioral. Physical adaptations help animals survive in their environment and includes fur, sense of smell, and claws. Physical adaptations are things an animal has. Behavioral adaptations allow animals to respond to life needs and include hibernation, migration, and herding. Behavioral adaptations are what an animal does.

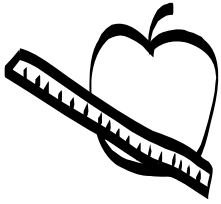


Can You Adapt?

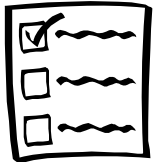
5. Divide the students into small groups. Give each group a piece of chart paper and show them how to make a T-chart with the columns labeled “Physical” and “Behavioral.” Have them brainstorm some physical and behavioral adaptations and record their ideas on the T-chart. Have each group share its ideas and charts with the class.
6. Explain to the students that Montana has a very large population of golden eagles. Show the students a picture of the golden eagle.
7. Attach a picture of a golden eagle on chart paper to use as the center for a web. Distribute copies of the “Golden Eagle Adaptations Web” worksheet to the students.
8. Explain to the students that they will be identifying some physical and behavioral adaptations of the golden eagle.
9. Introduce the students to the selected text about golden eagles. As a group, preview the text. Read the text aloud to the students. Attend to unfamiliar vocabulary and concepts.
10. As you are reading, have the students add adaptations to the “Golden Eagles Adaptations Web” worksheet. Have the students write physical adaptations in the rectangular blocks and behavioral adaptations in the hexagonal blocks.
11. Discuss the adaptations the students have written on their worksheets. Complete a class web using the chart paper with the golden eagle in the center.

Session 3

1. Review the web on adaptations from the previous session. Distribute the “Animal Adaptations” worksheets to the students. (There are 5 different sheets, so run off enough for each student to have 1 animal. Try to have an even number of students assigned to each animal so they can pair up later.) Explain that the students will be looking at several different animals that are found in the mountains of Montana. They are to look at the pictures and read the text on the worksheets. They are to identify some physical and behavioral adaptations and list these in the boxes on the page.
2. Allow time for the students to complete their worksheets.
3. Have students who have the same animal pair up and share their findings with each other. Have the students add to their lists.
4. After the pairs have shared with each other, have the pairs present to the entire class.
5. As the pairs are presenting, make a list of the adaptations on chart paper, one page for each animal.
6. Display the transparency or photocopy of the “Montana Quarter Reverse” page. Discuss the fact that animals and plants have to adapt to their environment in order to survive. Explain to the students that mountains are just one example of an environment to which animals must adapt. There are others such as deserts, grasslands, and forests, ponds, marshes, swamps, rivers, and oceans.



Can You Adapt?



ASSESSMENT

Use the students' class participation, the "Animal Adaptations" worksheets, and the "Golden Eagle Adaptations Web" worksheets to evaluate whether they have met the lesson objectives.



ENRICHMENT/EXTENSIONS

- Have students research other animals or plants and identify what adaptations help them to survive.
- Have students compare two similar animals and their adaptations using a Venn diagram.
- Have students highlight all the adjectives they use to describe the animals' adaptations.
- Download the "Additional Resources" file from the 50 State Quarters Lesson Plans page at www.usmint.gov/kids/index.cfm?fileContents=teachers/lessonPlans/download.cfm. Have students examine the page of quarter reverses provided to identify other plants and animals that have been featured on quarters.



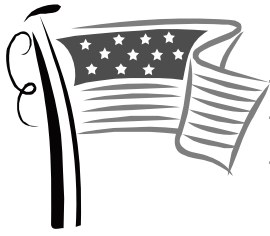
DIFFERENTIATED LEARNING OPTIONS

- While they are working on the worksheets, have someone read the text to the students.
- Have students work in pairs to complete the "Animal Adaptations" sheets.



CONNECTION TO WWW.USMINT.GOV/KIDS

Have students learn more about animals and plants with the Lewis and Clark Adventure Game at <http://www.usmint.gov/kids/index.cfm?fileContents=games>.



Name _____

Animal Adaptations

Grizzly bear

Directions: Look at the picture of the grizzly bear and read the text below. Find some behavioral and physical adaptations that help the grizzly bear to meet its needs. Write the adaptation in the correct box.

The grizzly bear is found in the mountains of Montana. Grizzlies survive the cold winter by **hibernating**. Grizzlies have **sharp teeth** and **claws** to help them catch animals to eat. Grizzlies also have an **excellent sense of smell** which helps them find their food. The female bear teaches the cubs **how to hunt for food** and to protect itself.



PHYSICAL ADAPTATIONS

BEHAVIORAL ADAPTATIONS



Name _____

Animal Adaptations

Rocky Mountain Goat

Directions: Look at the picture of the Rocky Mountain goat and read the text below. Find some behavioral and physical adaptations that help this goat to meet its needs. Write the adaptation in the correct box.

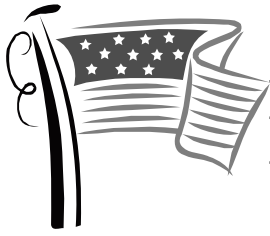


The Rocky Mountain goat is very well adapted to living in the mountains. It has many thick body layers to keep it warm. It has **coarse, shaggy hair** that hangs down to its knees. Underneath the shaggy hair is a **coat of short, thick wool**. The Rocky Mountain goat has a **very thick hide** underneath all of that with a **layer of fat** under all of that.

Rocky Mountain goats have **sharp teeth** to chew tough mountain plants. These goats are excellent climbers with **sharp hooves** and a **nonslip pad** to grip rocks. Rocky mountain goats tend to **run away** when a predator approaches.

PHYSICAL ADAPTATIONS

BEHAVIORAL ADAPTATIONS



Name _____

Animal Adaptations

Elk

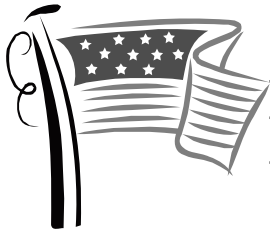
Directions: Look at the picture of the elk and read the text below. Find some behavioral and physical adaptations that help the elk to meet its needs. Write the adaptation in the correct box.



The American elk can be found in the mountains of Montana. The elk has **special teeth** that help it feed on grasses, twigs, bark, and herbs. Elk have **long, strong legs** and they are very fast, running up to 35 mph. The calves are born with **white spots for camouflage**. There are often 20 or more elk found in a **herd**.

PHYSICAL ADAPTATIONS

BEHAVIORAL ADAPTATIONS



Name _____

Animal Adaptations

Moose

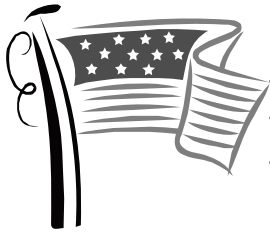
Directions: Look at the picture of the moose and read the text below. Find some behavioral and physical adaptations that help the moose to meet its needs. Write the adaptation in the correct box.



The moose is a **strong swimmer**. The moose has a **super sense of smell and hearing** to help it avoid predators. A moose's **teeth** are specially designed for eating plant materials. Moose have **long legs** that allow them to wade through the water and are good in the winter for getting through deep snow. Moose protect themselves from mosquitoes and other biting insects by **submerging themselves** in shallow ponds. The moose **migrates** from one area to another to find food according to the seasons.

PHYSICAL ADAPTATIONS

BEHAVIORAL ADAPTATIONS



Name _____

Animal Adaptations

Bison

Directions: Look at the picture of the bison and read the text below. Find some behavioral and physical adaptations that help the bison to meet its needs. Write the adaptation in the correct box.

Bison have **strong legs** and can run up to 35 miles per hour. To control parasites, bison enjoy **wallowing in the mud** and **rubbing against trees and boulders**. Bison **travel in herds** for protection from other animals. Bison have a **keen sense of smell**, which is capable of detecting odors up to a mile away. They also have **excellent eyesight**. Bison have a **shaggy winter coat** that protects them from the cold weather.



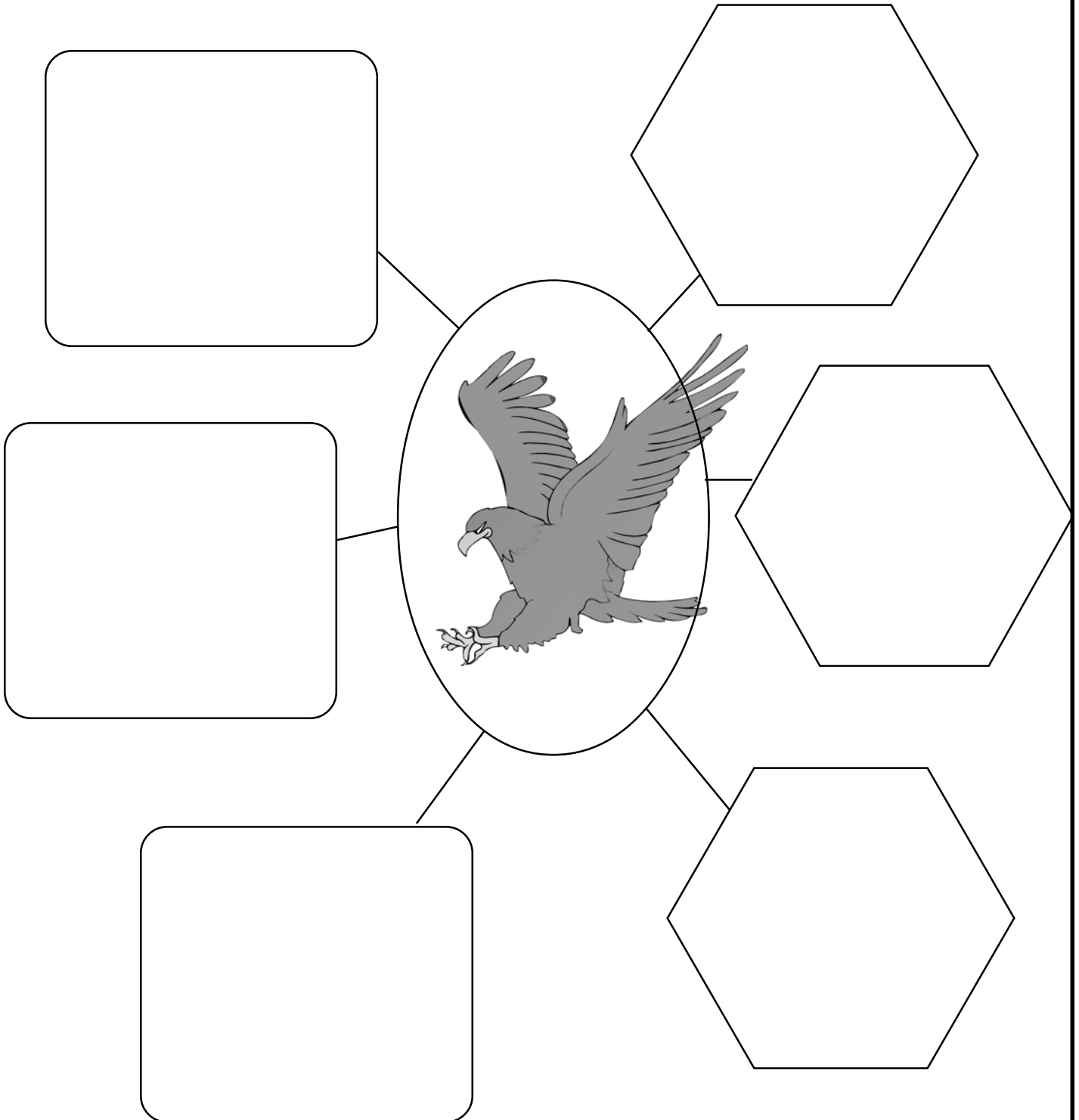
PHYSICAL ADAPTATIONS

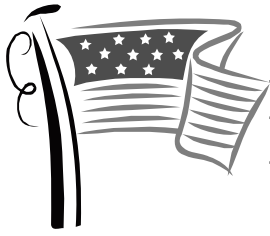
BEHAVIORAL ADAPTATIONS



Name _____

Golden Eagle Adaptations Web





Montana Quarter Reverse

