



Lesson 4: Post-Visit

Snug in the Snow

Materials:

- * *Who Lives in the Snow?* by J.B. Berry
- * Shoeboxes
- * Chalk or paint
- * Scissors, glue/tape
- * Twigs, cones, evergreen needles
- * White paper/cotton
- * Clay/animal cut-outs



Vocabulary

Subnivean, supranivean, intranivean, carbon dioxide.

Method

Students make shoe box models of how small animals live under the snow in winter. An additional option is to conduct an experiment with gelatin to see if it solidifies faster on top of the snow or under the snow.

Objectives

Students will be able to:

- Name one animal that lives under the snow in winter.
- Students will give one reason small animals stay under the snow in winter.

MT State Science Standard

MT.SCI.K-12.3.4 Students, through the inquiry process, demonstrate knowledge of characteristics, structures, functions of living things, processes and diversity of life, and how organisms interact with each other and the environment.

- A proficient student will explain cause and effect relationships between nonliving and living components within ecosystems; and explain individual response to the changes in the environment.

Next Generation Science Standard

3-LS4-3 Construct an argument with evidence that in a habitat some organisms can survive well, some survive less well, and some cannot survive at all.

- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

Background

Many small animals rely on snow for winter survival. Mice, voles, and shrews live in the subnivean (below the snow) world. They tunnel through snow to feed on seeds and tree bark. These animals' tracks can be seen across the surface of snow. When they are on top of the snow, they are vulnerable to predators such as weasels, hawks, and owls. Many

Background, Continued

of the “mouse holes” seen on the snow surface are actually vent holes to allow carbon dioxide from decaying plants to escape so these small animals don’t suffocate. Snowshoe hares and grouse take advantage of the snow by snuggling into it for protection from cold and winds.

Procedure

1. Read the story “Who Lives in the Snow?” by Jennifer Berry Jones. Discuss the animals students may already know about like deer and elk that resist and stay active in Glacier National Park all winter. How do they stay warm all winter (thicker coats, moving to sheltered forested areas, etc.). Discuss how for smaller animals who have a harder time keeping their bodies warm, living under the snow provides extra warmth.
2. With older students, review the following vocabulary words for snow with your class: subnivean (below the snow), supranivean (above the snow), intranivean (within the snow), predator (hunts and kills other animals for food), prey (animals killed by predators for food), and insulation (material or combination of materials which retard the flow of heat).
3. Ask students if they have heard the saying “a blanket of snow.” What does a blanket do? Tell students that you are going to make models of how small animals live under the snow in winter.
4. Have students lay a shoebox on its side and whiten the inside with chalk or tempera paint.
5. Cut away the roof and replace it with a piece of white paper or cotton cut to size (styrofoam could also be used). Allow paper or cotton to extend about 1/4 to 1/2 inch beyond the surface it is replacing. Hold it in place with toothpicks, tape, or glue.
6. Decorate the top with twigs, dried weeds, and bits of evergreen.
7. Make animals out of clay or play dough and place them where they belong, either above or below the snow. Option: You may use the line drawings provided at the back of this guide for the students to color, then place them where they belong in the diorama.

Evaluation

Ask the students to pretend they are one of the characters in their diorama and have them write a story about life in a subnivean world. Is it dark/light? Cold/warm? Quiet/noisy? Cozy/lonely?

Extension

Stir until dissolved, one tablespoon of gelatin into one cup of hot water, then fill film canisters half full and cover them. Divide students into small groups and ask them to choose a shady, exposed area for one canister, and a deep snow place to bury the other canister. Mark where the canisters are buried and make sure they are labelled. You may want to place thermometers next to each. When the surface ones begin to gel, check the buried ones. Which ones gelled first? Check the thermometers and see how they compare. Why might small animals want to stay under the snow on a cold day?

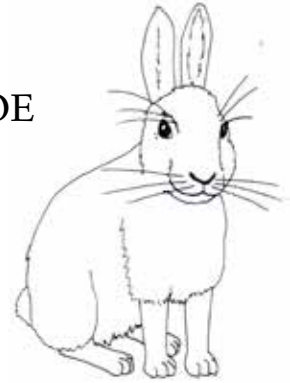
Animal Card Drawing Page



WHITE-TAILED
DEER



TREE
SQUIRREL



SNOWSHOE
HARE



SHORT-TAILED
WEASEL OR
ERMINE

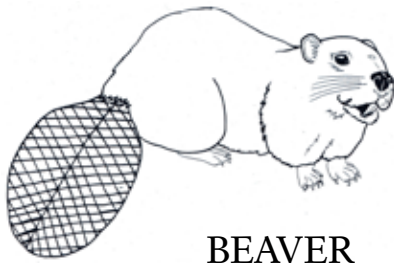


ELK



MOOSE

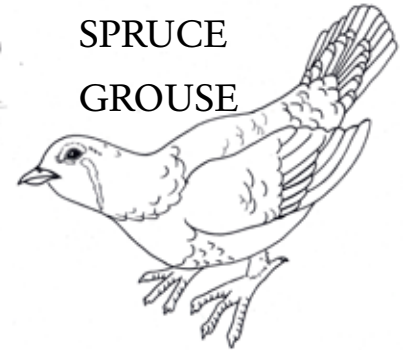
Animal Cards Drawing Page



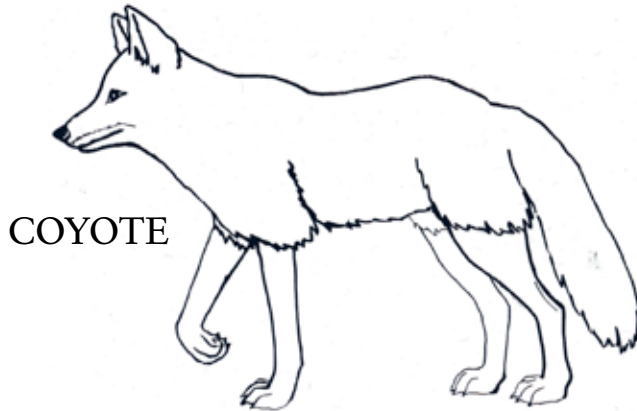
BEAVER



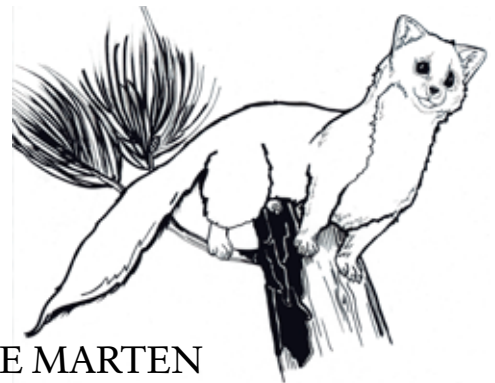
MINK



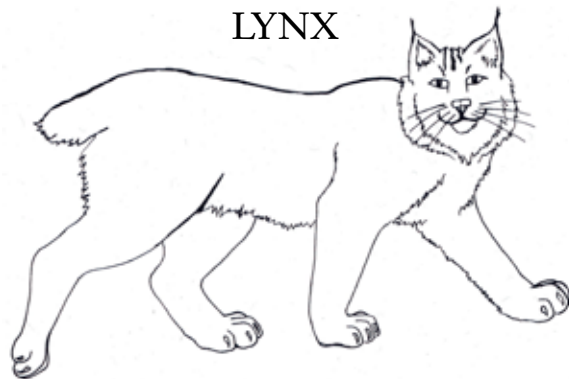
SPRUCE
GROUSE



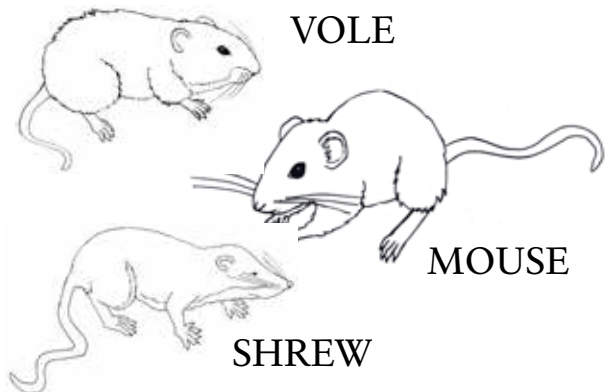
COYOTE



PINE MARTEN



LYNX



VOLE

MOUSE

SHREW

MOUNTAIN
LION

