

LEVEL: Grades 1-3 (extensions for grades 4-6)

SUBJECTS: Science, Language Arts, Geography, (History).

PROCESS: Through observation, comparison, and evaluation of a habitat, students make predictions regarding appearances of animal homes.

OBJECTIVES: The student will:

1. Generalize that the common needs for food, water, and shelter are shared needs among all animals including humans.
2. Identify basic components of one habitat.
3. Discuss the relationship between habitat and adaptations.
4. Describe why good habitat is necessary for the health, safety, and continued life of all living things.

TIMEFRAME: 2 hours in field and 1 hour in class.

SKILLS: Comparing similarities and differences, describing, evaluating, inferring, observing, predicting, recording, role playing, synthesizing, visualizing, working in small groups.

MATERIALS: Drawing supplies, Hole Homes drawing, "Hole Homes, Prairie Homes" (attached). (Extensions: clear jar, potting soil, grass seeds--oat, bluegrass, and buffalo grass).

VOCABULARY: Adaptation, grass, grassland, habitat, prairie, snag, soil, stump.



HOLE HOMES

OVERVIEW: Between the tall mountains of the west and the long winding Mississippi River, tall grasses blew like waves on the oceans over a vast area. As early pioneers traveled across this prairie land in covered wagons, they saw few trees, suffered extreme heat in the summer and cold in the winter, and continually searched for water. Because the prairie country in the United States is a region of extremes it is a challenge for all living things to survive. The plants and animals that have always lived in this land of hot, cold, and wind have adapted to the conditions.

Animals all over the world share the same needs for survival-- food, water, shelter, reproduction of their kind, and space to move. Humans are no different and all adapt to survive in the climates and habitats in which they live.

Animals that live in forests often build their homes in tree trunks, under the bark of trees, on

tree branches, or in the stumps and snags of dead trees. Consider where an animal might make a home if there were no trees and only tall grass and the soil under its feet.

PROCEDURE:

1. Ask your students to verbally describe their homes. What is basic to each home? List these on the board in the front of the room for future discussion. Each home has a place to prepare food and eat, a bed to sleep in, and water to drink and clean with.

2. Review with your students the basic needs of animals -- food, water, shelter, space -- and compare these needs to their own lifestyles. An animal's shelter might not have strong walls like ours, so eating in the shelter would not be safe. Discuss why. Likewise, a prairie dog would not have the ability to bring plumbing into its home for running water. Discuss where its water would come

from. The space around an animal's home is part of its expanded home--sort of like a ranch or a farm or even our cities. Discuss the need for expanded homes (i.e. getting things we need, buying groceries, buying clothes, visiting family). Ask:

-Why is shelter important to prairie dogs, coyotes, meadowlarks, and humans?

3. Locate a field free of trees and buildings close to your school. Sit in the field with your students and together describe what everyone sees. Then describe a grassland -- a place where there are few trees, the wind blows a lot, it is usually either very hot or very cold, and it doesn't rain a lot. The land is covered with grass higher than our heads while we are sitting down. When the wind blows, all the grass moves at the same time. Birds fly above the grass, and you can hear insects chirping and frogs croaking during the spring, summer, and fall. The sky has great big, white, fluffy clouds as far as you can see.

4. Ask your students to visualize the grassland. Use the "Hole Homes, Prairie Homes" drawing to help them "see."

-Where might a prairie dog or a coyote live in the grassland?

-Where a meadowlark builds a nest?

-What does your own home look like compared to what a prairie animal's home could look like?

Introduce the concept of building a home under ground.

5. Using the drawing "Hole Homes, Prairie Homes" ask everyone to locate the homes of a coyote, a prairie dog, a ground squirrel, and any other animals living underground in the prairie. Describe the homes that they locate in the drawing. How have these animals adapted to living in the prairie? What happens to any living thing that can not adapt to the habitat in which it finds itself? Optional: Show your students pictures of these animals and discuss their adaptations for digging.

6. Ask your students to work in pairs and carefully patrol the field looking for signs of animals (including insects) living underground. Watch for small holes that can be openings to underground tunnels and dens. As they locate possible homes, have each pair sit and watch the hole until everyone has located a home. After five minutes of observing, ask your students to rejoin you and describe what they saw.

7. In the classroom, have students examine pictures from the October 1993 *National Geographic* article, "The American Prairie" by Douglas H. Chadwick. Compare their predictions from your field work with the painting on the foldout, pages 104-106.

ASSESSMENT:

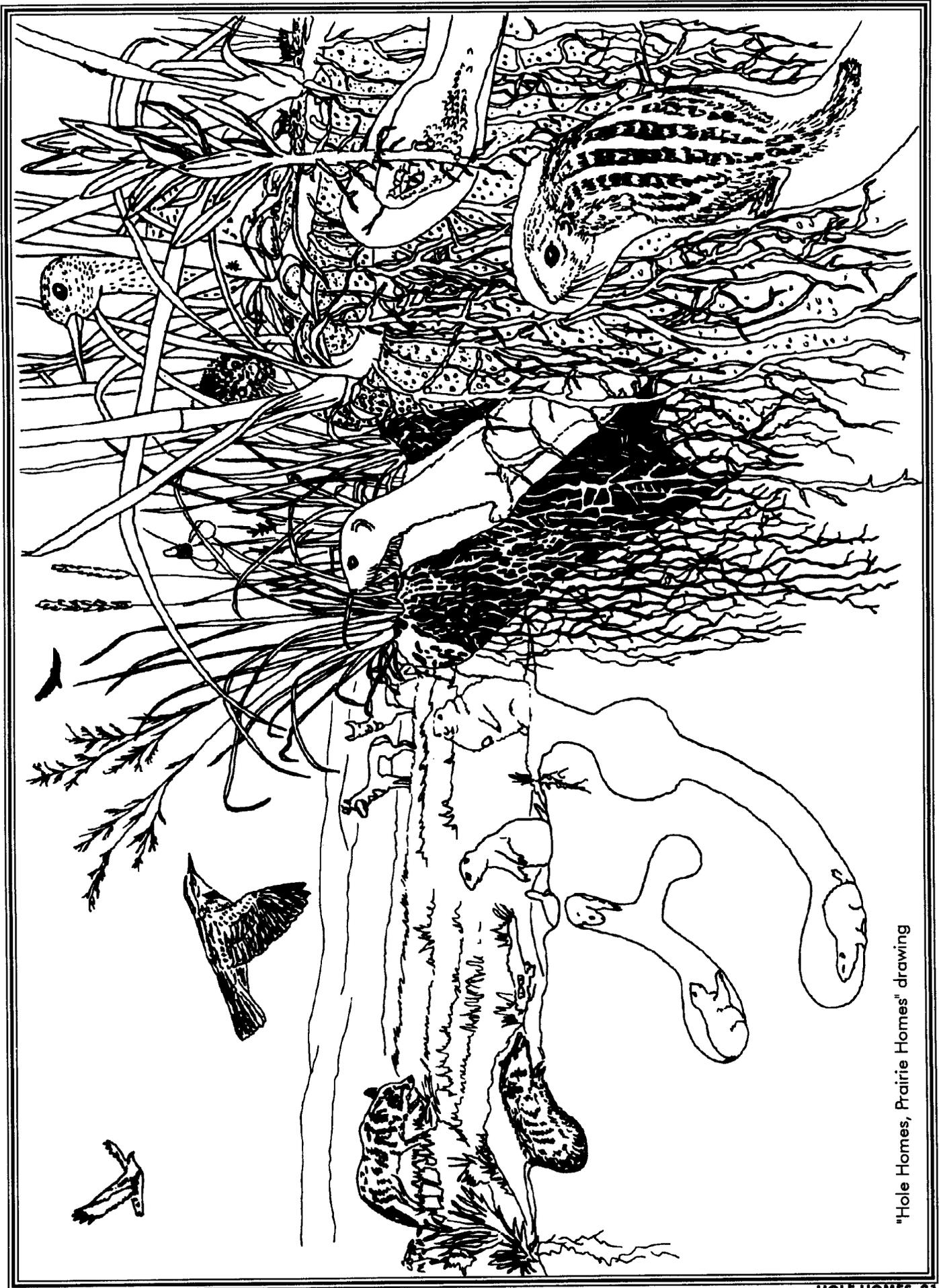
1. Using pictures of a grassland and experiences from the field work, have your students make a diorama or mural of a grassland. If making a diorama use a soda pop box/flat and pipe cleaner or clay animals. Ask them to include at least one nest and one underground home.

2. Name three needs that humans have in common with prairie dogs.

EXTENSIONS:

1. In an open space or natural area that is basically undisturbed by development, search for animal homes and discuss the variety of sites animals find even without trees.

2. Discuss possible ways for early pioneers to build homes in the land of no trees. Until trains were able to cheaply bring lumber in from regions with forests, people living in grasslands studied the examples of the grassland animals. The tall grasses had very long roots in the soil and held the soil together. What is a sod house? Some soil in the grassland had clay in it and clay could be turned into a brick. Everyone's communities varied and the availability of the following will vary with the resources. Locate a brick maker or a sod house builder for a demonstration or visit an efficient underground home. These are modern variations on pioneer attempts to create shelter on the grasslands.



"Hole Homes, Prairie Homes" drawing

3. Buy several types of grass seed from a nursery (oat, bluegrass, and buffalo grass) and grow them in a clear jar with potting soil. Water when dry, keep in a sunny location, and watch as the roots form and the grass seeds grow. Through a period of several weeks, students will observe the heights to which grasses can grow, the types of flowers they produce, and the ability their roots have to fill the soil and bind it together. After one or two months, or when the roots fill most of the jar, pull the grass/soil/roots clump out of the jar to observe what has occurred. Consider how this can prevent erosion and how it can make a sod roof for animals living underground. Also, consider how effective it could be in sod homes for pioneers living on the prairie.

4. Extension appropriate for grades 4-6. Write for information from National Grasslands managers. Ask for materials on the reasons for their existence, historical material, and compare these grasslands that have been protected by the U.S. Forest Service and other government agencies to non-protected regions. Locate each on a map of the United States and discuss the range of the grasslands now compared to before pioneers settled and began ranching and farming. Each is managed by a variety of agencies and you will need to check within your state to locate an address.

RESOURCES:

If your state isn't listed, call your Department of Natural Resources and ask for grassland information.

NATIONAL GRASSLANDS

California: Butte Valley National Grassland

Colorado: Pawnee National Grassland and Comanche National Grassland

Idaho: Curlew National Grassland

Kansas: Cimmaron National Grassland

Nebraska: Ogalala National Grassland

New Mexico: Kiowa National Grassland

North Dakota: Little Missouri National Grassland, Sheyenne National Grassland

Oklahoma: Black Kettle National Grassland and McClelland Creek National Grassland

Oregon: Crooked River National Grassland

South Dakota: Grand River National Grassland, Cedar River National Grassland, Fort Pierre National Grassland and Buffalo Gap National Grassland

Texas: Rita Blanca National Grassland, L.B.J. National Grassland and Caddo National Grassland

Wyoming: Thunder Basin National Grassland

