

Coping with Cold

Adapted from *Shelburne Farms Project Seasons*

By Deborah Parrella

Objective: Students will learn about winter survival strategies of animals.

Grade Level: K-3

Groupings: Entire class

Materials: Set of cards listing the four winter adaptations (hibernation, migration, dormancy, remaining active) with string for hanging cards around students' necks; props to represent these adaptations such as an alarm clock (set for spring), a suitcase, a bathrobe, and a warm winter coat; *MOUSEKIN'S WOODLAND SLEEPERS* by Edna Miller (Simon & Schuster, 1970); and pictures of animals or animal puppets.

Time Allotment: 30 minutes

Directions:

1. Discuss with the class the season of winter and how it affects people. What changes do the students and their families make in their dress, food, homes, and vehicles?
2. What about animals? How do they adapt to winter? Do they make similar changes in their coats, food, homes, and way of travel? Using the students' ideas, highlight the following four winter survival strategies: **hibernation, migration, dormancy, and remaining active.**
3. Choose four students to be the experts on the four strategies. Call them up one at a time and hang a winter adaptation sign around their neck. Assign props to each student to symbolize or define the winter adaptation. For example, an alarm clock "set for spring" can represent hibernation, a suitcase for migration, a bathrobe for dormancy, and a warm winter coat for remaining active.
4. Explain that you will be reading *MOUSEKIN'S WOODLAND SLEEPERS*, a story about how different animals adapt to winter. Challenge the students to discover what winter survival strategies the various animals in the story are using. Stop throughout the story to ask the students how the animals described are adapting to winter.
5. Have the four winter survival strategy experts stand in the front of the class. Pass out pictures of animals or animal puppets to the rest of the students. Have each student decide which strategy their animal uses to adapt to winter. When you say "Go," each student hands his or her picture to the expert wearing the sign that matches the animal's winter survival strategy.
6. Review their choices. Add more information as needed and use the Miller story for reference.

Extension:

- a. Look into where some common birds go in the winter. Trace their migration routes on world maps and calculate the distance traveled.
- b. Certain active animals such as the snowshoe hare, short-tailed weasel, and ermine, change color in winter. Discuss with your class the benefits of camouflage.
- c. Involve your class in researching more about hibernating mammals. How long do they hibernate? What are some unique physical changes the animals experience? To dispel a common myth, have the students compare their findings to the winter activities of a bear.
- d. During the winter thaws, look for signs that some common dormant animals are out and about (tracks, droppings, food, homes, etc.)

Hibernation Happenings:

Bears are animals that everyone thinks of as hibernators, but in fact bears don't really hibernate. In their dens in winter, bears become dormant, entering a deep but intermittent sleep. Occasionally on warm winter days they may wake, leave their dens, and range about. True hibernation, by contrast, is an almost death-like state characterized by profound physical changes. Unlike the body functions of a dormant animal, a hibernator's metabolism slows greatly. A woodchuck's body temperature drops to about 37 degrees Fahrenheit, and its heart rate drops to as slow as three or four beats per minute. True hibernation, a radical energy-saving adaptation, is practiced in New England by only three types of animals: the woodchuck, several species of bat, and two kinds of jumping mice.

Hibernate

(Deep sleep for a prolonged amount of time)

Species	Winter Habitat	Winter Food Source
Little Brown Bat and other bat species	Caves	Doesn't eat during winter
Woodland Jumping Mouse & Meadow Jumping Mouse	Underground, below frostline	Doesn't eat during winter
Woodchuck	Burrows, below frostline	Doesn't eat during winter

Dormant

(Wakes up and moves about occasionally)

Species	Winter Habitat	Winter Food Source
Black Bear	Caves, under fallen trees	Doesn't eat during winter
Eastern Chipmunk	Burrows, below frostline	Seeds and nuts stored in caches
Raccoon	Hollow trees, under rocks; city and suburbs	Whatever is available; prefers nuts and berries, eats frogs, clams, snails, crayfish, occasionally birds or small rodents
Striped Skunk	Open fields or woods, city and suburbs	Berries, roots, insects, eggs, small animals

Active

(Well adapted to winter and food source available)

Species	Winter Habitat	Winter Food Source
Coyote	Open fields and woods	Small or medium sized animals
White-tailed Deer	Sheltered woods, usually evergreen	Buds, twigs, apples, evergreen foliage
Red Fox	Open fields, woods, farmland, suburbs	Fruit, mice, rabbits, insects, carrion (some stored in caches)
Snowshoe Hare and Cottontail Rabbit	Above ground nests in woods and brush	Buds, twigs, own droppings
Eastern Mole (semi-active)	Tunnels below frostline	Insects, spiders, slugs, seeds
Meadow Vole	Tunnels under snow and leaf litter in meadows	Seeds, roots, stems, bark
White-footed mouse and Deer Mouse	Nests in walls, logs, stumps, under tree roots	Berries, buds, seeds, nuts, bark, greens, insects, human scraps
Porcupine	Dens in rocks, holes in trees, under trees	Evergreen foliage, bark and twigs
Eastern Gray Squirrel	Tree dens or leaf nests	Acorns, nuts, seeds
Short-tailed Weasel	Open fields and woods	Small rodents, insects, amphibians