



Western Upper Peninsula Center for Science, Mathematics and Environmental Education

A partnership of

Copper Country & Gogebic-Ontonagon Intermediate School Districts and Michigan Technological University
Serving schools and communities in Houghton, Baraga, Gogebic, Ontonagon and Keweenaw Counties

Think Small

Grade : 4

Duration: Approx. 1 ½ - 2 hrs

Summary:

Where do small mammals live in the winter? How do they stay warm and what do they eat? Students will search for habitable places and collect data from these sites, including temperature, food availability and shelter.

Objective:

Students will:

1. Identify the needs of mammals.
2. Determine how their needs are met in winter.
3. Find micro-sites where mammals' needs can be met.

Materials:

One for each group of 2-3 students:

- Thermometer
- Clipboard
- Data Sheet
- Pencil
- Small mammal I.D. books

Background:

Often, when we see a forest, we only see the largest characters of its make-up: trees, shrubs, flowers, and other plants. Each of these may be an obvious place for an animal to find food & shelter, but there are also smaller, less conspicuous areas that are critical for the survival of many of our smaller critters. These smaller areas are micro-sites, small places that provide food and shelter for an organism. They may often go unnoticed initially, but once you are aware of them, they too become obvious places to look for evidence of critters, and even the critters themselves.

In the winter, both colder temperatures and reduced food availability add stress to animals. This is of even greater concern to smaller mammals since their size and surface area causes them to cool more quickly. The places they choose to over-winter must provide necessary food and protection if they are to survive.

Pre-Activity:

1. Brainstorm what small mammals do to survive the winter
2. Discuss the mammals that stay active
 - a. What are their requirements?
 - b. How do they meet these requirements?
3. Explain what microsites are (under the snow, at the base of a tree, inside a tree or log), and what students should look for:
 - a. Different temperatures of different sites
 - b. Protection from predators
 - c. Snow as an insulator
 - d. Food sources

Activity:

1. On snowshoes, students take data sheets, and begin a search for micro-sites.
2. Remember to “think small”, and look close to the ground when searching for evidence of critters.
3. On the data sheet, record your observations for 4 microsites that you think might be appropriate for small mammals to live in.
4. Places to look:
 - At the base of trees
 - In the forest (shadier)
 - Different depths in the snow
 - Along the sunny side of a building
 - Along the sunny side of a tree
5. While collecting temperatures and other data, students should look for other signs of small mammal life:
 - Tunnels
 - Food sources (seeds, acorn remnants, berries).
 - Fur
 - Gnawed branches
 - Scat
6. What kind of small mammals could live in the sites they’ve found?

Post Activity/Assessment:

1. Compare notes and discoveries as a group.
2. Which students found places that could support a small mammal?
3. Why do you think your sites would be appropriate for a mammal to overwinter in?