



**School Program Description**  
**Winter Wetland Wonders**  
**Level: 4<sup>th</sup> Grade on Up**

**Saginaw Bay Visitor Center**  
**Bay City State Recreation Area**

**PROGRAM DESCRIPTION:**

This program focuses on Michigan's winter ecology. Students will explore ways animals deal with winter, how snow forms, the international snow language, and wildlife tracking through an introductory slide-talk presentation, wildlife tracks & signs lab, snowshoe trek, and winter wildlife inventory. Students will be taught how to identify wildlife tracks using a "track ID card"; they will learn signs of common wetland animals; and explore the winter woods on foot and snowshoes looking for evidence of animal activity with a naturalist guide. This program is designed for a 3-4 hour field trip experience (Ice Fishing is another option if time permits). Students will be outside for approximately half of the program time, with indoor segments interspersed to keep them comfortable.

**PROGRAM GOALS:**

To help students appreciate and value Michigan's wetland habitats.

To help students realize the need to conserve Michigan's remaining wetlands in order to preserve Michigan's wildlife populations.

To get student's out enjoying Michigan's great out-of-doors in the winter.

**PROGRAM OBJECTIVES:**

1. Students will be able to list three Michigan animals that are active during the winter months.
2. Students will be able to list two common ways wildlife escape winter cold: hibernate and migrate.
3. Students will be able to name two Michigan animals which are true hibernators.
4. Students, given a common Michigan wildlife track pattern, will be able to identify the track pattern, and name a likely animal which made the track using a Track ID Card.
5. Students will be able to use a pair of snowshoes.
6. Students, given a common Michigan wildlife track will be able to identify the animal family which made the track, based on number of toes, claw marks, and size, using their Track ID Card.
7. Students will be able to identify at least one animal's presence in the winter woods by a common sign they leave behind.
8. Students will be able to list three ways wildlife deals with Michigan's winter temperatures.
9. Students will be able to identify at least two snow crystals, using the International Snow Crystal Key.
10. Students will be able to identify at least three types of snow, using the International Snow Language.

**PRE-VISIT SUGGESTIONS:**

1. Students should dress for outdoor exploration in current weather conditions. It can be 5-10 degrees cooler next to the Saginaw Bay. Students need to wear appropriate coats, boots, gloves, hats and, when snow is deep, snow pants.
2. Read the book Snowflake Bentley, by Jacqueline Briggs Martin (elementary), or assign secondary students to read a chapter of the Stokes Nature Guide: A Guide to Nature in Winter, Donald & Lillian Stokes, and report to class...
3. Have your class brainstorm (without your help) animals, which they think hibernate to escape Michigan's cold and animals they think are active in the winter. Save the list to review when they come back from their field trip. Discuss any animals which they need to remove or add to list.

### **POST-VISIT SUGGESTIONS:**

1. Have the students create a "Winter Wetland" mural and let each student draw a picture on it of an animal which is active throughout the winter in Michigan's wetlands.
2. On a snowy day, make some microscope slides of snow crystals, using refrigerated glass slides and refrigerated spray plastic.
3. Conduct temperature studies of your schoolyard comparing the air temperature under different depths of snow and the open air above the snow.
4. Have the student create their own "Track Stories" on a piece of poster board, drawing a series of animal tracks passing across their poster. Have the students write on another sheet of paper what they imagined "occurred" as they created their tracks.
5. Keep a record on a chart of what types of snow is in the schoolyard using the International Snow Language and Snow Crystal Classification. Also, measure "kali", snow depth, and temperature.
6. Project WILD: *Tracks!* – students make plaster casts of animal tracks; *Oh Deer!* – students become "deer" and components of habitat (try it with some winter elements); *How Many Bears Can Live in a Forest?* – students become "bears" looking for habitat components (play it twice, once with summer components and once with winter); *The Thicket Game* – students become "predator" and "prey" in a version of "hide and seek".
7. Project Learning Tree – *Bursting Buds* – students observe tree buds throughout the year; *Charting Diversity* –students explore the amazing diversity of life and adaptations for survival (come up with some winter adaptations as an alternative); *Adopt a Tree* – students observe a tree and record observations; *The Closer You Look* – students take a close look at trees and their parts.

### **COORDINATING WITH THE MICHIGAN SCIENCE GRADE LEVEL CONTENT EXPECTATIONS:**

(In process of correlating)

### **COORDINATING WITH M.E.A.P. SCIENCE OBJECTIVES:**

Constructing New Scientific Knowledge ( C ) I. 1

e.1, e.3, e.4, m.1, m.3, m.5, h.1, h.5

Reflecting on Scientific Knowledge ( R ) II.1

e.4, m.5, h.6

Organization of Living Things ( LO ) III.2

e.1, e.2, e.3, e.4, m.1, m.4, h.1

Evolution ( LE ) III.4

e.2

Ecosystems ( LEC ) III.5

e.2, e.4, m.2, m.3, m.4, m.6, h.1, h.3, h.4

**COORDINATING WITH BAY CITY PUBLIC SCHOOLS SCIENCE CURRICULUM**

**BENCHMARKS:**

Ecosystems 4-1, 4-2, 4-3, 6-1, 6-2, 6-3, 6-4, 6-6, 10-1, 10-2, 10-3, 10-4

Heredity 7-2, 10-1