



## Winter Inquiry

Grades K-2 (adaptable for Grades 3-5)

### What to Expect

Our two-hour *Winter Inquiry* program at the Green Mountain Audubon Center is designed to provide students with opportunities for hands-on exploration of the winter world guided by a professional Audubon Teacher/Naturalist. The program starts indoors in our Education Barn with an introduction to winter habitats, animal strategies for surviving winter, and the art and skill of wildlife tracking. For the second half of the program, we head outside to explore the Audubon Center's winter woods and fields, looking together for animal tracks and signs, experimenting with snow, and experiencing the differences between winter habitats first hand. Every exploration will be different, but each focuses on fostering a scientific skills and habits of mind, including using senses to make observations, asking questions, and making predictions – all in and about the natural world.



### Essential Questions and Understandings

#### What is winter like in Vermont and how do different plants and animals survive winter?

- During winter in Vermont, it gets colder and there is less daylight.
- Winter is a challenging season for plants and animals because there is not a lot of food available and it is colder.
- Animals hibernate, migrate, go dormant or stay active to survive winter in Vermont. Most plants go dormant.
- Animals that stay active leave clues in their habitats that can tell us what they have been doing (i.e. tracks, browse, scat, hair etc).
- Snow is made mostly of air and a little bit of frozen water. Snow can make moving around harder for animals, but it can also protect animals from cold temperatures and predators.

### Vermont Grade Expectations

**S1-2: Scientific Questioning, Predicting & Hypothesizing** – Students work the Teacher/Naturalist to observe, ask questions about, and make predictions regarding patterns in the winter world (i.e. tracks and signs, snow depth in forests vs. fields).

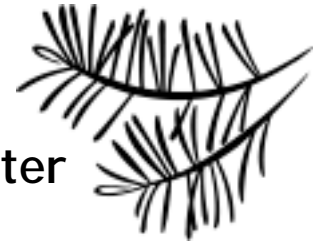
**S30: Structure and Function – Survival Requirements** – Students discuss and observe different physical structures and behaviors Vermont animals have that allow them to survive the challenges of winter (i.e. hibernating, thick fur, caching, yarding, flocking, shivering, walking efficiently) from pictures, mounted specimens, tracks and signs, and activities.

**S34: Energy Flow in an Ecosystem** – Students learn that energy is limited during the winter and discuss and observe strategies plants and animals have evolved to conserve energy.

**S35: Food Webs in an Ecosystem** – Students look for and interpret signs (i.e. browse, scat, middens) of what animals are eating in different habitats during the winter.

### Key Words

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|----------------|------------------------|----------------|
| 1. Hibernation | 5. Track and print     | 9. Subnivean   |
| 2. Dormancy    | 6. Stride and straddle | 10. Habitat    |
| 3. Active      | 7. Predator            | 11. Camouflage |
| 4. Migration   | 8. Prey                |                |



## Recommended Books for Winter

### Children's Books

- Bancroft, Henrietta and Richard G. Van Gelder. *Animals in Winter*. New York: HarperCollins, 1997.
- Bowen, Betsy. *Tracks in the Wild*. New York: Houghton Mifflin, 1993.
- Boyle, Doe. *Summer Coat, Winter Coat: The Story of a Snowshoe Hare*. Washington DC: Smithsonian Institute.
- Branley, Franklyn M. *Snow Is Falling*. New York: Scholastic, 1986.
- Brett, Jan. *The Hat*. New York: Scholastic, 1997.
- Brett, Jan. *The Mitten*. New York: Scholastic, 1989.
- Dorros, Arthur. *Animal Tracks*. New York: Scholastic, 1991.
- George, Lindsay Barrett. *In the Snow: Who's Been Here?* New York: Scholastic, 1995.
- Hader, Berta and Elmer Hader. *The Big Snow*. New York: Scholastic, 1976.
- Jones, Jennifer. *Who Lives in the Snow?* Lanham, MD: Roberts Rinehart, 2001.
- Keller, Holly. *Geraldine's Big Snow*. New York: Scholastic, 1988.
- Martin, Jacqueline Briggs. *Snowflake Bentley*. New York: Scholastic, 1998.
- Nail, Jim. *Whose Tracks Are These? A Clue Book of Familiar Forest Animals*. Colorado: Roberts Rinehart, 1994.
- San Souci, Daniel. *North Country Night*. New York: Bantam Doubleday Dell, 1990.
- Selsam, Millicent E. *Big Tracks, Little Tracks: Following Animal Prints*. New York: Scholastic, 1995.
- Wilds, Kazumi Inose. *Hajime in the North Woods*. New York: Arcade Publishing.

### Teacher's Resource and Activity Books

- Garett, Linda and Hannah Thomas. *Small Wonders: Nature Education for Young Children*. Woodstock, VT: Vermont Institute of Natural Science, 2005.
- Heinrich, Bernd. *Winter World: The Ingenuity of Animal Survival*. New York: HarperCollins, 2003.
- Levine, Lynn and Martha Mitchell. *Mammal Tracks and Scat: Life Size Tracking Guide*. East Dummerston, VT: Heartwoodpress, 2007.
- Lingelbach, Jenepher and Lisa Purcell. *Hands-On Nature: Information and Activities for Exploring the Environment with Children*. Woodstock, VT: Vermont Institute of Natural Science, 2000.
- Markle, Sandra. *Exploring Winter*. Canada: McClelland and Stewart, 1984.
- Nestor, William P. *Into Winter: Discovering a Season*. Boston: Houghton Mifflin, 1982.
- Parella, Deborah. *Project Seasons: Hands-on activities for discovering the wonders of the world*. Shelburne, VT: Shelburne Farms, 1995.
- Rezendes, Paul. *Tracking and the Art of Seeing: How to Read Animal Tracks and Sign*. New York: HarperCollins, 1999.
- Stokes, Donald W. *A Guide to Nature in Winter: Northeast and North Central America*. Boston: Little, Brown & Co., 1976.

\*\*\*We are trying to reduce our carbon footprint. Please visit [www.vt.audubon.org](http://www.vt.audubon.org) to download suggestions for **Pre- and Post-trip Activities** to do in your classroom as a complement your trip to the Green Mountain Audubon Center. Hardcopies can be mailed upon request.