



Insect Investigations

Grades K-4

What to Expect

Our two- or four-hour *Insect Investigations* program at the Green Mountain Audubon Center is designed to provide students with opportunities for hands-on exploration of the fascinating world of insects led by a professional Audubon Teacher/Naturalist. Your students will be guided through the fields, forests, and ponds of the Green Mountain Audubon Center, stopping to collect, observe and identify a variety of insects – from bees to beetles to dragonflies - in these different habitats. We will discuss what makes insects special by “Dressing An Insect” and what makes them different by comparing adaptations, behaviors and life cycles. Depending on what we see and your students’ interests and questions, each trip will be a little different, but every program delivers plenty of time for exploration and follow-up discussion that connects students’ observations with the essential questions and understandings listed below.



Essential Questions and Understandings

What are insects and where to do they live in Vermont?

- Insects can look very different, but all have six legs, three body segments, antennae, and compound eyes. Most insects have wings.
- Insects can be found in ponds, fields, forests, and streams. Fields habitats often support the greatest diversity of insects because of the diversity of plant foods growing in them.
- Insects metamorphose from eggs into breeding adults.
- Insects have special adaptations to help them survive in their unique habitats.
- Insects can be captured, observed and identified using a variety of tools.

Vermont Grade Expectations

S1-2: Scientific Questioning, Predicting & Hypothesizing – Students work with the Teacher/Naturalist to observe, ask questions about, and make predictions regarding patterns about insects and their habitats (i.e. will we find more different kinds of insects in the field, pond or forest? Why?).

S30: Structure and Function – Survival Requirements – Students observe and discuss different physical structures and behaviors insects have that allow them to survive and reproduce (i.e. camouflage; crickets singing, mating and laying eggs; caddis fly larvae building “houses” for protection; brightly-colored butterfly wings that warn potential predators of bad-tasting toxins).

S31: Life Cycles and Reproduction – Students observe and compare life stages in different insects, with a focus on complete (egg → larvae → pupa → adult) versus incomplete (egg → nymph instars → adult) metamorphosis.

S38: Classification of Living Things – Students collect and/or observe a variety of insects in field, pond, and forest habitats using nets and collection containers. They sort and classify them using field guides.

Key Words

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| 1. Insect | 5. Mandible | 9. Caterpillar | 13. Aquatic |
| 2. Thorax | 6. Antenna | 10. Nymph | 14. Pollination |
| 3. Abdomen | 7. Egg | 11. Adult | 15. Camouflage |
| 4. Compound eye | 8. Larva | 12. Metamorphosis | |



Recommended Resources for Insects

Children's Books

- Allen, Judy and Tudor Humphries. *Are You A Dragonfly?* New York: Kingfisher, 2001.
- Anderson, Margaret Jean and Marie LeGlatin Keis. *Children of Summer: Henri Fabre's Insects.* Farrar, Straus and Giroux, 1997.
- Benner, Barbara. *Thinking About Ants.* New York: Scholastic Inc., 1997.
- Berger, Melvin. *Chirping Crickets.* New York: Scholastic Inc., 1998.
- Brenner, Barbara and Bernice Chardiet. *Where's That Insect?* New York: Scholastic Inc., 1993.
- Carle, Eric. *The Very Hungry Caterpillar.* New York: Scholastic Inc., 1969.
- Cole, Joanna. *The Magic School Bus Gets Ants In Its Pants: A Book About Ants.* New York: Scholastic Inc., 1996.
- Gibbons, Gail. *Monarch Butterfly.* New York: Scholastic Inc., 1989.
- Hamilton, Kersten. *The Butterfly Book: A Kid's Guide to Attracting and Keeping Butterflies.* Santa Fe, NM: John Muir Publications, 1997.
- Himmelman, John. *A Lady Bug's Life.* New York: Children's Press, 1998.
- Himmelman, John. *A Monarch Butterfly's Life.* New York: Children's Press, 1999.
- Holland, Gay W. *Look Closer: An Introduction to Bug-Watching.* Millbrook Press, 2003.
- Llewellyn, Claire. *The Best Book of Bugs.* New York: Kingfisher, 1998.
- Pallotta, Jerry. *The Icky Bug Alphabet Book.* Watertown, MA: Charlesbridge Publishing, 1986.
- Rompella, Natalie and Margo Burian. *Don't Squash That Bug!: The Curious Kid's Guide to Insects.* Lobster Press, 2007.
- Soutter-Perrot, Andrienne. *Ant.* Italy: American Education Publishing, 1993.
- Stewart, Melissa. *Maggots, Grubs, and More: The Secret Lives of Young Insects.* Millbrook Press, 2003.
- Young, Ed. *I Wish I Were A Butterfly.* New York: Scholastic Inc., 1987.

Teacher's Resource and Activity Books

- Blobaum, Cindy. *Insectigations: 40 Hands-on Activities to Explore the Insect World.* Chicago Review Press, 2005.
- Bugs and Slugs: An Introduction to Familiar North American Invertebrates.* Pocket Naturalist Field Guide. Waterford Press.
- Frost, S.W. *Insect Life and Insect Natural History.* New York: Dover Publications, Inc., 1959.
- Garett, Linda and Hannah Thomas. *Small Wonders: Nature Education for Young Children.* Woodstock, VT: Vermont Institute of Natural Science, 2005.
- A Guide to Northeastern Dragonflies and Damselflies.* Lincoln, MA: Mass Audubon.
- Fleischman, Paul. *Joyful Noise: Poems for Two Voices.* Harper Trophy, 1988.
- Kneidel, Sally Stenhouse. *Creepy Crawlies and the Scientific Method: Over 100 Hands-on Science Experiments for Children.* Golden, Colorado: Fulcrum Publishing, 1993.
- 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.
- Parella, Deborah. *Project Seasons: Hands-on activities for discovering the wonders of the world.* Shelburne, VT: Shelburne Farms, 1995.
- Rosenblatt, Lynn M. *Monarch Magic! Butterfly Activities and Nature Discoveries.* Charlotte, VT: Williamson Publishing Co., 1998.
- Russo, Monica. *Insect Almanac: A Year-Round Activity Guide.* New York: Sterling Publishing Co., 1991.
- Ross, Michael Elsohn. *Cricketology.* Minneapolis: Carolrhoda Books, Inc., 1996.