

Welcome/ Introduction:	Staff/Volunteer Names Overview of the Nature Center-used to be a dairy farm, now it's a nature preserve. Today's Topic-Insects Question: What makes an insect?
Ice Breaker/ Game:	Name Game: each student says his/her name and something about themselves The other students follow, repeating each student's information.
Background/ Exploration:	Insects are invertebrates , they have no backbones. Insects are also arthropods. Arthropods have a hard shell, the exoskeleton, which holds them together and helps them move. Most have many legs-8 or more. Basic Insect Parts: Head, thorax, abdomen, 6 legs, 2 antennae, hard shell, wings Most insects have compound eyes, and many also have simple eyes. Spiders and ticks are not insects, they have eight legs.
Activity:	Build a Overview of insect orders (posters). Insect life cycle -Insects go through complete or incomplete metamorphosis as they mature. (e.g.-butterflies, bees = complete; cicadas, dragonflies = incomplete) Complete- egg—larva (grub)—pupa—adult The change from pupa to adult is called metamorphosis . This is like a caterpillar changing into a butterfly. Incomplete-nymph hatches, grows, gets wings, and grows to adult size. [props] Adaptations -An adaptation is something about a creature that helps it live and survive in its environment. An example is the Monarch's large wings that help it fly long distances when it migrates. Some insects live together in large groups and have specialized members that do different jobs, e.g. ants, bees, and termites.
Activity:	Live Colony: Look at a live bee hive and see what the insects are up to. Find: eggs, larvae or pupae/grubs, honey cells, wax cells, workers, pollen baskets, queen (queen cells).
Observation:	Monarchs -look at caterpillar, chrysalis, and emerging butterflies in auditorium. The caterpillars only eat milkweed, and become toxic to predators. Monarchs migrate south to Mexico or CA in fall. Some may fly over 1800 miles. We can help them by protecting their winter homes, planting milkweed, and planting flowers for nectar.
Activity:	Berlese (Insect) funnel—(Ranger Rick, Sisson) Open funnel and look in jar. Importance of insects -pollination of flowers so plants set seed; food for other insects, animals, and people; eat other pests...
Trail Talk: OUTDOOR EXPLORATION:	Trail Rules. Have the students use nets to carefully capture insects for observation. Use magnifying boxes and keepers to observe and share. Look for ants along sidewalks and in prairie and woods. Can you find their nests? Look for bees, wasp nests, and carpenter ants (in rotting logs).
Game:	Monarch Migration Headache. Students play migrating monarchs and learn about hazards faced on the way south.

Closing: **Pesticides**-chemical pesticides work very well at first, but some insects are naturally resistant to the chemicals. Chemicals can work up the food chain and sicken and kill predators like eagles, hawks, and possibly humans. Scientists study how to use pathogens instead of chemicals to get rid of pests-other insect predators (ladybugs-aphids), bacteria, or viruses that kill the pest and not other creatures.

SEND OFF: Goodbye!
Next Month-Seeds & Fruits

TAKE HOME: Parent Outline
Insect activities
Grasshopper puzzle

Vocabulary

Invertebrate, arthropod, insect, thorax, abdomen, antenna, proboscis, pupa, larva, adaptation, colony, migration, carnivore, herbivore, drone, pesticide

Background and Activity References

www.nwf.org National Wildlife Federation
www.naba.org North American Butterfly Association
www.nationalgeographic.com/kids/ neat site for all kinds of animal and nature information and photos
www.pbs.org/wgbh/nova/bees
www.honey.com/kids/index.html
www.cals.ncsu.edu/course/ent591k/nectar_guide.html nectar guide photos, human and bee views
www.honey.com National Honey Board-facts, kids info., recipes, links

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(IAN-601--606) IAN-606 Iowa Insects and Other Invertebrates
<http://www.extension.iastate.edu/pubs/wi.htm> ISU Press website-can download pdf booklets
Lang, Susan S. 1995. *Nature in Your Backyard: Simple Activities for Children*. The Millbrook Press, Brookfield, CN. P. 6 Ant attracting activities; p. 10 Bottle of Bugs (Berlese funnel)-take home
Pringle, Lawrence. *The Golden Book of Insects and Spiders*. 1990. Western Publishing Co., Inc., Racine, WI.
Ranger Rick Naturescope: Incredible Insects. 1989. National Wildlife Federation, Washington, D.C.