INSECT INVESTIGATIONS

Billions of Bugs!

Betsy Irwin

LINCOLN MEMORIAL GARDEN and NATURE CENTER

Teacher's Guide

Fall Program: Insect Investigations

Grade Level: K – 3

Field Trip Length: 1.5 hours

INTRODUCTION

Insects are everywhere and in great numbers! While most children can recognize a few common insects at a young age, do they know there are more species of insects than ALL other animals together on our Earth? Some insects are extremely beneficial, while others are considered pests. Insects have great diversity of body forms and ways of moving. Their stages of life cycles are very interesting to study, as well as, their preference of plant hosts and plant relationships. However, when children are asked to name an animal, seldom is an insect considered. On this field trip to Lincoln Memorial Garden, children will be introduced to the diversity and adaptability of insects. They will investigate insects in the woodland, wetland, and prairie ecosystems at the Garden. We'll look for insect homes (such as galls, mud dauber wasps and hornet nests) and common plants that insects like for food sources. They will be introduced to examples of metamorphosis and insect's body structures. As well, they will have loads of fun searching for the billions of bugs who call Lincoln Memorial Garden their home!

OBJECTIVES

1. To observe autumnal changes at Lincoln Memorial Garden, focusing on the many different insects and their relationships with the plants and other animals of our native ecosystems.
2. To discover the similarities and differences of insects' body structures and stages of the life cycle.
3. To appreciate the contributions of insects to the natural world, the beauty of nature in the autumn season, and the joy of learning in an outdoor setting about the natural world.

THIS PROGRAM HAS THE POTENTIAL TO MEET THE FOLLOWING ILLINOIS STATE STANDARDS:

Learning Area	Goal	Standard	Benchmark
Language Arts	4	A	1a, 1b, 1c, 1d
		B	1b
Mathematics	6	D	1
Science	11	A	1a, 1b, 1f
	12	A	1a, 1b
		B	1a, 1b

SUGGESTIONS FOR PRETRIP ACTIVITIES:

1. Introduce the students to the characteristics of an insect through creating simple models with clay and toothpicks. Show them models with three body parts – head with compound eyes, antennae and mouthparts, thorax with wings and legs, and abdomen.
2. Take children on a walk through the schoolyard or a nearby field or park. Ask them to look for a wide variety of possible animal homes.
   Examples could include: on plants or in the stems or leaves of plants, in galls; in fruits or nuts; under logs; underground; under the bark of trees; or in water. Make a group graph of the findings from the outing.
3. Read any of the books included in the Resource List. Find some stories the children can dramatize as a play after the reading.
4. Find a collection of insect pictures that the children can sort by category into the ways they move – flying, crawling, hopping.
5. Use the same pictures for playing a relay game. Use clothespins to put a picture of an insect on the child. Have them play a relay race with two or three teams. The children must move the way that the insect in the picture s/he is wearing would move.

DESCRIPTION OF LINCOLN MEMORIAL GARDEN FIELD TRIP

Autumn is a time of slowing down and winter preparation for plants and animals. With changes every day, fall is such an exciting to explore the Garden for the many different species of insects who live here. **Insect Investigations** is a field trip to Lincoln Memorial Garden that increases students' awareness of insect lives and deepens appreciation for all fascinating invertebrates of the natural world.

We'll listen to crickets and grasshoppers with their chorusing behavior of rhythmic song, look for butterflies and moths sipping nectar from fall flowers, discover insect food sources and homes, study insect movements, and perhaps even move down the Garden trails like our favorite bees, butterflies, and bugs!

The field trip will begin with a brief introduction to Lincoln Memorial Garden in one of the Garden's council rings. A naturalist will lead a discussion about the history of the Garden, how we use all our senses to learn more about nature, the many distinguishing signs of fall, the similarities and differences between the many insects of the world, and the expectations for people visiting and hiking the trails of Lincoln Memorial Garden.

The school group will be divided into small groups of 10 – 12 children. During your naturalist-led walk, the group will explore woodland, prairie, and wetland habitats looking for insects, their homes, and favorite foods. We will conclude our hike in the Discovery Room of the Nature Center. Students will be able to explore exhibits and hands-on activities to learn more about the natural world of central Illinois. **Remember to dress for the weather!**

SUGGESTIONS FOR POST TRIP ACTIVITIES

1. Ask children to invent an insect using all their new knowledge. Make "Invent an Insect" cards or write a list on the board of possible insect habitats and characteristics such as insects who live in the water, insects who live in trees, insects who live in grasses, insects you would want to touch, insects that might scare, insects who hop, jump, fly or crawl, etc. Have them draw the insect in its habitat with a home and food source. Create a "new insect" zoo gallery by displaying the inventive art of young entomologists.

2. Create an art project using 3 connected sections of an egg carton for the three body parts of the insect. Use pipe cleaners and toothpicks for antennae and legs and waxed paper for wings. Paint on eyes and mouthparts and give some color to the body parts.
3. Observe the life cycle of mealworms or butterflies. Remember always to be respectful to these captive creatures. Mealworms can be purchased from pet stores and butterfly pupae from science and nature catalogs. Only raise butterflies in the spring when they can be released in the wild.
4. Introduce migration routes of monarch butterflies or dragonflies. Trace their routes on maps and learn what plants they need in their long travels. Compare insect migrations to bird migrations with research projects and plot the routes on a map.

RESOURCE LIST FOR INSECT INVESTIGATIONS: BILLIONS OF BUGS

Berger, Melvin. *Chirping Crickets.* HarperCollins Publishers. 1998

Boring, Mel. *Caterpillars, Bugs and Butterflies.* Northwood Books. 1996

Carle, Eric. *The Very Hungry Caterpillar.* Philomel Books. 1969, 1987

Cronin, Doreen. *Diary of a Fly.* HarperCollins Publishers. 2007

DePrisco, Dorthea. *Three Little Caterpillars.* Piggy Toes Press. 2007

Dorros, Arthur. *Ant Cities.* HarperCollins Publishers. 1987

Glass, Julie. *The Fly on the Ceiling: A Math Reader.* Random Books. 1998

Hawes, Judy. *Fireflies in the Night.* HarperCollins Publishers. 1963, 1991

Heiligman, Deborah. *From Caterpillar to Butterfly.* HarperCollins Publishers. 1996

Levine, Shar. *Extreme 3D Scary Bugs.* Silver Dolphin Books. 2005

Milton, Joyce. *Honeybees.* Grosset & Dunlap. 2003

Murawski, Darlyne. *Bug Faces.* National Geographic Society. 20000

Rockwell, Anne. *Bugs Are Insects.* HarperCollins Publishers. 2001

Rockwell, Anne. *Honey in a Hive.* HarperCollins Publishers. 2005

Sund, Mike. *Creepy Crawly Creatures.* Intervisual Books. 2007

Thong, Roseanne. *Ten Friendly Fireflies.* Piggy Toes Press. 2007

Wagner, Kathi. *The Everything Kids' Bug Book.* F + W Publications. 2003

Yorinks, Arthur. *Happy Bees.* Harry N. Abrams, Inc. Publishers. 2005