

# Volunteer Teaching Outline: Insect Life Cycles

As insects develop from eggs to adult they undergo metamorphosis, their bodies changing dramatically as they mature. Most insects have complete metamorphosis with four distinct life stages including egg, larva, pupa and adult. Other insects have simple metamorphosis with only three stages, changing from egg to nymph to adult. These tiny animals must find partners to reproduce and they use a variety of signals to find and attract mates.

## UNIT VOCABULARY

Insect	Life cycle
Egg	Nymph
Larva	Pupa
Adult	Cocoon
Chrysalis	Pupate
Emerge	Pheromone
Generation	
Simple metamorphosis	
Complete metamorphosis	

## SUGGESTED OUTDOOR ACTIVITIES

Look and Listen  
Insect Stages Safari  
Journal Activity  
Upper Grades Challenge: Insect Stages Survey  
Calling Codes  
Closing Thoughts

## THIS MONTH'S ACTIVITIES

**Puppet Show:** compare the life cycles of insects with simple or complete metamorphosis.

**Piece it Together:** observe and compare the life stages in a variety of insect species, looking for patterns and sorting by type of life cycle.

**Look and Listen:** sit quietly, observing insect behavior on the school grounds.

**Insect Stages Safari:** collect and observe insects, looking for evidence about their life cycles.

**Journal Activity:** record observations about insects in different stages of their life cycles.

**Upper Grades Challenge: Insect Stages Survey:** conduct a survey of insects on the school grounds looking for evidence of different life cycle stages.

**Calling Codes:** model how insects use different signals to communicate with members of their species.

**Closing Thoughts:** reflect on insects and the stages in their life cycles.

## BOOKS FOR KIDS

Cronin, Doreen, *Diary of a Fly*, Harper Collins, 2007. (Fiction; Age 4-8; Grade K-3)

DK Eyewitness Books, *Insect*, DK Publishing, 2004. (Informational; Age 8-12; Grade 3-7)

Ehlert, Lois, *Waiting for Wings*, Harcourt Publishing, 2001. (Informational; Age 4-8; Grade K-3)

Kalman, Bobbie, *The Life Cycle of a Honeybee*, Crabtree Publishing Co., 2006. (Informational; Age 6 and up; Grade 1 and up)

Pringle, Laurence and Bob Marstall, *An Extraordinary Life: The Story of a Monarch Butterfly*, Orchard Books, 1997. (Informational; Age 9-12; Grade 4-7)

Wallace, Karen, *Born to Be a Butterfly*, DK Childrens Publishing, 2000. (Informational; Age 5-7; Grade K-2)



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## INSECT LIFE CYCLES ALIGNMENT WITH NEXT GENERATION SCIENCE STANDARDS

The activities in this unit help children understand the basic concepts in the Disciplinary Core Ideas listed here. You can use the following list as a guide for lesson planning. These Disciplinary Core Ideas are taken from Grade Band Endpoints in *A Framework for K-12 Science Education*. Additionally, our activities give children opportunities to engage in many of the Science and Engineering Practices and reflect on the Crosscutting Concepts as identified in the Next Generation Science Standards.

### Grades K-2 Disciplinary Core Ideas

- **LS1A:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive, grow, and produce more plants. p.144
- **LS1B:** Plants and animals have predictable characteristics at different stages of development. Plants and animals grow and change. Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. p.146
- **LS1D:** Animals have body parts that capture and convey different kinds of information needed for growth and survival – for example, eyes for light, ears for sounds, and skin for temperature or touch. Animals respond to these inputs with behaviors that help them survive (e.g. find food, run from a predator). p.149
- **LS2A:** Animals depend on their surroundings to get what they need, including food, water, shelter, and a favorable temperature. Animals depend on plants or other animals for food. They use their senses to find food and water and their body parts to gather, catch, eat, and chew the food. p.151
- **LS4D:** There are many different kinds of living things in any area, and they exist in different places on land and in water. p.166

### Grades 3-5 Disciplinary Core Ideas

- **LS1A:** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior and reproduction. p.144
- **LS1B:** Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles that include being born (sprouting in plants), growing, developing into adults, reproducing, and eventually dying. p.146
- **LS1D:** Animals are able to use their perceptions and memories to guide their actions. Some responses to information are instinctive – that is, animals’ brains are organized so that they do not have to think about how to respond to certain stimuli. p.149
- **LS4D:** Scientists have identified and classified many plants and animals. p.167

### Grades 6-8 Disciplinary Core Ideas

- **LS1B:** Animals engage in characteristic behaviors that increase the odds of reproduction. p.146
- **LS2A:** Organisms and populations of organisms are dependent on their environmental interactions both with other living things and with nonliving factors. p.152
- **LS4D:** Biodiversity is the wide range of existing life forms that have adapted to the variety of conditions on Earth, from terrestrial to marine ecosystems. p.167

## INSECT LIFE CYCLES ALIGNMENT WITH COMMON CORE STANDARDS

In addition to science content, activities in this unit also can help students to practice the following mathematics and language arts concepts. The Common Core Standards listed here are in addition to the ones that our activities typically address, as listed in the Four Winds document, *The Nature Program: Alignment with Learning Standards*.

### Grades K-2 Common Core Standards

- **Mathematics Standard K.CC:** Count to 100 by ones and tens. Understand the relationship between numbers and quantities; connect counting to cardinality. Count to answer “how many?” questions about as many as 20 things.

### Grades 3-5 Common Core Standards

- **Reading for Informational Text Standard 7:** Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding.

