

Insects!

**Developed by:
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Grade Level: Kindergarten

Purpose: This curriculum is designed to communicate:

- I. What insects are and what they look like.
- II. What insects eat, what eats them and where they live.
- III. How insects undergo metamorphosis as a part of their life cycle.
- IV. How social insects work together and that each individual is important.

Hawaii Content and Performance Standards (HCPSIII):

Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent, and investigate using the skills necessary to engage in the scientific process.

Benchmarks

- SC.K.1.1. Uses the senses to make observations
- SC.K.1.2. Asks questions about the world around them
- SC.K.1.3. Collect data about living and non-living things

Standard 2: The Scientific Process: NATURE OF SCIENCE: Understand that science, technology, and society are interrelated

Benchmark

- SC.K.2.1. Identify different types of technologies at home, in the classroom, and/or in the world

Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT: Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment.

Benchmark

- SC.K.3.1. Identify similarities and differences between plants and animals

Standard 6: Physical, Earth, and Space Sciences: NATURE OF MATTER AND ENERGY: Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe.

Benchmark

SC.K.6.1 Classify objects by their attributes (e.g., physical properties, materials of which they are made)

Topic and Driving Question:

What is unique about insects, where do they live, and why should we protect them?

Rationale:

Insects are everywhere and familiar to nearly everyone. Most children appear to have a natural curiosity about insects. This unit reinforces students' curiosities by demonstrating the uniqueness of insects' appearance and lifestyle. Lessons emphasize the diversity of insects and how they live – including what they eat, what eats them, and how they change (metamorphose) as they grew. By studying insects in detail through the inquiry process, students are encouraged to develop questions and solutions that promote insect conservation.

Concept Map for Unit: See below

Formative Assessment:

Students will demonstrate continued learning throughout the unit through successful completion of activity specific worksheets, accurate data collection, and participation in class discussions.

Summative Assessment:

Students will demonstrate their knowledge about insects by creating an insect habitat diorama. The dioramas convey the specific concepts the students have learned, including what insects eat, their role in the food chain, where they live, and their life cycle.

Overview of Lessons Chart: See below

Sources:

Cirrus North American Insects and Spiders (www.cirrusimage.com/bugs.htm)

Natural Resources Canada (<http://imfc.cfl.scf.rncan.gc.ca/insecte-insect/regime-diet/index-eng.html>)

Learning Page (www.learningpage.com)

Monarch Butterfly Metamorphosis

(www.butterflybushes.com/monarch_metamorphosis.htm)

North Dakota State University Department of Entomology

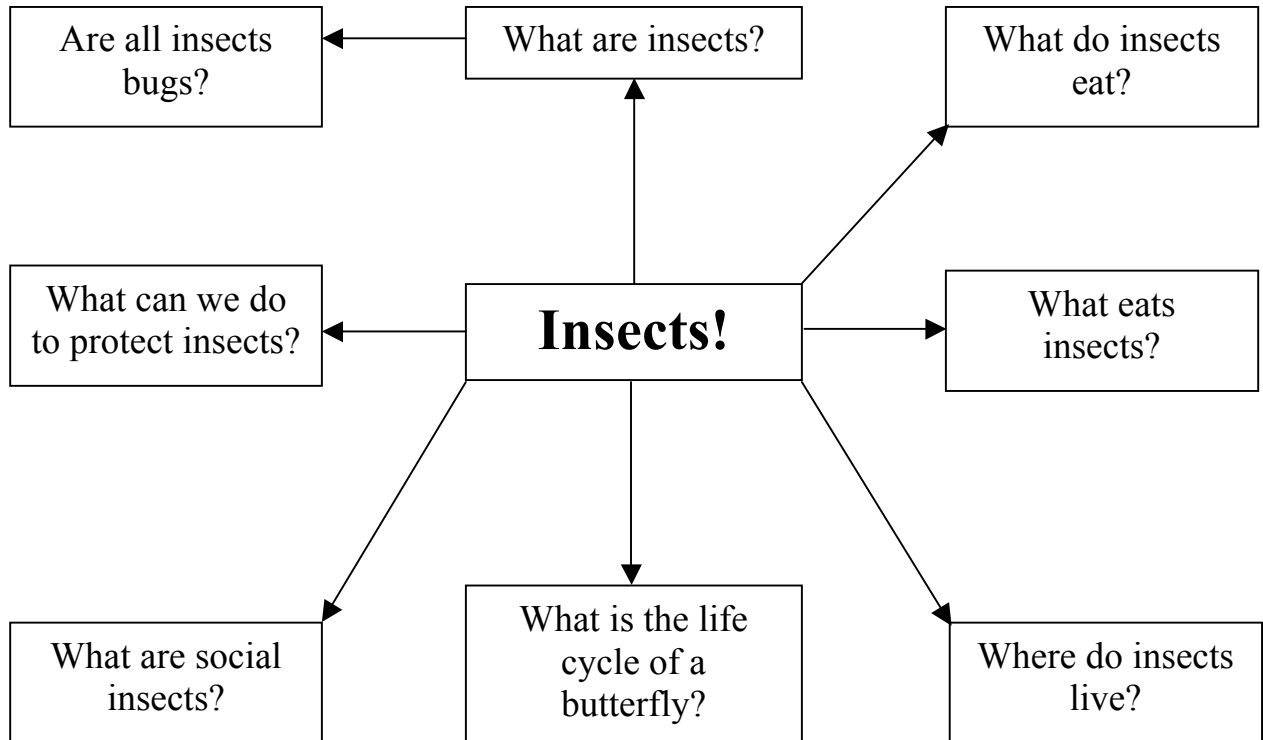
(<http://www.ndsu.nodak.edu/entomology/topics/societies.htm>)

Texas A&M University Department of Entomology (<http://honeybee.tamu.edu/>)

Great Plains Nature Center (<http://www.gpnc.org/honeybee.htm>)

The Wonderful World of Insects (www.earthlife.net/insects/conservation.html)

Unit Concept Map



Timeline	Lesson and Topic	Concepts	Student Objectives	Activity description	Assessment
<i>Week 1</i> <i>2 (45 minute) sessions</i>	Insects and Bugs & Ant Bodies	All bugs are insects, yet all insects are not bugs. Insects have three main body parts – head, thorax and abdomen, and six segmented legs.	Students will describe the difference between insects and bugs. Students will name the three body parts on an insect and describe the order and placement of the main body parts relative to one another.	Students will sort images of different insects and bugs. Students will use the scientific method to determine if ants are insects. They will make predictions and collect data about ant bodies.	Discussion, completed ant art work worksheet and ant counting worksheet
<i>Week 2</i> <i>2 (45 minute) sessions</i>	Insect Diets & Insect Food Chain & Camouflage	Insect diets can be classified by their attributes and physical properties – plant matter, decaying matter, or other insects. Food chains illustrate how living things are dependent on one another.	Students will describe the three common food items consumed by insects. Students will describe the relationship between insects, their prey and their predators. Students will explain how insects use camouflage to defend themselves against predators.	Students will collect and classify different food items insects eat. Students will construct a simple food chain demonstrating how insect prey and predators are related.	Discussion, insect diet worksheet with items properly grouped and camouflage artwork.
<i>Week 3</i> <i>2 (45 minute) sessions with additional time prior to lesson 6 for observations</i>	Insect Homes & Butterfly Life Cycle	Insect homes are numerous, diverse and can be highly specialized. Life cycles and metamorphosis are common to all insects. Butterflies go through complete metamorphosis in four stages – egg, caterpillar, chrysalis and butterfly.	Student will describe the diversity of insect homes and explain what attributes make good homes for insects. Students will name and describe the four life stages of a butterfly.	Students will observe and illustrate a small-specialized outdoor area that could be a good home for insects. Students will conduct observations of Monarch Butterfly caterpillars over several days in class.	Discussion, insect home worksheet and caterpillar data sheets.
<i>Week 4</i> <i>2 (1 hour) sessions</i>	Honeybee hives & Insect Conservation	Honeybees are one kind of social insect – they work together in a highly structured social manner. Each honeybee has an important role in the hive, either as the queen, worker or drone. Insect conservation is integral to ensure their survival for generations.	Students will contrast social and solitary insects and describe one way social insects work together. Students will identify typical roles within a honeybee hive. Students will describe one way to protect insects and identify how they use conservation in their everyday life.	Students will construct bees with modeling clay then perform a skit acting out the different roles within a beehive. Students will use their knowledge about insects to create a diorama displaying what they learned throughout the unit.	Discussion, class skit and diorama.