

Anoka Hennepin K-12 Curriculum Unit Plan

Department: Science

Course/Grade Level: 1

Unit Title: Insects

Number of Lessons/Days: 10 sessions

Unit Summary: Students will understand that insects as living things grow, change and interact within their habitat to survive. They come to know firsthand the life sequences of the mealworm, milkweed bug, and the butterfly. The students will observe structures and behaviors of the insects, discuss their findings, and record observations over time. They will see the life cycle of insects unfold and compare the stages of metamorphosis exhibited by each species.

DESIRED RESULTS (STAGE 1)

Program Understanding and/or Minnesota State/Local/Core Standards and Technology Standard(s) addressed:

- II. Students will understand that there is a diversity of life forms, which are interdependent and inter-connected.
- IV. Students will understand that the study of science involves processes that unify science disciplines and provide students with ideas and structures to help them understand the natural world.
- V. Students will understand that the process of inquiry is the collection of information verified through observation and experimentation which allow scientists to critically analyze, draw conclusions and make inferences about the natural world.
- VI. Students will understand that scientists use various communications to share knowledge and promote understanding about our natural world.
- VIII. Students will understand that scientists use and design technology to answer questions, share information and solve problems.

MN Standards and Benchmarks

- 1.1.1.1 Scientists work as individuals and groups to investigate the natural world, emphasizing evidence and communicating with others.
 - 1.1.1.1.1 When asked "How do you know?," students support their answer with observations. *For example:* Use observations to tell why a squirrel is a living thing.
 - 1.1.1.1.2 Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.
- 1.1.3.1 Designed and natural systems exist in the world. These systems are made up of components that act within a system and interact with other systems.
 - 1.1.3.1.1 Observe that many living and nonliving things are made of parts and that if a part is missing or broken, they may not function properly.
- 1.4.1.1 Living things are diverse with many different observable characteristics.
 - 1.4.1.1.1 Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors.
- 1.4.2.1 Natural systems have many components that interact to maintain the living system.
 - 1.4.2.1.1 Recognize that animals need space, water, food, shelter and air.
 - 1.4.2.1.2 Describe ways in which an animal's habitat provides for its basic needs. *For example:* Compare students' houses with animal habitats.
- 1.4.3.1 Plants and animals undergo a series of orderly changes during their life cycles.
 - 1.4.3.1.1 Demonstrate an understanding that animals pass through life cycles that include a beginning, development into adults, reproduction and eventually death. *For example:* Use live organisms or pictures to observe the changes that occur during the life cycle of butterflies, meal worms or frogs.

- 1.4.3.1.2 Recognize that animals pass through the same life cycle stages as their parents.

Overarching Understanding(s) from Curriculum Map/Course Understandings:

Students will understand that....

- all living things grow and change, sometimes in predictable patterns to sustain life.
- most living things interact with their habitat in order to survive.
- plants and animals have many different observable characteristics, which allow them to be classified.
- there are patterns that help make connections in the world.
- scientists ask questions and make observations to gather data and learn about their world.
- scientists work individually and collaboratively to understand the natural world and learn from one another.

Topical Understanding(s) Specific to Unit:

Students will understand that....

- scientists work individually and collaboratively to study the world and use observations and tools to explain the natural world.
- All organisms can be observed and sorted into groups according to the way they look and act.
- natural systems have many parts that rely on each other to maintain balance.
- All organisms have life cycles, which involve a sequence of changes.

Essential Question(s) from Curriculum Map/Course Essential Questions:

To understand, student will need to consider such questions as...

- What do living things need to survive?
- How does a habitat affect an organism?
- How and why do we sort plants and animals?
- How do scientists use patterns?
- How do scientists make and share observations?
- What are science tools? How do we use them?

Topical Essential Questions for Unit:

To understand, student will need to consider such questions as...

- How do scientists use tools to make and share observations with others?
- How do scientists describe and sort insects?
- What do insects need to survive?
- How does an insect change as it moves through its life cycle?

To understand, student will need to...

know... Student will need to know the following in order to... (e.g. facts, concepts, generalizations, rules, theories, principles)

- scientists use tools to make observations.
- organisms are living things.
- insects have different characteristics.
- a habitat is a natural system with multiple parts.
- all organisms go through a life cycle.
- insects need air, space, water and food to survive.

Essential new vocabulary:

- **abdomen:** one of the three body parts of an insect

be able to... (Students will be able to DO... skills, procedures, processes)

- make observations about organisms and natural systems, using tools, to collect and record data.
- communicate observations with others through pictures and words.
- sort insects based on characteristics.
- compare and contrast two different insects (characteristics, habitats, life cycles).
- explain what insects need to survive.
- design and maintain the habitats of the insects to maintain the living system.

- **adult:** a fully grown insect
- **chrysalis:** a protective covering of a butterfly in the pupa stage
- **egg:** the first stage of an insect's life cycle
- **habitat:** place that has everything a living thing needs to live
- **head:** one of the three body parts of an insect
- **insect:** a small animal that has six legs and three body parts (head, thorax, abdomen)
- **larva:** the stage between egg and pupa in a four-stage life cycle
- **life cycle:** the stages in the life of an insect
- **metamorphosis:** a change in physical form or structure
- **nymph:** the stage between egg and adult in a three-stage life cycle
- **observe:** to learn about something using your five senses
- **pupa:** the stage between a larva and adult in a four-stage life cycle. The pupa usually has some sort of covering to protect the insect.
- **stage:** a step in a life cycle
- **thorax:** one of three body parts of an insect

Common misunderstanding(s):

- Only large land mammals are animals.
- Mealworms are a type of worm.
- There is only one type of butterfly.
- Things are living only if they can move, breathe, eat and drink.
- Death is not a part of a life cycle.
- Not all organisms have a life cycle.
- All life cycles have four stages.

- communicate the life cycle of an insect (through pictures or words).

ASSESSMENT EVIDENCE (STAGE 2)

**Note: An Assessment checklist including assessment evidence for this unit is included at the end of the UbD. This document is also available in electronic format on the curriculum website.*