

Developing & Using Models

Activity #3: Build-A-Bug

General Objective: Students will create a model of an insect to show how internal and external components are essential for the function and survival of their model insect.

***This modeling activity could be used for multiple grade levels and with many various organisms and groups of animals.*

Materials:

- Science notebooks
- Construction paper
- Tissue paper
- Clay
- Markers, crayons, colored pencils
- Glue
- Scissors
- Aluminum foil
- Plastic wrap
- Pipe cleaners
- Encourage individual materials brought from home

Procedure:

1. Students need basic background knowledge of the structures of insects, such as, exoskeleton, head, abdomen, thorax, antennae, and 6 legs and also the concept of specialization and adaptation. Student interest can be introduced by showing examples of unique insects that exist in nature.
2. Using provided materials, students are to design a new insect. Their models are to include the all the standard parts of an insect, along with their own unique additions. Students are to consider special adaptations for their insect depending on where the habitat is located.

3. Students can draw their insects in their student notebooks and include detailed labels. You can also have students describe how their insect performs the following tasks:

- Movement
- Camouflage
- Defense against predators
- How the insect changes throughout lifespan
- Survival in the environment conditions
- Reproduction
- Unique behaviors
- Sight
- Food consumption

Extensions:

- Have students write creative stories or comics using their insect models as main characters.
- Build insects in other stages of their life cycles.

Resources:

- [Montana Science Partnership \(www.sciencepartners.info\)](http://www.sciencepartners.info) – Resources for teaching students about insects and macroinvertebrates in Montana.
- [Clark Fork Watershed Education Program \(www.cfwep.org\)](http://www.cfwep.org) – Resources for identifying macroinvertebrates.

Related Crosscutting Concepts:

- [Patterns](#)
- [Scale, Proportion & Quantity](#)
- [Systems & System Models](#)
- [Structure & Function](#)
- [Stability & Change](#)

Related Disciplinary Core Ideas:

- [Core Idea LS1: From Molecules to Organisms: Structures](#)

and Processes

- LS1.A: Structure and Function
- LS1.B: Growth and Development of Organisms
- LS1.C: Organization for Matter and Energy Flow in Organisms
- Core Idea LS3: Heredity: Inheritance and Variation of Traits
 - LS3.A: Inheritance of Traits
 - LS3.B: Variation of Traits
- Core Idea LS4: Biological Evolution: Unity and Diversity
 - LS4.A: Evidence of Common Ancestry and Diversity
 - LS4.B: Natural Selection
 - LS4.C: Adaptation