

Metamorphosis – Activity

Subjects: Life Sciences, Adaptations, Insects

Duration: Prep: 10 minutes; Activity: 15 minutes

Skills: Observation, Experimentation, Critical Thinking, Note Taking

Next Generation Science Standards: Growth and Development of Organisms, Inheritance of Traits, Variation of Traits

Objectives: Students will understand the life cycle of insects.

Materials:

Insect Pictures or Plastic Figurines

Blackboard/Whiteboard or Paper for Lists

Background:

All insects begin their life as an egg, but the rest of their life cycle can be very different. Some insects undergo simple metamorphosis, meaning that when the egg hatches, the young nymph looks similar to the adult. The nymph then undergoes several molts, and during the final molt develops wings and reproductive structures, transforming it into an adult. Many insect groups have simple metamorphosis, like cockroaches, preying mantids, and grasshoppers.

Other insects undergo complete metamorphosis, meaning that when the egg hatches, the young larva looks very different from the adult. The larva then undergoes several molts and when it's ready to develop into an adult, it forms a pupa, which has a hard outer casing. Inside the pupa, the larva transforms into an adult and eventually emerges. Each life stage can look very different, making it difficult to match larva and adults of the same species.

Complete metamorphosis has been extremely important for insects because it allows larvae and adults to take advantage of different resources in the environment, so that they don't need to compete with each other for food. These insects then have more resources to better compete with other species. The most diverse groups of insects (flies, beetles, butterflies, and wasps) all have complete metamorphosis.

Preparation:

Become familiar with the life cycles of different insect species.

Activity:

Divide students into groups of 4 or 5. Provide each group with arthropod pictures or plastic figurines, divided into the four life stages. Ask students to group the life stages of each species together. Make a list of the different species of insects with simple and

complete metamorphosis. Discuss whether it was more difficult to place the life stages of insect species with simple or complete metamorphosis.

Extensions:

Compare the life cycles of other organisms. Contrast mammals and amphibians with insects.