

Insect Workshop

Question 1: When teaching about insects, naturalists focus on two main facts about what makes an insect an insect. The first fact is how many sections exist on an insect's body. While the second is how many legs an insect has. Use the internet to look at different insects and examine how the body parts are divided into three distinct sections. In the space below sketch your favorite insect or use the picture of the ant and divide the insect into the three sections and label them.

Three sections – Head, Thorax & Abdomen



How many legs do insects have? _____6_____

Question 2: The head is probably the most obvious body part. Do an image search for insect heads. What are some of the features that are attached to the heads of insects and what are they used for?

Antennae – feeling and touch, Mouths – taste and eating, Eyes – sight. Pinchers – grabbing, eating, protection

Four of the five senses are processed through structures on their heads. Which sense is missing?

Hearing. Different insects hear through structures that can be located anywhere on their bodies.

Question 3: The thorax is the middle body part. When looking at the images of insects, there are two major structures that are attached to the thorax. What are they and what do they provide for the insect?

Wings and legs. Means of movement.

If an insect was a car or plane, what would be located in the thorax? The motor

Question 4: The abdomen is the last body part. This area is more than just a fancy tail. Look up the definition of an insect's abdomen. Using the clues in the definition and the internet, what images can you find of insects using their abdomens? Record your findings.

The abdomen is also home to all the insect's organs (ie: heart, lungs, etc) Where are these organs located on a human? Chest

Question 5: Insect lifestyles are very much defined by the physical features. One of the main features to focus on is the insect's mouth. How an insect feeds defines what resources it can use to survive. Search with your computer and learn how the four insects below feed and what they feed on.

House Fly: Uses mouth parts to sponge up fluids off other animals.

Butterfly: Uses proboscis to drink nectar from flowers.

Grasshopper: Clips leaves and chews pieces with mouth parts.

Mosquito: Uses mouth part to spear and drink blood from prey.

Question 6: While insects wings can be fragile, the body of the insect is covered with a hard armor shell. The picture shows off some shells of a cicada

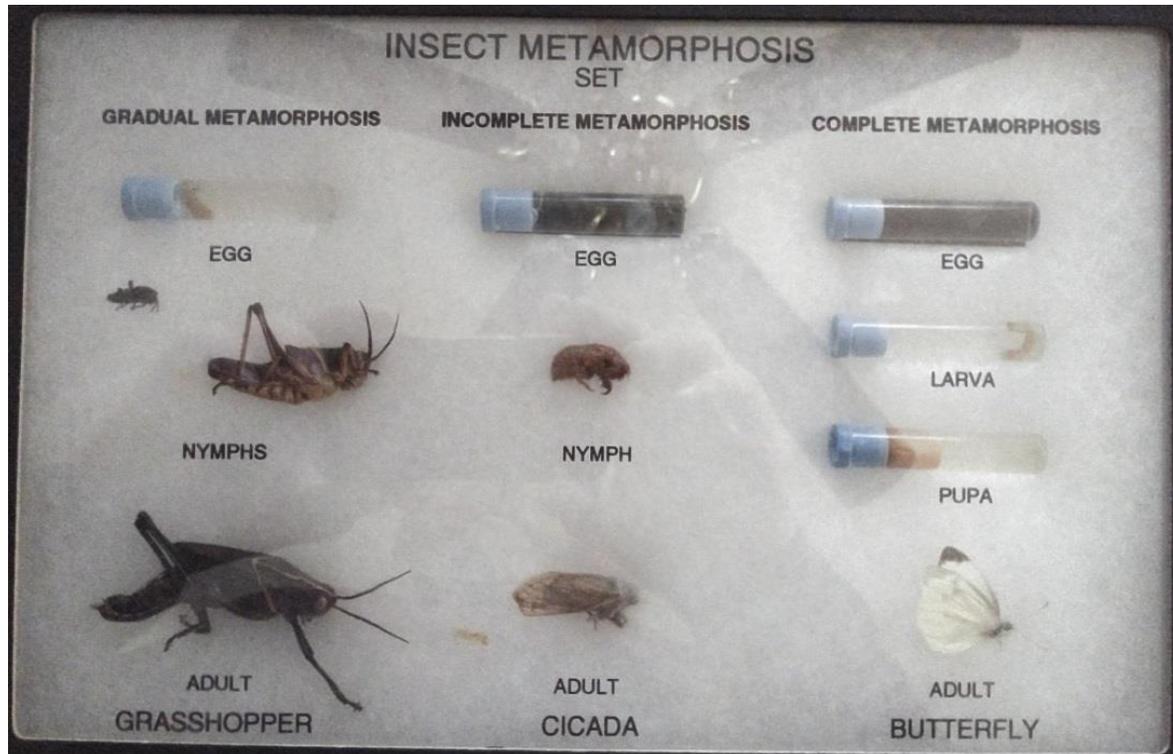


What is this outer shell called on an insect? **Exoskeleton**

Every so often, insects shed this shell. Why? **They grew in size and had to grow a larger shell.**

What is the proper name of this process called? **Metamorphosis**

Question 7: There are three general types of metamorphosis. Search each type on the internet and examine the picture below. Write what makes each of these types of metamorphosis different from each other.



1. Gradual: **The insect keeps getting larger but visually looks the same** _____

2. Incomplete: **The insect looks completely different from its nymph (juvenile) stage and its adult stage, but the insect does not use a cocoon or pupa.** _____

3. Complete: **The insect looks completely different from its nymph (juvenile) stage and its adult stage, and the insect uses a cocoon or pupa.** _____

Question 8: Perhaps you know the old story of the ants and the grasshopper. The ants were busy all summer long collecting food for winter while the grasshopper played games all through the summer. Ants survive the winter in their colony below the frost line and eat from the food they have stored. The grasshopper does not survive the winter. So, where do all the new grasshoppers come from?

Eggs are laid before the grasshopper dies and the eggs hatch in spring.

This is an example of what is called “Diapause.” It is different than hibernation. Diapause is a period of suspended development in an insect that is triggered by unfavorable environmental conditions. Many kinds of insects experience diapause and it can occur in different life stages depending on the insect. Use your computer to find insects that use diapause and what stage of life they are in when they do. Record your findings.

Depends on what they find. Ladybugs as adults. Butterflies as cocoons. _____

Question 9: Butterflies are one of the most popular and watched groups of insects. They are often combined with moths. Old tales make reference that moths are bland in appearance and nocturnal, while butterflies are colorful and active during the day. This is not always true. To tell butterflies and moths apart, you need to look at their physical features. Search for the differences between the two and draw a basic sketch of both insects and mark the differences between the two. (Hint: one of the main differences involves a structure on the head.)

Difference between their antennae: Butterfly – stem with knob, Moth – feather-like

Butterfly – thin abdomen / Moth – plump abdomen

Butterfly

Moth

Question 10: Many insects can be harmful to humans or human interests. Some of these insects are displayed in the picture below. Can you find other insects that cause harm to humans or human interests? Record your findings.



You may have discovered two very harmful insects that are now in Hunterdon County. They are called Emerald Ash Borer and Spotted Lantern Fly. The Ash Borer is destroying all our adult Ash Trees, while Spotted Lanternfly can attack over 70 different plant species.

Both insects come from another region of the world. Can you find out where they come from?
Southeast Asia – China to Japan

How did these insects get to the United States: **On or in products from International Trade**

Since these insects are doing well in Hunterdon, what does that tell you about the environment from where they came from?

The climate and habitat of Hunterdon is very similar to that of Southeast Asia.

Question 11: Insects can be helpful to humans as well. Pictured below are some insects that are beneficial to humans or human interests and what they offer. See if you can find some other beneficial insects and learn how they assist humans. Record your findings.

