

# Lesson 1: What is THAT? An Introduction to the Wide World of Insects

**Overview:** To develop an understanding of what defines an insect and gain a brief introduction to the classification of insects.

**Objectives:** Short paragraph describing objective/outcomes. Students will: 1) recognize that some “bugs” are not insects; 2) identify the basic classification of insects, including their common names; and 3) recognize and identify common insects found at Cove River Site.

<b>Subjects:</b> Biology, Ecology
<b>Key Concepts:</b> Identification, Classification
<b>Duration:</b> 1 class periods (40 minutes)
<b>Season:</b> Any season
<b>Setting:</b> In the classroom
<b>Interdisciplinary Connections</b>
<b>Frameworks:</b> Not Applicable

*Environmental Education @ the Cove River Site, and other coastal Connecticut settings.*



*Produced by the Graduate Students in Environmental Education EVE 546 Spring 2009*



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**Introduction (background):** Insects are one of the most important groups of creatures on this planet, due to their essential roles in their environments, including pollinators, decomposers, and nutrient recyclers.

Regardless, there are many misconceptions about insects, including their importance, habitats, and even what constitutes an insect. For an animal to be classified as an insect, it must have a body that is divided into three parts – the head, thorax, and abdomen, has three pairs of legs and usually two pairs of wings.

### Materials:

- Legal Size Paper
- Pencils
- Large 8.5' x 11' envelope
- Color photos of Insects (found at the end of this activity)
- Insect Description Matching Game (found at the end of this activity)
- “Buggo” game boards
- Bingo markers

**Preparation / Set Up:** Color photos are needed for multiple activities. You may choose to use any photos that you wish; some are provided for you at the end of this activity. The photos need to be cut out and placed in large envelopes so that each envelope (4-5 depending on the size of your class) has one photo of each of the insects: ladybug, ant, butterfly, dragonfly, and grasshopper. The Insect Description Matching game also uses cards with drawings of insects that need to be cut out and each placed in envelopes. For “Buggo”, game boards will need to be created using the example at the end of this activity and the names of common insects and information can be found in any insect field guide.

**Engagement:** The major purpose of this activity is for the students to gain an understanding of the characteristics that define an insect from other “creepy crawlies”.

1. Begin by asking the students to list the names of insects they have seen, heard of, or have previously learned about. List them all, without input or judgment, on the board or a large piece of paper, and leave them up for the class to view during the next activity.

2. The next activity will allow the students to explore what defines an insect. Break the class into groups of 3-4 students. Each group will receive a legal size piece of paper, a pencil, and a large envelope which contains color photos of 5 species of insects found at the Cove River Site: adult forms of a ladybug, ant, butterfly, dragonfly, and grasshopper. Example photos can be found at the end of this activity, or new photos may be chosen for this activity. Show the pictures to the class before the students are allowed to open their envelope. Ask the students if they can identify all the insects shown with their common names. This is a good step because it ensures that all the students know the insects, but also will give the teacher a sense of how much well the students may identify insects. Ask the students to list all the characteristics that ALL the insects have in common, excluding none. After the groups have come up with at least three characteristics, ask them to create a definition of an insect from their observations.
3. Ask the groups to post their final insect definition on the board or easel, as well as reading them out loud to the class.

**Exploration:** After reviewing all the group definitions, the teacher should piece together the real definition of an insect from those given by the students. The teacher may eliminate certain characteristics because they do not apply to all the insects (ie: one pair of wings, hard shell). The teacher should then reveal what the real definition is to the students. No doubt some students will be confused, since some insects look like they do not have all the necessary body structures. The following information can be used to demonstrate how they all conform to the definition:

1. Ladybug: Head and thorax are fused together to make a cephalothorax (cephalo=head). The top pair of wings have hardened into the shell, called an elytra.

2. Ant: Some ants do not have wings because they are drones, or workers, and do not need wings, but there are ants in all colonies that have wings.
3. Butterfly: Look closely for the two pairs of wings.
4. Dragonfly: Very good example of an insect with clear definable areas.
5. Grasshopper: Wings are kept hidden when not in use.

Once the students have a firm grasp on the definition of an insect, bring their attention back to list of insects. Go through this list and eliminate those that are not insects, such as spiders, ticks, worms, centipedes, millipedes, etc. Ask the students to identify the characteristics if they get stuck, such as asking how many legs it has or if it has wings.

The next activity asks students to explore the different types of insects, seeing how they all look and act differently but have the same characteristics in common. This activity does not aim for the students to know the insect orders or scientific names, but more to gain an understanding of the different types of insects commonly found at the Cove River Site.

The Cove River Site is rich with insect communities, especially those that have a life stage related to water since there is a small river flowing through the site. This activity, however, does not include all the insect species that can be discovered in Connecticut, but a general overview of the most common.

1. The students should remain in their groups, unless changes need to be made. All students should be in groups of 3-4, with no more than 5 in a group.
2. Begin by giving each group a large envelope that contains both photos of common insects and a description card that will give a basic overview of each insect. These materials can be found at the end of this activity, or the teacher may choose new photos/insects for this activity.
3. This activity asks the groups to match the insect to the description card, as well as explain why they believe that insect to be a certain species. Note:

Some of these insects will be very easy to identify, while others may be harder. It is also dependent on the prior knowledge of the students.

4. After all the photos have been identified, review with the entire class the identification of the insects. Note: The answers can be found with the photos and description cards at the end of the activity.

To test the student's knowledge of the common insects of the Cove River Site, the next activity will see how much the students learned, focusing primarily on connecting the photo of the insect to the name, which will help when identifying insects in the field at the Cove River Site. To achieve this goal, the next activity "Buggo" is a type of Bingo game with a twist.

1. Introduce the activity to the students by telling them that they will be playing Bingo, but with an insect theme.
2. Pass out the Buggo cards, which look like a beetle with the names of common insects found on its body. An example of the cards can be found at the end of this activity. Also pass out markers, which could be small counters, foam pieces, or even bits of paper.
3. Explain the rules to the students, stating that the teacher will hold up one of the photos or read defining characteristics and the students will place a marker on the common name of the insect shown. Once the photo or information has been given, any photos should be placed so that the class can see it. Note: this placement is not only helpful for the students if they miss an insect, but also for the teacher when a student calls Buggo to quickly note if the insect was shown.
4. Tell the students that since this is the first time they are playing, the teacher will call out the name of the insect as well as showing the photo, as well as identify the correct insect name for the descriptions. The students will place a marker on the name of the insect, if they have that insect on their card. The first student

to mark all the insects on their card is to say "Buggo" out loud, which is then checked by the teacher, and if they are correct, the student wins. The teacher may choose if they wish to include a prize for the winner(s).

5. This activity can be repeated, and if the teacher feels the students are ready, the photos and information may be presented without the teacher naming the insect.