

## Lesson 3: Chase that Bug! An Introduction to Insect Collecting

**Overview:** To develop an understanding of the basic collection process, focusing on finding and collecting insects in the field.

**Objectives:** Students will: 1) recognize the most common locations to find insects; 2) identify the best ways to collect insects in the field; and 3) identify how to preserve different types of insects for use in a collection or the classroom.

<b>Key Concepts:</b> Anatomy, Habitats, Collecting Specimens
<b>Subjects:</b> Biology, Anatomy, Chemistry
<b>Duration:</b> 1 class period (40 minutes)
<b>Setting:</b> In the field
<b>Season:</b> Preferably warmer seasons; late spring through early Fall are best
<b>Interdisciplinary Connections</b>
<b>Frameworks:</b> None

*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):** Creating an insect collection is an essential part of learning about insects, as the practice allows students not only the chance to see insects up close, but also allows them to use what they have learned about insect's habitats and anatomy. Students must recall what they had learned about where to find certain insects in the field to create a substantial and representative collection of the Cove River Site.

### Materials:

- Collecting nets (aerial, brush, or even fishing nets sometimes work)
- Collecting jars (magnification boxes, recyclables, yogurt containers, or any type of holder for live insects)
- Plastic wrap/Plastic baggies (optional, if do not have lids)
- Rubber bands (optional)
- Plastic spoons (optional)
- Magnifying glasses
- Insect Field Guides
- Bin/box for holding the collection
- Refrigerator with a freezer

**Preparation / Set Up:** Any type of containers should be washed ahead of time to remove any debris, especially for recyclables. If you are using containers that do not have lids, lids can be made from plastic wrap or even plastic baggies and rubber bands. The Insect Field Guides can be of any type, whether aimed for students or adults. Using an assortment of guides is encouraged. Insects that you wish to bring back to the classroom for future study or a collection will need to be placed in the freezer, in their containers, for at least 1 hour. This method allows the insects to die peacefully and quickly, and for the specimen to be preserved until it is needed. It is recommended that you only remove specimens from the freezer when you need them.

**Engagement:** The major purpose of this activity is for the students to gain an understanding how certain insects hide and the locations they would most likely be found. This activity requires having a small open space in a wooded area and students willing to possibly get dirty.

1. Begin by asking the students to stand in a circle in a clearing of the woods, in an area surrounded by trees and/or brush. Ask the students to locate an insect, without moving their location. If they see an insect, they should raise their hand and watch the insect. After about one minute, call on the students that see an insect and ask them to point to it. Count how many individual insects the class can see from the circle.

2. Tell the students that the woods, skies, and fields around them are full of insects, but that most insects use camouflage so that predators cannot see them. Inform the students that they are going to experience this first hand by becoming an insect and trying to blend in with their surroundings. All the students will be going into the woods to try and camouflage themselves with the location. This is a great time to tell them the rules; no climbing trees, no digging in the dirt, you can use anything that is at the site but you are not allowed to hurt anything alive (i.e. no picking leaves or cutting branches for cover). Students must not give away other student's locations.
3. Choose one student to be at the center of the clearing, and tell everyone that this student will be trying to locate all the other students, but once they stand in the center they cannot move their feet. This student is allowed to move their body, head, and eyes to try and find the "insects" in the woods. If the student finds you, you must go sit in the clearing. If you are out, you are NOT allowed to help or give away other student's locations.
4. The goal of this game is for the "insects" to reach the center and tag the center student without them seeing you. After the center student has looked for 1 minute, they must then shut their eyes for the count of 30 so that the "insects" can move closer to the center and hide again. The "insect" that reaches the center student first (lightly tagging) becomes the next center student.
5. Play this game for 10-15 minutes, or 3-5 rounds.

**Exploration:** After 3-5 rounds, ask the students to gather again to the clearing (sitting or standing). Ask the students some methods they used to camouflage themselves better or, if they were the center student, what methods they used to try and locate other students. Relate the answers to how actual insects camouflage themselves: color, blend with certain objects like trees, bark, or leaves, move silently, lay flat against objects, stay low to the ground, etc. Now ask the students things that may have worked against them when trying to camouflage themselves, such as the coloring of their clothing

(pink, white, etc), the location (only one type of tree, skinny trees, little underbrush). Ask the students if their problems would also be problems for real insects. The truth is, regardless of their size, certain insects need certain locations or their camouflage does not work, such as blending in to certain flower colors or types of bark.

To explore this concept further, the next activity asks the students to try and find insects in their habitats, using their understanding of the shape, color, and anatomy of insects, as well as where insects may camouflage themselves. The goal of this activity is to not only show the students that some insects hide well while others do not, but also to familiarize them with the different insect habitats at the Cove River site, including trees, bark, dead logs, fields, meadows, and soil.

1. Group students in teams of 2-4 students, giving each group a net, bug catchers and lids, and insect guides. Optional: For more squeamish students, you may provide them with plastic spoons to catch the insects with.
2. Set boundaries and rules with the students. No one is to dig in the soil, but students may move rocks, logs, and branches on the ground to locate soil insects. Remind them to be safe, no climbing trees, no large rocks, be careful or poison ivy and thorny vegetation.
3. Remind the students that insects are living creatures, and to be gentle with them. The goal is to collect insects to be examined later, which means it is best to have them unharmed. To collect insects with hurting the insect or the student, tell them to place the net over the insect, then put the net over the container and tap the net to allow the insect to drop into the container. The container should then be sealed with the lid and placed in the center of the clearing (near the teacher, in a bin, would be best).
4. Allow students to roam and collect insects. They may require assistance at times with possibly larger or more harmful insects (bees, wasps, praying mantis, etc).
5. After 15-20 minutes, ask students to catch their last insect and come back to the clearing. Ask groups to share some of the insects they collected, and include information about where they collected it

and what it was doing (hiding, eating, swimming, etc).

6. Options: You may either inform the students that all the insects caught today will be released (opening the containers, away from humans, and close to their habitat) or some insects will be brought back to the school for future study. It is recommended that only 1 of each species be brought back, as this will preserve the insect populations at the Cove River Site. Multiples may be released back to their habitats.
7. NOTE: The European Praying Mantis is the Connecticut State Insect and cannot be harmed or used for collections in any way. If caught, praying mantis MUST be released.