

## **Insect Collection Project**

Each student must collect his own insects and prepare a display to be presented on **the date noted on the schedule**.

The display must consist of at least ten unique insects. Two specimens each from Orders Lepidoptera, Hymenoptera, Coleoptera, Diptera, and Orthoptera. Two extra credit points are given for two specimens of different orders.

Insects may be **pinned** to the display board (for hardbodied insects, butterflies, moths), stored in a **vial of ethyl alcohol** (softbodied insects), or **attached with clear nail polish** to a small cardstock triangle which is pinned to the board for insects too small to pin directly.

### **Display Guidelines**

- On your display, you should have the following information written on a card next to each intact insect (no missing body parts):
  1. Place collected
  2. Where the insect was found (what type of plant, in a burrow, under the litter, etc.)
  3. Date collected
  4. Name of collector
  5. Order name
  6. Common name
  7. Scientific name
- Taking a few moments to observe the behavior of the insect before capturing it will greatly help in identifying it. How does it fly? Is it eating? What is it eating? Is it interacting with other insects? With member of the same species or different species?
- **Displaying the Insects**
  - All hard bodied insects should be pinned to a foam board, and an information card should be pinned next to it. All soft bodied insect should be preserved in a jar or vial with 70% alcohol. A label should be attached to the jar with the required information.
  - Insects are generally pinned through the thorax (the middle section of the body), slightly to the right of the midline, in the region where the second pair of legs are attached.
  - Insects too small to pin:
    - First cut out a small triangle of stiff paper. A pin is passed through the center of the triangle, and the insect is attached onto the longest tip of the small triangle. Attach the insect by painting over its body with clear nail polish. Avoid painting the insect's legs and wings if possible
  - If a butterfly or moth dies with its wings closed, research should be done on how to properly spread out a butterfly or moth's wings before attaching it to the board.
  - For more information on insect collections and insect identification, check for insect field guides at your local library, look in your biology textbook,
  - or search online

### **Killing the bugs:**

There are three methods you may use to kill the insects: placing them in a bag in the freezer, using a kill jar, or placing them in boiling water for about a minute. The freezer works just fine, but takes some time and should only be used for hard-bodied insects. The kill jar works very quickly and may be used for any kind of insect. If practical, it is recommended that you kill soft bodied insects by placing them in boiling water- this will preserve their color and keep their bodies soft. If it is not practical, kill the soft-bodied insects in a kill jar.

- Hard-bodied insects such as beetles, grasshoppers, and plant bugs can be placed in a container or plastic bag and killed by placing them in a freezer for at least 48 hours. The freezer is best for these kinds of insects, because the insects remain soft and pliable for pinning if forgotten for a period of time.
  - You can kill insects more quickly by using a kill jar. Place cotton balls or another type of absorbent material in the bottom of the jar (Plaster of Paris also works). Moisten the material with nail polish remover. Place the live insect in the jar and tightly seal it. The fumes from this material will ensure a quick kill of the insect and prevent it from being damaged. Be especially careful with butterflies and moths. Make sure there is no free liquid in the jar, as their wings become discolored and stain from contact with it. The nail polish remover will need to be replenished according to the frequency of container opening.
  - If possible, kill soft-bodied insects by putting them in boiling water for about a minute or so and then transfer them to the jar with 70% ethyl alcohol. This will help preserve the color of the insect.
  - If boiling water isn't a practical way to kill your soft-bodied insect, use a kill jar.

### **Storing the insects:**

Hard-bodied insects may be stored in the freezer in a plastic bag or tightly sealed container until they are ready to be pinned. Some insects (especially butterflies and moths) become brittle if kept in the freezer for over a month. So, you should pin those insects to your display board as soon as possible.

- Cigar boxes make excellent containers for temporary storage of pinned insect specimens. Line the bottom of cigar boxes with Styrofoam material, corkboard, balsa or cardboard to receive and hold the insect pins.
- Soft-bodied insects such as aphids, caterpillars and spiders should not be pinned, but instead be stored in a vial or jar filled with 70% ethyl alcohol. Alcohol used at a different concentration might either make the insect's body burst or shrivel up.
- Ethanol (also called Ethyl alcohol) is the alcohol found in certain beverages. 95% ethyl alcohol is sold under the name "Everclear" and can be diluted to 70%. You may also find 70% ethanol in some drug stores. Let me know if getting this will be a problem for you. The school has a limited supply of ethanol that may be used if you have difficulty getting it.
- Isopropyl alcohol (rubbing alcohol) is readily available in drug stores, but the insects might discolor or shrivel up if stored in it. Thus, it is **not** recommended that you store the insects in isopropyl alcohol.

### **Places to look for insects:**

- Spread an old sheet under a shrub and then shake the branches vigorously. You'll be amazed at what falls out.
- Turn over leaves, rocks, fallen branches and logs. Dig in the dirt. Don't be afraid to get messy!
- An insect net may be a good investment, especially if you want to catch butterflies and moths.
- Many insects flock to a bright lamp or light at night, making it an ideal place to catch them.
- A pitfall trap will catch many ground beetles and other insects that live on or in the soil. It consists of a trap can that is buried in the soil, level with the rim so that insects attracted to it will fall in. Once inside, it is difficult for them to get out. An attractive bait in the bottom will increase the drawing power of the trap. Use pieces of spoiled fruit, vegetables, or meat. Cover the trap with a board placed on small stones so insects can crawl under it and into the can. This arrangement will protect the trap from wind and rain, but allow access to the insects you want to catch. It will also help to hold insects inside the trap once they are caught. Remove the insects that you catch each morning.

- Naturally, the easiest kinds of insects to capture are those that have died of natural causes. Only collect insects that are intact. Insects with damaged bodies will not be accepted.
- The best insect collecting is often in diverse habitats. A vegetable or flower garden or landscaped facility such as a park, arboretum or zoo will have a variety of plants that attract different insects.

### **Common bugs and their locations:**

- Under boards and rocks – Look for ants, crickets, beetles, termites.
- In or around streams, ponds, lakes – Look for mayflies, dragonflies, damselflies, stoneflies, caddisflies, aquatic beetles, true bugs, flies.
- Under loose bark, in logs and stumps – Look for termites, ants and beetles, particularly bark beetles, tiger beetles, wood boring beetles.
- On crops – Look for grasshoppers, beetles, flies, aphids, leafhoppers, spittlebugs, plant bugs.
- In the air – Look for butterflies, moths, flies, bees, wasps, beetles, leafhoppers, grasshoppers.
- In cellars and basements – Look for crickets, beetles, ants, bristletails.
- On livestock, pets, poultry – Look for fleas, sucking lice, chewing lice, flies.
- Around outdoor lights – Look for moths, beetles, true bugs, mosquitoes.
- Around dumps or piles of refuse – Look for cockroaches, earwigs, beetles, flies.
- On manure piles – Look for flies, beetles.
- In, around or on flowers and ornamental plants – Look for thrips, plant bugs, beetles, bees, wasps, ants, aphids, scale insects, walking sticks, insect galls, butterflies, moths.
- In houses – Look for crickets, cockroaches, beetles, ants, flies, mosquitoes, moths, termites, silverfish.
- In clothes, furniture, Look for clothes moths, carpet beetles, flour beetles, bean weevils

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URL to article: <http://www.faustinaacademy.com/10th-grade-insect-collection-project-guidelines.htm>

### **Insect Identification**

- <http://www.entsoc.org/common-names> - common names of insects database
- <http://www.insectidentification.org/scientific-names-of-insects.asp>