

NOTICE: As of July 14, 2020, the insect collection project is suspended until further notice. More information will be provided by the teacher on the first day of school.

Pre-AP Biology - Summer Insect Collection

This course is intended to be rigorous and will provide the platform for AP Biology. It will require increased personal responsibility and classroom conduct on the part of the student.

Please be aware of the following if you plan to enroll in this class

Students will need to:

- focus on work during each class
- take notes during lecture
- study regularly to keep up with material and do well on exams
- give sustained attention during lecture periods

Some students may not be used to this and find it quite challenging.

Your first project in this class will be an insect collection. This project will be equivalent to one exam (major grade: 100 points) and will be completed during the summer. Follow these instructions closely.

An early start is best for a project like this, you will not be able to complete it at the last moment. If the project is not completed, your grade for the entire semester will suffer significantly.

Insect Collecting

You can find insects nearly anywhere. There are more species of insects in the world than all other animals combined. You will need 50 different insect species from some of the 30 different insect orders. When you find an insect for your collection you will need to kill it.

To kill your insect, put it in an airtight jar with one or two cotton balls that are damp (not dripping) with fingernail polish remover (the kind that contains acetone). Leave the insect overnight, larger insects may require more time. An alternative, and perhaps more efficient way, is to kill them in the freezer. However, they will be brittle and break easy until thawed.

When the insect is dead, you can then pin it. Use very thin, long pins, the kind used for sewing. Silk pins 1 ¼" to 1 ½" long work well. You can get these at any fabric store, or Wal-Mart. Pin each insect through the thorax.

*Be sure to pin insects in the right body area and to make the specimen neat when doing so. See "Proper Insect Pinning" below.

Organizing Your Collection

Any cardboard box with a lid will be fine to hold your collection. A rough size of 9"x13" will be best, anything smaller will likely lead to overcrowding. Cut a piece of Styrofoam to fit the box.

Labels

All insects must be labeled in the exact manner described here. Cut a small piece of paper into a rectangle and label it as follows:

Place a label below each insect in your collection.

Order: _____
Common Name: _____
Date Collected: _____
Location Collected: _____
Collected By: _____

You are to collect 50 DIFFERENT species for this assignment. You may receive help from family members and friends, but you must collect the majority of insects yourself. **insect**

Your grade will depend on the quality and quantity of your collection:

Neatness (proper pinning)	25 points
Labels	25 points
Insects	<u>50 points</u>
TOTAL	100 points

****Due Date: 1st DAY OF CLASS****

Kingdom: Animalia

Phylum: Arthropoda (Have segmented bodies with paired, many jointed legs.)

Class: Insecta (Have 3 major body sections with 3 pairs of legs.)

Order: Coleoptera

Beetles are the largest order of insects. Three fourths of all animals in the world are insects. There are more than 250,000 species of beetles. Coleoptera means “sheath wing”. These insects have a hard, outer, forewing that covers and protects most of the body as well as the thin membranous wings used for flying. Ladybug, rice weevil, Japanese beetle, stag beetle, cotton boll weevil, blister beetles, potato beetle, firefly, Junebug, etc.

Order: Odonata

Dragonflies and damselflies are the only kinds of insects in this order. The name means “toothed”. It refers to the toothlike projections on the mouth used for chewing.

Order: Lepidoptera

One of the most colorful and popular orders of insects, Lepidoptera includes the butterflies and moths. The name means “scale wings” and refers to the thousands of tiny scales that cover the wings.

Order: Blattaria

This recently named order includes the infamous cockroach. There are over 2,000 species of roaches in the world! Until recently the roaches were included with the order Orthoptera or order Dictyoptera.

Order: Diptera

Diptera means “two wings” and describes the major characteristic of this group. This group includes

one of the most deadly of all animals known to man . . . the mosquito. The mosquito carries the deadly malaria parasite that is responsible for hundreds of thousands of deaths every year. Flies, mosquitoes, gnats.

Order: Orthoptera

These insects have straight leathery wings that fold in a straight line along their bodies covering a pair of membranous wings. Orthoptera means “straight wings”. Grasshoppers, locusts, crickets, mantids.

Order: Hymenoptera

These insects have two pairs of membranous wings. They are the only insects that have a true stinger that is injected into a victim. These are social insects that live together in colonies that exhibit social classes or castes. Bees, wasps, ants.

Order: Hemiptera

These are really the only insects you can truly call “bugs.” These “true bugs” are known for the way they suck fluids from plants and animals with their piercing mouth parts. Hemiptera means “half wings” because their outer wings often look like half wings. Insects whose forewings cross over to form an X or a V at the base of the abdomen are usually true bugs. Bed bug, stinkbug, water strider, water bugs, squash bug, chinch bugs.

Order: Homoptera

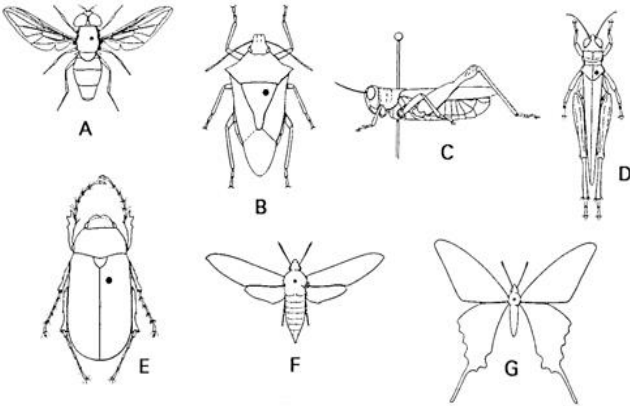
These insects have wings that rest on their back in the shape of a tent. These insects are significant to humans because of the damage they cause to plants and crops. Cicada, aphid, tree hopper, leafhopper, scale insects.

Order: Thysanura

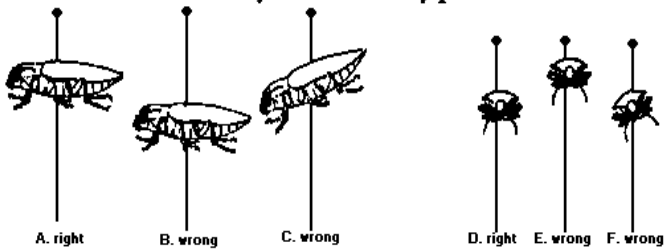
These insects do not have wings. They have long, thread-like antennae and 3 long, tail-like appendages at the tip of the abdomen. Silverfish.

<http://bugguide.net/node/view/15740> is an example of a web site that might help you identify your insects.

Proper Insect Pinning



The illustrations below show some correctly and incorrectly pinned insects.



Illustrations of right & wrong methods of pinning:

- A. correct height & position for specimen
- B. insect too low on the pin
- C. insect tilted on pin
- D. correct height & position for specimen
- E. insect too high on the pin
- F. insect tilted on the pin