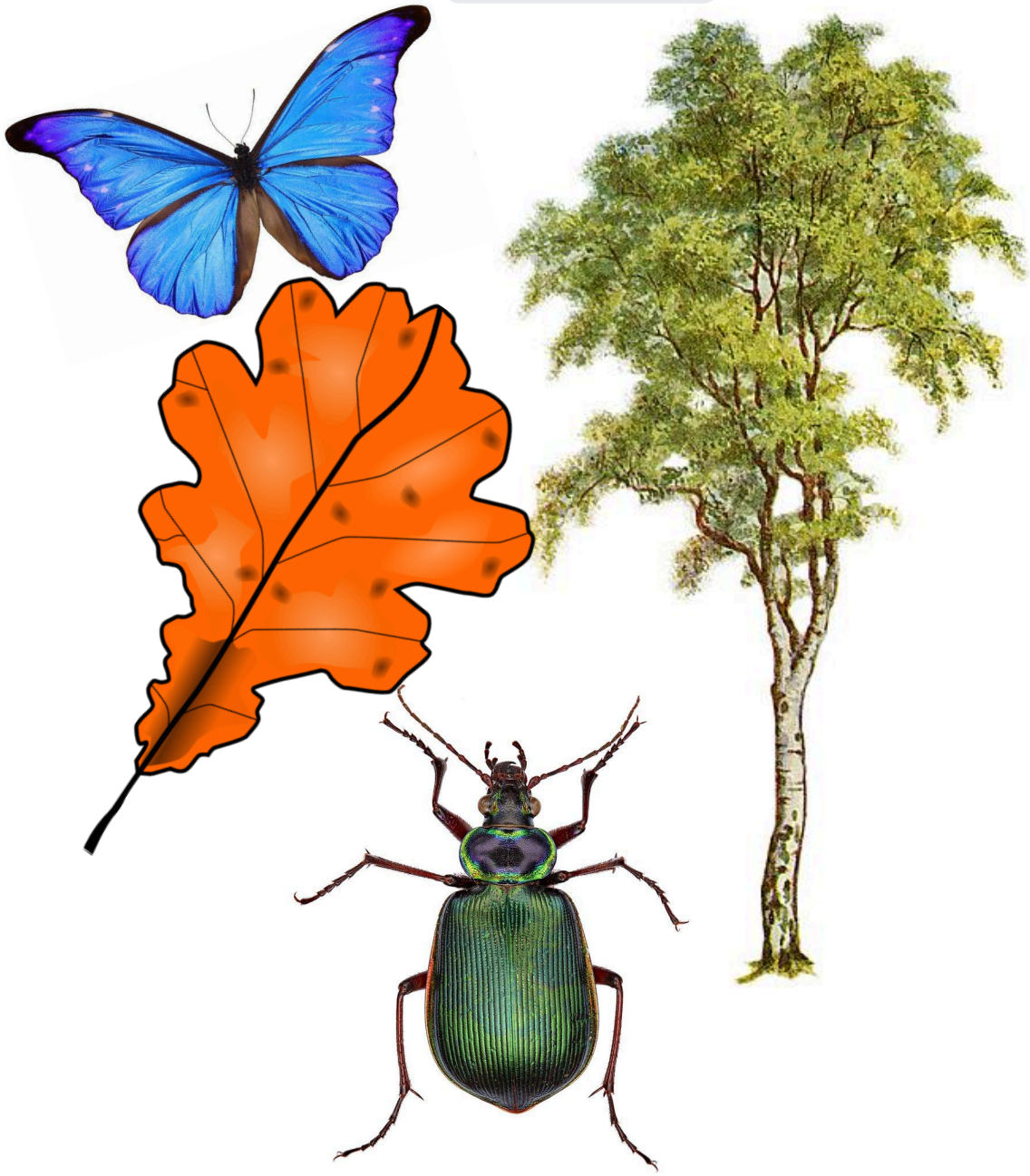
Bug and Leaf Collection Project

Due: Aug 22, 2024



Grace Christian School

Leaf Collection Project

Name: _____

Due Date: August 22, 2024

Objective: to collect, identify and display 15 different tree leaves. Collect an additional five for extra credit, displayed like others (2 points extra per leaf).

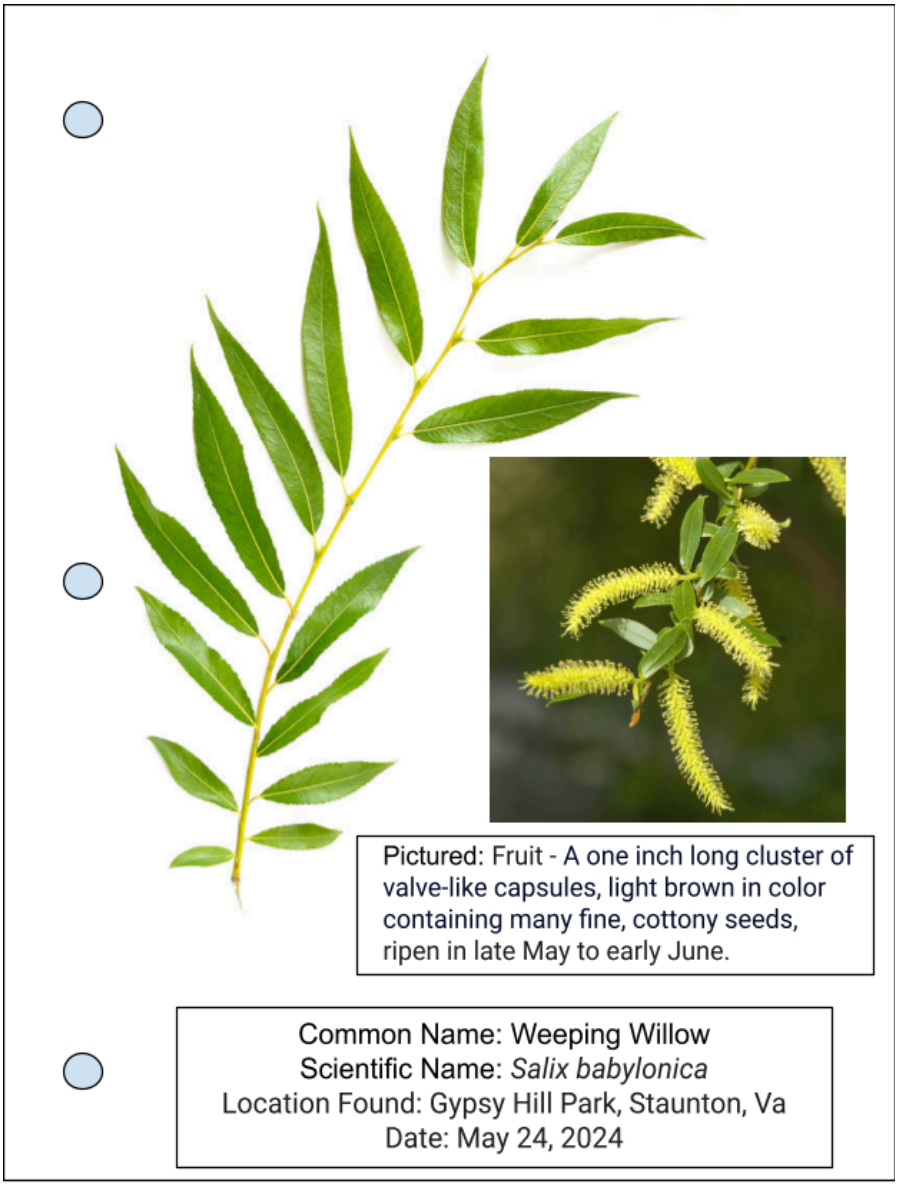
Requirements:

1. Collect **15** Different types of tree leaves. Be sure to collect the entire leaf, not just a single leaflet. You may also collect fruits and seeds in addition to the leaf. Collect **extras** in the case you are unable to identify the leaf OR the leaf gets damaged. You may take **photos** of interesting features of the trees to include with your project. Take **notes -** where the leaf was collected, date found
2. **Press** leaves for display. Layer the leaves between paper towels or a few sheets of newspaper, then press between two pieces of cardboard under heavy books/ weights. Change the paper towels every 2-3 days, until the leaves are completely dry (typically around 5 days, more is usually better).
3. Use https://tree.oplin.org/ or another source to identify the tree's **common and scientific name.** The common name might be more than one name, and usually isn't anything related to the actual tree. (Eg. Two of the common tree names for *Acer negundo* are boxelder and black ash. These names might be misleading, since it is neither an elder nor an ash.) The scientific name will usually be two words together: *Acer negundo.*
4. Mount the leaves to cardstock or construction paper using liquid glue or by "laminating it" to the paper with packing tape. Magnetic photo pages can be used, or using cardstock with clear page protectors will also work. Use one page per species and let the pages completely dry before compiling your project/book. If you collected seeds, you can either take photos of them and attach them to the page, or you can put them in small plastic bags and staple them to the page. You can also add photos of bark, fruit, seeds or interesting features of the tree.
5. The following information is required for each leaf:
    a. Common Name
    b. Scientific Name
    c. Place/Location Found (eg. Gypsy Hill Park)
    d. Date Collected (eg. May 22, 2024)
6. Create a cover page that includes your name, the date and leaf collection. You can decorate the cover page with artwork or photos.
7. Bind the pages together. You can use a 3 ring-binder, a binder folder or string.

Grading: Refer to grading rubric for overall grading

- Labeling must include
    - Common Name
    - Scientific Name
    - Place / Location Found
    - Date Collected

- **Bonus**: Add up to 5 more leaves, correctly displayed, for an additional 2 points per leaf.



Time Management Worksheet

Please note, this can not be done in ONE day, plan accordingly!

Project Due Date	August 22, 2024
Subtract 2 days (1 for drying, 1 for assembly)	August 20, 2024
Subtract 1 day (to acquire supplies)	August 19, 2025
Subtract 5 (+) days for drying / pressing	August 14, 2024
Subtract 3 days (for collecting 15 leaf samples)	August 10, 2024
Start Collecting <u>no later than</u> by this date ⇨	**August 9th, 2024**

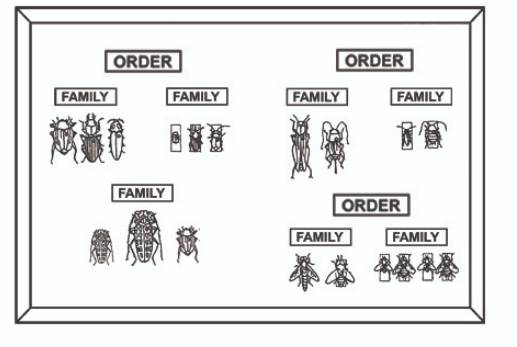
Bug Collection Project

Name: _____

Due Date: August 22, 2024

Objective: to collect, identify and display 15 total insects from the following orders: Collect an additional five for extra credit, displayed like others (2 points extra per insect). (20 total insects)

- Coleoptera - Beetles
- Diptera - flies, mosquitos, gnats
- Lepidoptera - moths , butterflies
- Orthoptera - grasshoppers, crickets, katydids
- Hymenoptera - ants, bees, wasps
- Odonata - dragonflies, damselflies
- Hemiptera - stink bugs, leafhoppers, scale insects, cicadas



Materials:

1. A box to hold your insects in temporarily - line with cotton or tissue paper to keep them from losing limbs!
2. Ethyl or Isopropyl Alcohol
3. Killing Jar: A wide mouth jar with screw lid, or coffee can. Inside has a cotton ball or sponge, newspaper or cardboard with the alcohol on it.
4. Hand lens (magnifying glass)
5. Materials for displaying insects - a shadow box, either bought or created from a cardboard box(decorate the outside if using a recycled box). Put a dense styrofoam in the box.
6. Mothballs
7. Paper Triangles
8. Straight pins.

Requirements:

1. Catch as many adult insects you can find without damaging them. *Do not collect larva or nymph forms* of the insects (grubs and caterpillars and the like) as they are sometimes hard to identify and require special kill and mounting procedures.
2. Killing the insects you catch: (two options)
    a. Make the kill jar by following the direction below. You can kill many insects at one time. As soon as you catch them, place them in the jar. Leave them in the jar until they are dead. Just be aware, some insects might fight each other, causing damage.
    b. You can kill beetles by easily dropping them into a small jar with ethyl or isopropyl alcohol (70-80%). Please note that beetles can live in killing jars for a longer time than other insects.

    c. Do not place moths or butterflies in the killing jars, as this can mess up their wings as they flap around in the jar. You can kill them by squeezing firmly on their thorax.
    d. As an alternative to the kill jar: you can put them in a sandwich bag and put them in the freezer. Most specimens will die overnight but some cold resistant insects may require a week or more to die.
3. Mount the insects. - See Mounting Pages - for final mounting box information.
    a. You can mount most insects by sticking pins through the thorax and into a piece of cardboard. Make sure that the insects are suspended in the air on the pins and are not tacked against the cardboard. Be sure that an insect is dead before you mount it. You can also use a small piece of cardstock if needed, but not required. See pg. 9 for visual aid.
    b. To mount beetles (order Coleoptera), place the pin through the right wing and abdomen, not through the thorax.
    c. Mount tiny insects (such as mosquitoes, gnats, and fruit flies) onto small triangles of stiff paper (cardstock). Touch a triangle of paper to a small drop of clear fingernail polish; then touch the polish on the paper to the insect. Pin the paper triangles to the cardboard.
4. Protect your mounted insects.
    a. Children and friends may want to handle your specimens. Keep your collection away from children and allow friends to look but not to touch. Some insects are very fragile.
    b. For temporary storage of your insects, glue a piece of thick, corrugated cardboard to the bottom of a box. (A shoe box works well.) Stick the pins with insects on them into the cardboard.
    c. Protect your dead insects from hungry live insects by attaching mothballs inside the collection box. Loose mothballs may damage insects; therefore, put holes in a tiny box filled with mothballs, tape the box shut, and tape it into the corner of the storage box.
5. Identify your insects.
    a. Once you have determined the order to which an insect belongs, use books on insects to identify the specimen by common name. Field guides to insects are helpful. Your teacher may be able to suggest specific books to help you.
6. Label and display your insects. (See pg. 8 for visual example)
    a. Attach the label for each specimen under that specimen by pinning it to the cardboard with the same pin that goes through the specimen.
    b. Devise a method to display your insect collection. You may display your insects temporarily on a piece of cardboard, or you may display them in a collection box.
    c. Be sure to arrange your specimens by scientific order when placing them in your display.
7. Ideas for Catching Insects
    a. Look under stones and boards.

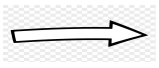
b. Collect mushrooms and put them in a closed jar. As the mushrooms dry, insects that were inside will come out.
c. Dig up and turn over a shovelful of earth. Watch it closely and capture the insects that scurry away.
d. Check around outdoor lights at night.
e. At night, put a light over a tub of water with a spoonful of kerosene in it. In the morning gather the insects from the tub
f. Collect caterpillars and grubs. When they become adults, kill and identify them.
g. Leave an open sandwich outside for an hour or two. Insects will be attracted to the food.
h. Attach an insect net to an automobile and drive along at dusk at about 25 - 30 mph. The net will trap many flying insects. This method works very well along country roads.
i. Use an insect net to capture flying insects. Disturbing bushes and tall grass will often arouse many flying insects.

How to Make a Killing Jar

1. Use a largemouth jar with a screw lid or a coffee can with a plastic lid. Make several jars of various sizes if you plan to catch several insects at one time.
2. Place a half inch thick layer of cotton in the bottom of the jar or can. (You may use a sponge instead of cotton.)
3. Pour ethyl acetate onto the cotton or sponge. Keep the killing jar tightly closed as much as possible. The more you keep the jar covered, the fewer times you will have to add more ethyl acetate to the cotton sponge. If the sponge or cotton becomes too dry, add more ethyl acetate.
4. Cover the cotton or sponge with cardboard that has holes punched in it and has been cut to fit the inner diameter of the can or jar. This keeps the insects from coming into direct contact with the ethyl acetate.

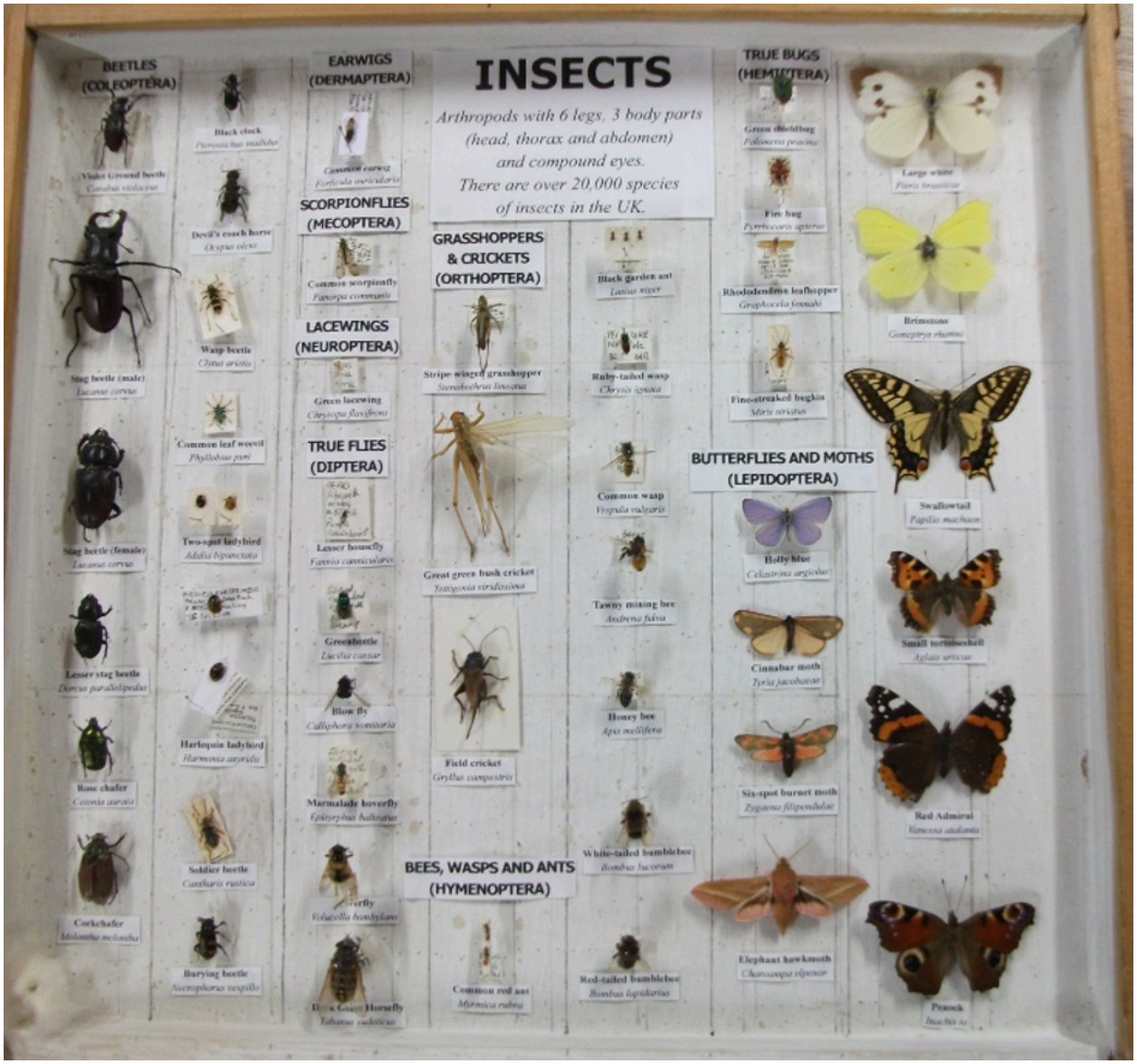
Time Management Worksheet

Please note, this can not be done in ONE day, plan accordingly!

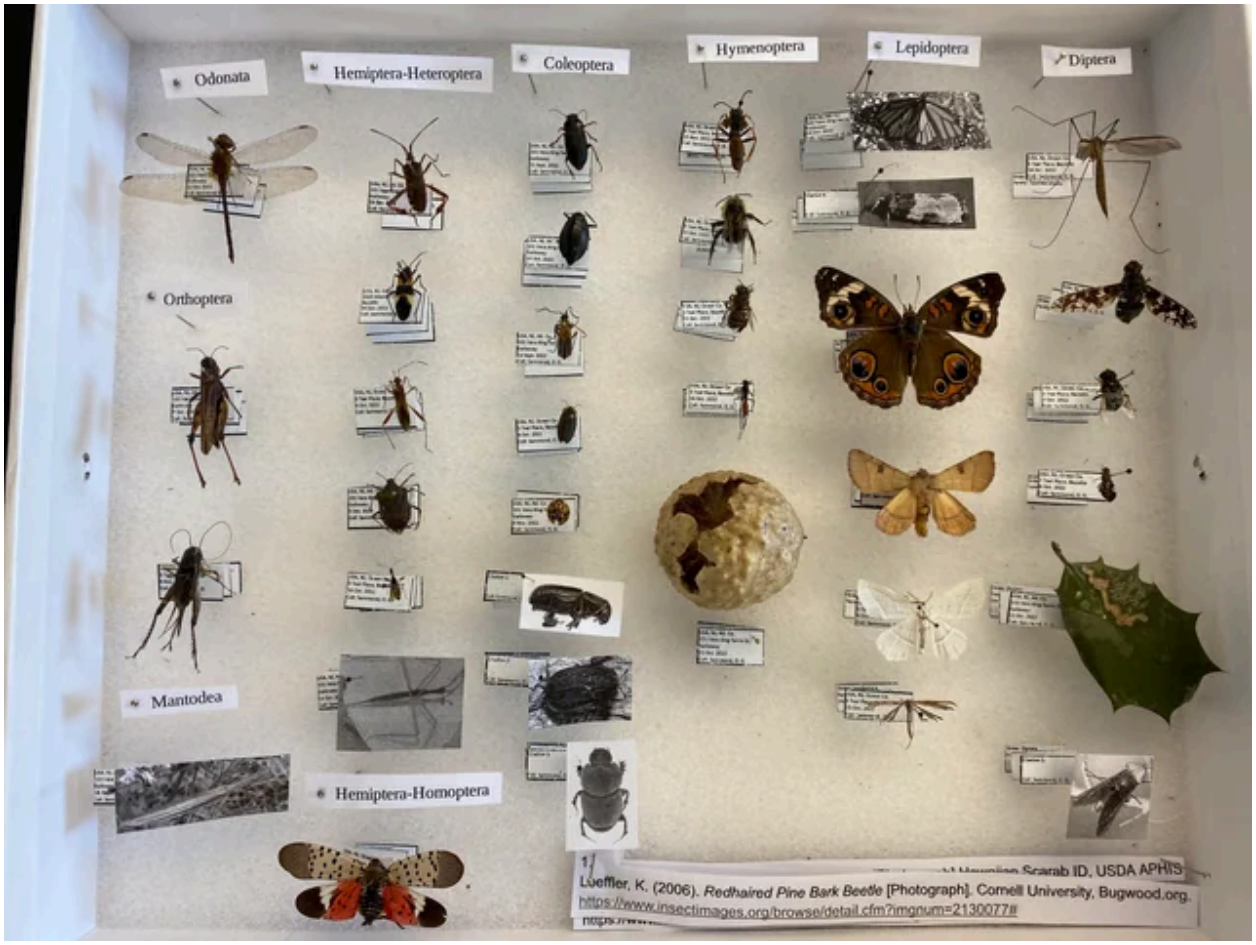
Project Due Date	**August 22, 2024**
Bug Collecting will take time, but you also don't want to gather	
them too early, because they will fall apart. Make sure not to	
leave them in the kill jar longer than necessary and mount them	
quickly! This will help preserve them.	
Start Collecting no later than by this date 	**July 1, 2024**

Mounting Examples

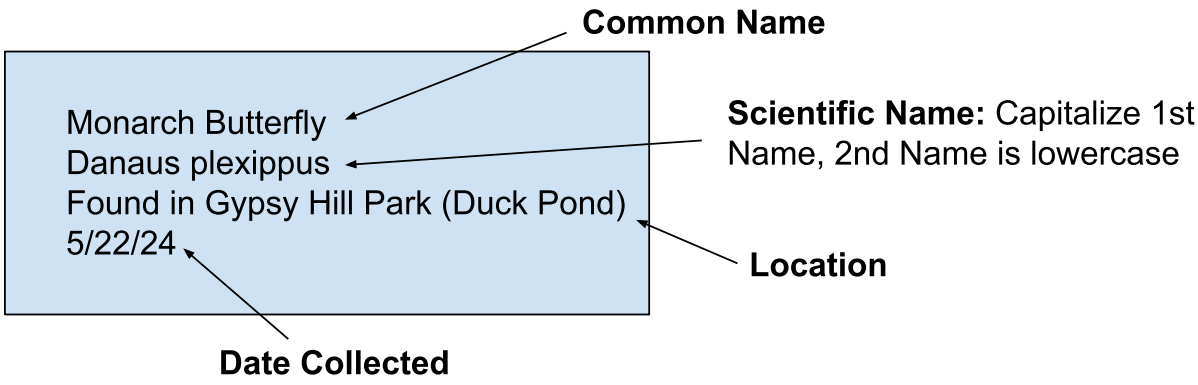
Please don't go to great expense with your final mounting boxes. Use old shoe boxes or amazon boxes, or boxes that you can put a top on. Have your student decorate the outside, or cover it in wrapping paper. Keep it simple! We know you all will be disposing of these afterwards! If you want to put plastic or glass tops, you are more than welcome to, but DO NOT go to great expense with the final boxes!

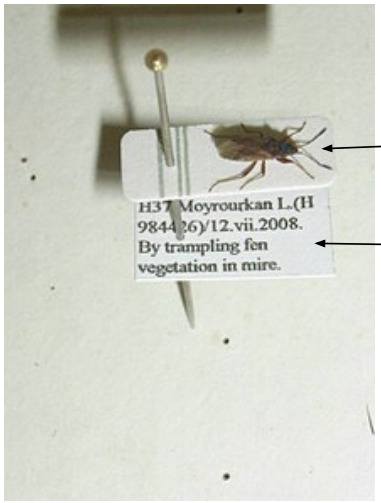


Mounting Examples



Bug Labeling Diagram:





You can use cardstock underneath a bug for additional support - but not necessary, or required!

Label goes underneath the bug, see above for labeling visual, you can do handwritten labeling, but it must be in very neat print handwriting. Label should be small and not distract from the bug.

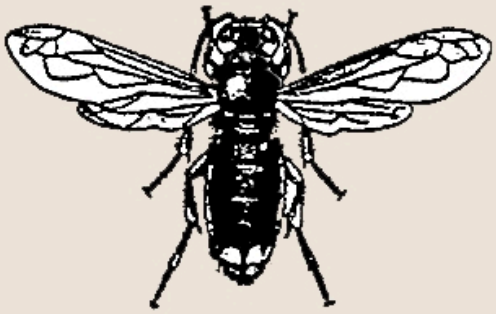
Example: Order Hymenoptera
Families: Bee, Wasp and Ants

Order HYMENOPTERA
(Bees, Wasps & Ants)

Characteristics:

1. Complete metamorphosis
2. Chewing or sucking mouth parts
3. Abdomen frequently with slender waist
4. Four clear wings when present
5. Many social species
6. "Stingers" present in many species

Typical Examples:



HORNET– painful stings

PAPER WASP– females may inflict painful stings

BUMBLEBEE– hairy body large; very efficient pollinator

HONEYBEE – produces honey & pollinates plants

CARPENTER ANT–
large ant that lives in wood