

## 9<sup>th</sup> BIOLOGY LEAF COLLECTION GUIDELINES/DIRECTIONS

### Revised 2021

**\*\* Note: Begin collection now as this is an extensive project. Modifications have been made to the project compared to previous projects.**

The project in Biology is a leaf collection. **The project will be completed each nine-weeks in class with me.** Leaf collections count as a 100-point test grade of the fourth 9-weeks. The project will also count as 3 lab grades therefore, **students will need to collect, and press leaves in leaf press (magazines/books) until needed for in class lab.** We will begin working on the collection in class the first nine-week grading period so that one-third will be completed by the beginning of the second and third nine-weeks, and the final project completed the fourth grading period.

The number of points received for the collection is determined according to the following criteria; (1) required number and kind of tree leaves, (2) drying and mounting technique, (3) identification and labeling, and (4) general appearance of collection.

With today's emphasis on biodiversity, collecting and pressing tree leaves has great merit. Leaf collecting is a good way to learn the trees native to our area. Collecting leaves will also help to learn leaf margins, shapes, and venations and how to use different taxonomic keys to identify trees. Concerning biodiversity it is important to recognize the similarities within individuals of one species and the differences from one life form to the next. Comparing one leaf to another is the simplest way to address identification and biodiversity.

Leaf specimens are best collected in late spring or early summer, after the leaves have reached full size, but before insects, diseases and storms have damaged them. Select leaves of about the same size and shape as a majority of the leaves on the tree. **Make sure the complete leaf is collected from the tree, not after it has fallen.** Remember, simple leaves have only one blade or leaflet. Compound leaves have several to many leaflets. You must know these two leaf characteristics. Good leaf collections include the entire leaf attached to a small part of the twig with a lateral or terminal bud; be sure to preserve the tip, base, petiole, and as much of the margin as possible. Information recorded with your specimen include; specimen number, scientific name, common name, location of tree, date collected, collector, and identification source.

**Please note work done by parents is a major deduction. Parents are not to type the labels, prepare the leaves and/or leaf booklets, or identify the leaves. This is the job of the student and will be done in class under my guidance. This is a learning process designed to help the student follow instructions, research, classify, and organize.**

**Collections will not be returned. I use them for classroom display and as guides for students to review in class.**

### Materials needed:

- leaf press
- black ink pen
- pencil
- small notebook
- scissors
- Elmer's glue
- art paper, poster board, etc. for mounting
- labels
- Alabama Trees Distribution Map
- *Trees of Alabama* Guide (published by the Alabama Forestry Commission)

**Please follow the directions carefully for pressing your leaves. Points will be deducted if not dried correctly.**

### Directions for making a leaf press:

1. Place leaves between several pages of a magazine and/or book so that the moisture is absorbed by the pages.
2. Place the magazines and/or books beneath a heavier object.
4. Stretch belts may be used to bind the press together.
5. Leave the press in an area so that air can circulate & more quickly dry the leaves.

### Getting started with your collection:

1. Study the shapes, margins, venations, tips, bases, etc. in a **Trees of Alabama** and **Alabama Trees Distribution Map** reference... **\*\*Find one and print it.**
2. Learn to distinguish simple from compound leaves and conifers from deciduous trees.
3. Learn to distinguish a tree from a shrub.
4. Gather your collecting materials together - press, pencil, scissors, & small notebook.
5. *Always get permission* before collecting leaves on someone else's property.
6. Be sure to collect at least **two of each type of leaf** so both the bottom & top side of the leaf can be shown in your collection.
7. Place leaves in your press immediately after collecting them so they do not start to dry out and wrinkle. (**Care should be taken to avoid folding the edges of the leaves.**)
8. You may want to record the **name of each leaf, date collected, and place collected** in a notebook as you collect so not to forget. **Note:** I am not particular of a date collected as much as I am the month. This allows me to take into consideration the weather conditions at the time the specimen was collected.

### Collecting:

1. Remember to **collect two** of every type of leaf!
2. Carefully remove an entire leaf, not a leaflet, from the tree, and place this in your press between layers of pages.
3. **If leaves are damaged or torn, don't use them because you will not receive credit.**
4. Make sure that none of the leaf parts extend beyond the edge of the press. This will result in

damage in the drying process and credit will not be given.

5. Leave the leaf in the press for 7 - 14 days depending on its thickness and moisture content. **Remember leaves must be completely dry before mounting or they will become brittle and crack.**

6. Keep the press in an area where air is circulating (in front of a fan).

**🌿 Labeling and identifying requirements: This will be done in class with my guidance.**

1. Labels will be provided in class.
2. Use only **black ink** to make labels.
3. Use taxonomic keys to identify each leaf, and include both the **scientific & common name** of the tree on the label. Scientific names must be underlined or in italics.
4. Determine the **shape, margin, tip, base, and venation of your leaf and whether it is a simple or compound leaf; record this on your label.**
5. Provide a **description of the tree, not the leaf.**
6. Research **uses for the tree, its fruit, etc. and record on your label.**
7. Tell if the leaf is **deciduous or coniferous.**

**🌿 Mounting leaves:**

1. Use pieces of cut poster board or art paper to mount your leaves. Make sure all sheets are uniform in size! (The size of your sheets will be determined by your largest leaf.)
2. Use Elmer's glue to adhere two leaves to each page --- one showing the upper surface of the leaf and the other showing the underside of the leaf.
3. Each page should have only one type of leaf on it.
4. Arrange the leaves so they do not overlap each other and so there is room to glue the **label in the lower right hand corner.** The leaves should look nice on the page.
5. On compound leaves, mount the topside of the complete leaf and then mount the underside of a single leaflet. **Make sure the leaflet comes from another leaf to receive credit!**
6. Use a small amount of Elmer's glue to adhere the completed label in the lower right hand corner of the page.
7. **LET THE PAGES DRY COMPLETELY BEFORE ASSEMBLING THEM TOGETHER IN YOUR COLLECTION OR THE PAGES WILL STICK TOGETHER!!!!**
8. Once the pages are dry, lay them in the correct order (see your list of required leaves). **Page number is the specimen number on the label in the lower right corner.**
9. Make a stiff front and back cover for your collection from poster board or cardboard. Include the following items on your cover:

- **title (Tree Identification Through Leaves)**
- **your complete name**
- **date collection turned into teacher**
- **class period**
- **subject**
- **teacher's name**

10. Use ribbon, string, notecard rings etc. to bind the pages together or assemble the collection in a scrapbook. **DO NOT COVER THE LEAVES WITH PLASTIC!!!**

 **Required leaves: 20 plus 5 from additional list**

1. Only native Alabama trees may be used. Refer to your Trees of Alabama or Alabama Distribution Map.
2. Leaves must be in perfect condition **without damage or tears**.
3. No fruit trees such as apple, pear, orange, peach, etc. are allowed.
4. Place the following leaves in your collection first and in this order:

 **Gymnosperms:** Single blade is used

- **Longleaf Pine**
- **Short Leaf Pine**
- **Loblolly Pine**
- **Eastern Red Cedar**

 **Angiosperms:**

- **White Oak**
- **Southern Red Oak**
- **Water Oak**
- **Live Oak**
- **Swamp Chestnut Oak**
- **Blackjack Oak**
- **Silver Maple**
- **Red Maple**
- **American sycamore**
- **Sweetgum**
- **Southern Magnolia**
- **Eastern Redbud**
- **Flowering Dogwood**
- **Tuliptree (Yellow Poplar)**
- **Pignut Hickory (compound)**
- **Pecan (compound)**

**6. The remaining leaves that you include must be from the following list: (Additional 5 must be different from species in 1-20).**

- **American Basswood**
- **American Holly or Yaupon Holly; Be specific on your label.**
- **American or Eastern Hornbeam; Be specific on your label.**
- **Birch Species; Be specific on your label.**
- **Bald Cypress**
- **Black Tupelo**
- **Black Willow**
- **Boxelder (compound)**
- **Common Persimmon**
- **Eastern Cottonwood**

- **Elm Species; Be specific of the type elm on your label.**
- **Green Ash or White Ash (compound) Be specific on your label.**
- **Hickory (compound)**
- **Additional Oak such as Willow Oak, Turkey Oak, etc. Must be different from required.**
- **Pond Cypress**
- **Red Mulberry**
- **Sassafras - BONUS**
- **Sourwood**
- **Sugarberry (Hackberry)**
- **Southern Catalpa**
- **Sweetbay Magnolia**
- **Wild Cherry also known as Black Cherry (same)**