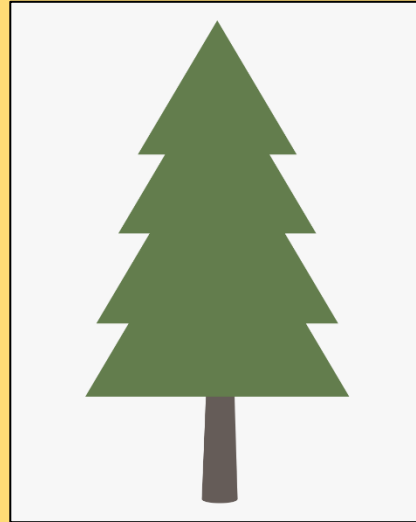




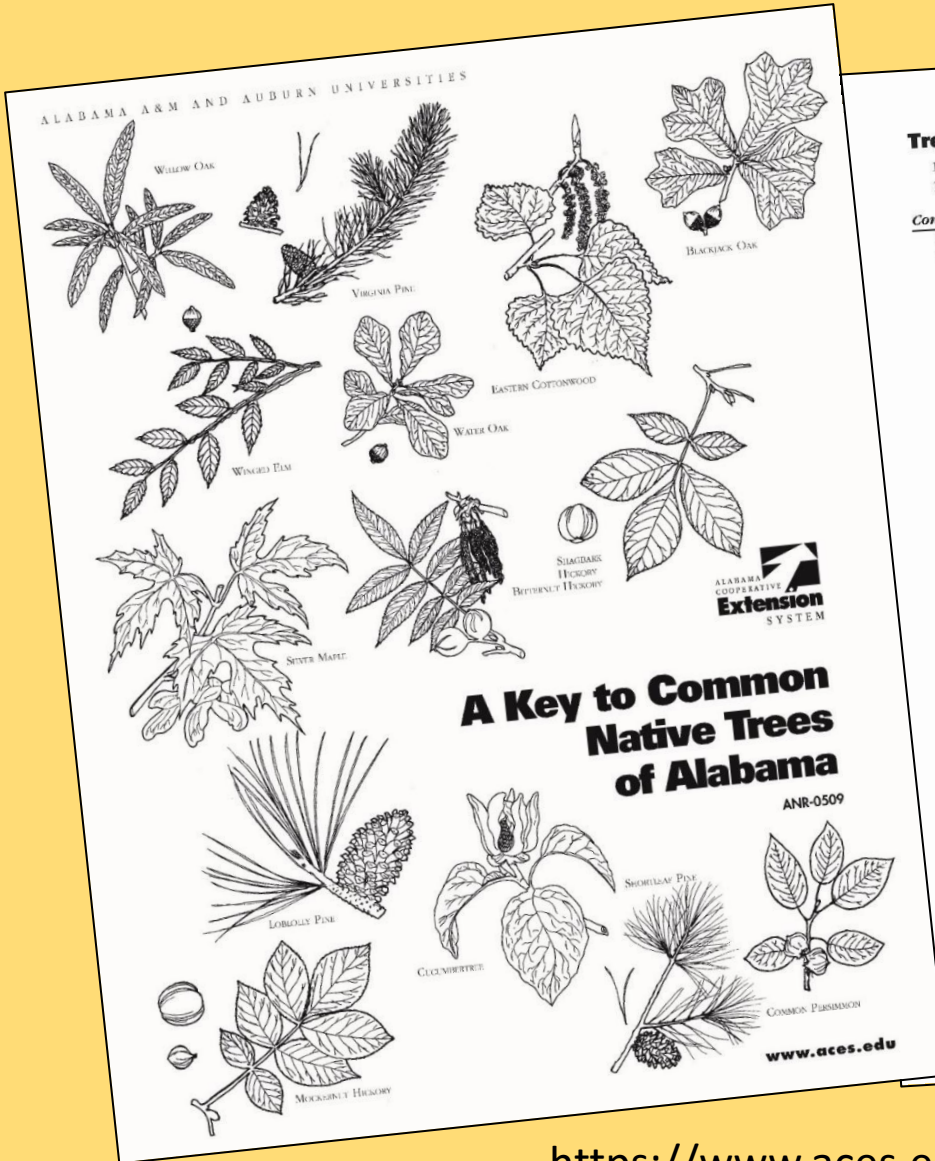
Looking at Leaves

How to Identify Trees

- ✓ Shape of the Tree
- ✓ Bark
- ✓ Nuts or seeds
- ✓ Flowers
- ✓ Leaves



ACES Tree Identification Dichotomous Key



Tree Identification Key

- 1. Leaves needle-like or scale-like; trees' with cones
- 1. Leaves flat and broad; trees without cones

Conifers

- 1. Leaves needle-like
- 1. Leaves scale-like, sometimes pointed on the end and prickly to the touch; bark reddish-brown and fibrous; cones look like bluish-gray berries about 1/4 inch in diameter; cones occur only on female trees
- 2. Needles attached to the twig in bundles or clusters
- 2. Needles attached to the twig separately, not in bundles or clusters
- 3. Needles in bundles or clusters of 2 or 3
- 3. Needles in bundles or clusters of 5, 3 to 5 inches long, bluish-green
- 4. Needles yellow-green, 1/2 to 3/4-inch long; foliage has a feather-like appearance and falls off in the winter; bark fibrous, scaly, reddish brown but weathers to ash-gray; cones rounded like a ball; trees are found most commonly in swamps
- 4. Needles are borne on short stalks which remain on the twig when needles fall off, shiny-green above with 2 white stripes underneath, 1/3- to 1/2-inch long; cones light-brown, borne on the ends of the branches; trees evergreen; drooping branches may hang to the ground

Yellow Pines

- 1. Needles in bundles or clusters of 3
- 1. Needles in bundles or clusters of 2 or 2 and 3 on the same tree
- 2. Needles 5 to 9 inches long; cones 3 to 6 inches long and prickly to the touch
- 2. Needles 8 to 18 inches long; cones large in size 6 to 10 inches long; seedlings look like clumps
- 3. Needles in bundles or clusters of 2 and 3 on the same tree
- 3. Needles small in size, 3 to 5 inches long; cones 2 to 4 inches long
- 4. Needles usually 8 to 12 inches long; cones 2 to 4 inches long
- 5. Needles stout, yellow-green, twisted; cones 1 to 2 inches long; branches reddish; usually often used as a Christmas tree
- 5. Needles slender, dark green, twisted; cones 1 to 2 inches long; bark silver-gray, furrowed, more of a hardwood than a pine; trees usually found in swamps

4 Alabama Cooperative Extension System

Hardwoods

- 1. Leaves and buds opposite
- 1. Leaves and buds alternate
- 2. Leaves compound
- 2. Leaves simple
- 3. Leaves pinnately compound
- 3. Leaves palmately compound
- 4. Leaflet edges smooth (entire), not toothed
- 4. Leaflet edges toothed (serrate)
- 5. Leaves not lobed
- 5. Leaves lobed
- 6. Leaves heart-shaped
- 6. Leaves oval-shaped with a pointed tip
- 7. Leaves compound
- 7. Leaves simple
- 8. Leaflet edges smooth (entire), not toothed
- 8. Leaflet edges finely toothed (serrate)
- 9. Leaves once pinnately compound; twigs with branched thorns, commonly 3-branched
- 9. Leaves once pinnately compound; twigs without branched thorns
- 10. Leaves with 15 to 23 leaflets; fruit a yellowish, flattened, 3-lobed nutlet
- 10. Leaves with 5 to 17 leaflets, usually 15 or 17
- 11. Leaf edges smooth (entire), not toothed
- 11. Leaf edges toothed (serrate)
- 12. Leaves lobed
- 12. Leaves not lobed
- 13. Leaves all approximately the same shape
- 13. Leaves mitten-shaped, 3-lobed and unlobed; bark reddish brown; leaves, twigs, and fruit dark reddish brown
- 14. Leaf tip (apex) flat, leaves commonly 4 to 6 inches long
- 14. Leaf tip (apex) pointed or rounded, leaves 3 to 5 inches long
- 15. Leaves heart-shaped, 3 to 5 inches long; fruit a bean (legume), 2 to 3 inches long
- 15. Leaves not heart-shaped, 2 to 3 inches long
- 16. Leaf edges armed with sharp spines; fruit a nutlet
- 16. Leaf edges not armed with sharp spines
- 17. Twigs with narrow lines circling them; each leaf is attached
- 17. Twigs without narrow lines circling them
- 18. Twigs with terminal buds at the ends
- 18. Twigs without terminal buds at the ends
- 19. Leaf stem (petiole) which attaches leaf to twig 1/4 inch long
- 19. Leaf stem (petiole) which attaches leaf to twig 1/2 inch long

Hardwoods (cont.)

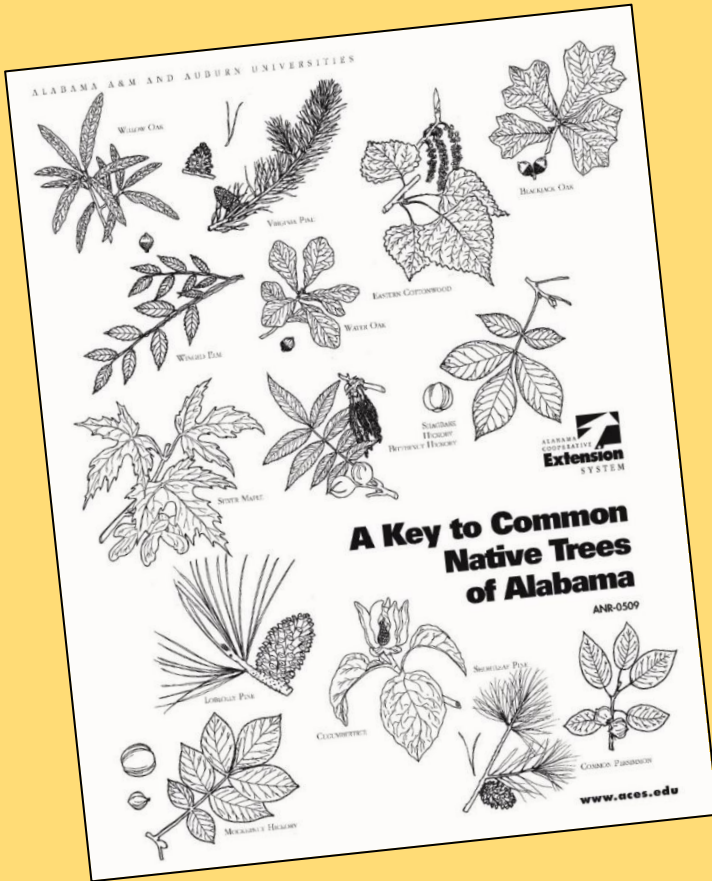
- 20. Leaves not lobed
- 20. Leaves lobed
- 21. Twigs with terminal buds at the ends
- 21. Twigs without terminal buds at the ends
- 22. Primary veins extending from midrib to leaf margin
- 22. Primary veins uniting within leaf blade
- 23. Leaves triangular; buds brown and less than 1/4-inch long; bark at first yellowish green, smooth and thin, becoming thick gray and deeply furrowed
- 23. Leaves oblong to oval-shaped; buds brown, about 1 inch long and needle-like; bark thin, smooth, and gray, does not change with age; favorite tree bark for carving initials
- 24. Leaf edges very finely toothed (serrate)
- 24. Leaf edges coarsely toothed (serrate)
- 25. Leaf edges simply serrate or dentately serrate
- 25. Leaf edges doubly serrate
- 26. Leaf edges simply serrate; leaves somewhat heart-shaped, 2 to 4 inches long and 1 to 2 inches wide; bark gray-brown with corky warts
- 26. Leaf edges dentately serrate; leaves 3 to 5 inches long and 2 to 3 inches wide with a heart-shaped or flattened base; bark grayish-brown and deeply furrowed with scaly ridges
- 27. Bark reddish brown on very young stems and scaly or papery on older stems
- 27. Bark bluish gray to brownish gray and smooth or furrowed
- 28. Bark turning white to salmon-pink and papery with age
- 28. Bark turning gray to brown and scaly with age
- 29. Bark bluish gray, tight, thin and smooth with a muscular appearance
- 29. Bark ash-gray to brownish gray and furrowed
- 30. Leaves star-shaped or nearly so
- 30. Leaves mitten-shaped, 3-lobed and unlobed on the same tree
- 31. Leaf edges finely toothed (serrate); twigs often have corky wings; bark gray to gray-brown and deeply furrowed
- 31. Leaf edges irregularly toothed; twigs have a zigzag shape; bark creamy white to brown and smooth to scaly

Oaks

- There are two broad groups of oaks, whiteoaks and red oaks. White oaks have leaves with rounded lobes and no bristles at the ends. Red oaks usually have leaves with small bristles at the ends of the lobes and the leaf apex. Although it is sometimes difficult to see the bristle-tips on the leaves, water oak and willow oak belong to the red oak group.
- 1. Leaf edges smooth (entire)
 - 1. Leaf edges distinctly toothed or lobed
 - 2. Leaf edges not rolled under; undersurface hairy
 - 2. Leaf edges not rolled under; undersurface not hairy
 - 3. Leaves linear, 1/2 to 1 inch wide
 - 3. Leaves spatula-shaped, 1 to 2 inches wide; wider at the tip (apex) than at the base

6 Alabama Cooperative Extension System

ACES Tree Identification Dichotomous Key

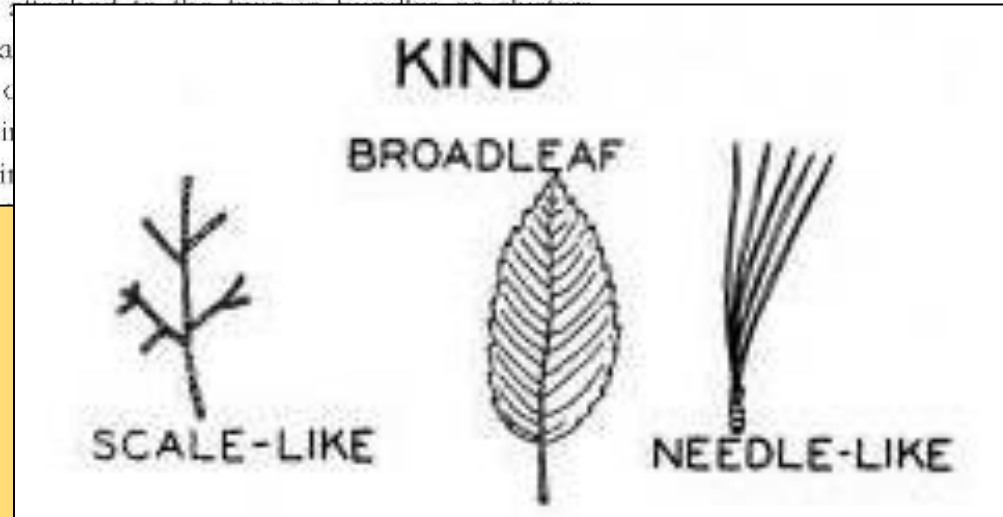


Tree Identification Key

- 1. Leaves needle-like or scale-like; trees' with conessee **Conifers**
- 1. Leaves flat and broad; trees without conessee **Hardwoods**

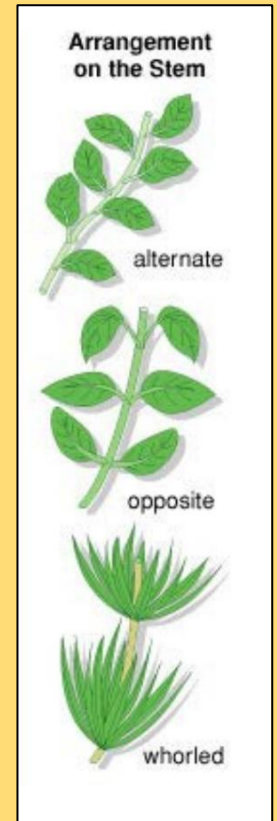
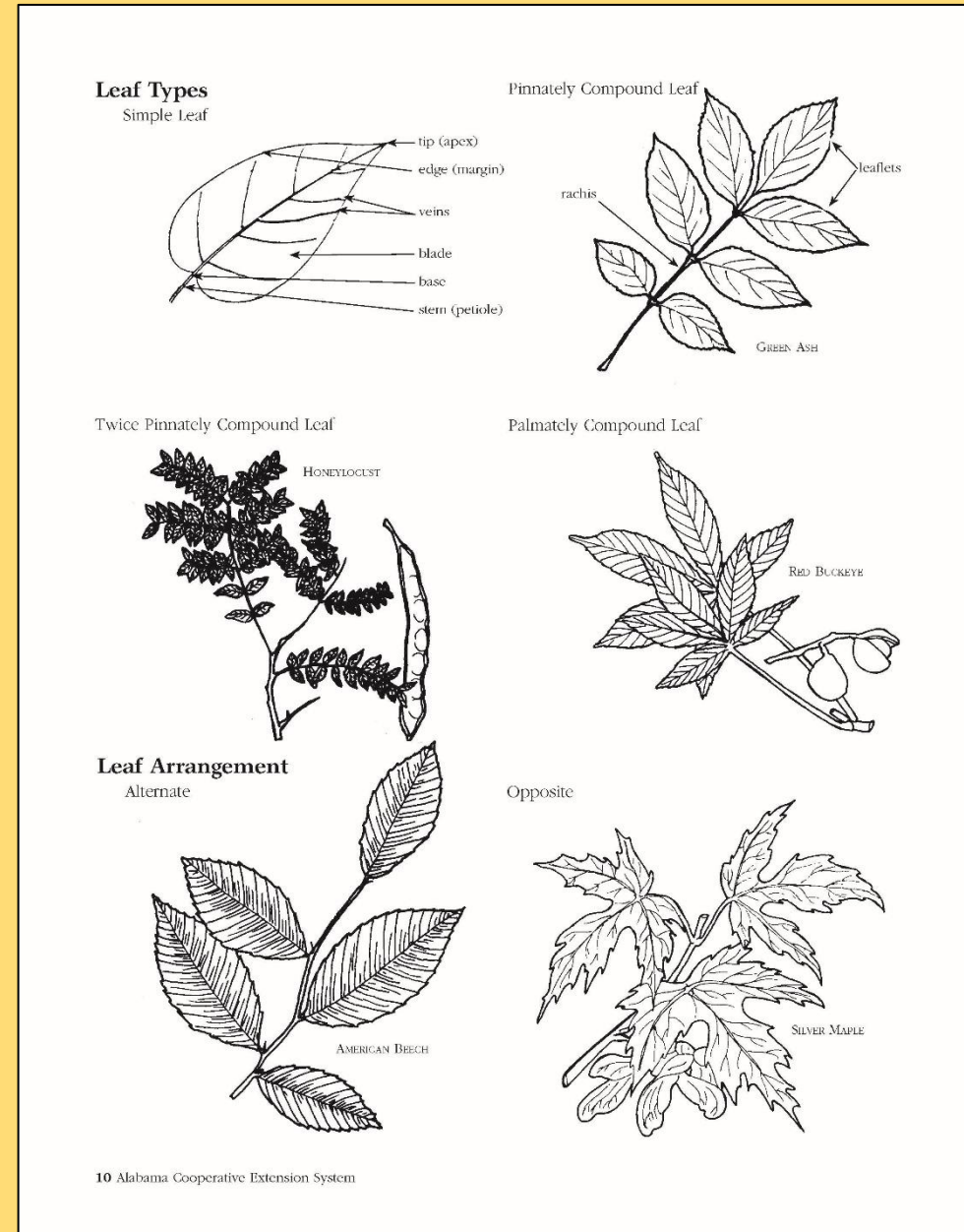
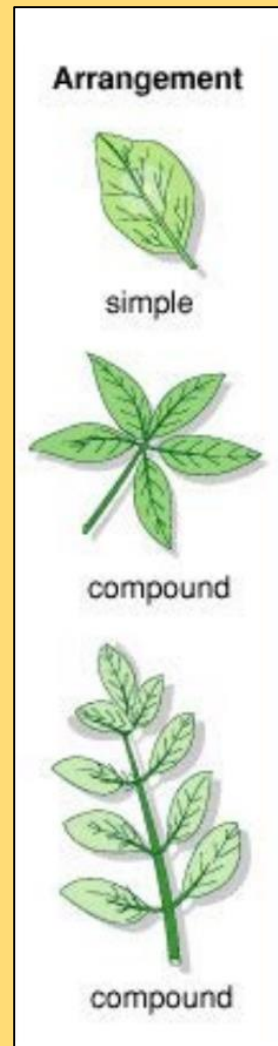
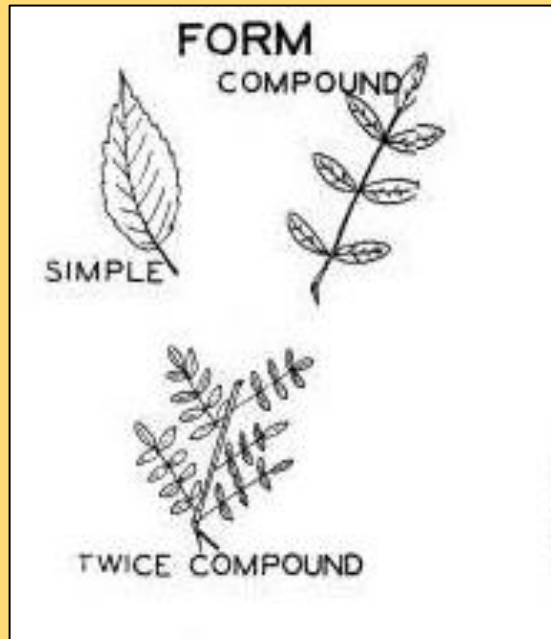
Conifers

- 1. Leaves needle-like2
- 1. Leaves scale-like, sometimes pointed on the end and prickly to the touch; bark reddish-brown and fibrous; cones look like bluish-gray berries about 1/4 inch in diameter; cones occur only on female treeseastern redcedar
- 2. Needles3
- 2. Needles in bundles4
- 3. Needles in bundles4
- 3. Needles in bundles4



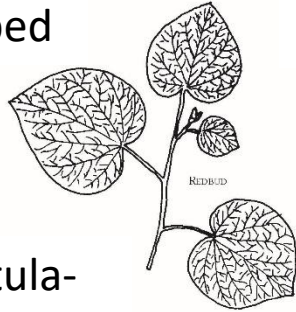
.....4
e **Yellow Pines**

Leaf Characteristics: FORMS, TYPES & ARRANGEMENTS

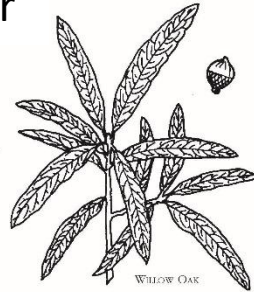


Leaf Characteristics: SHAPES

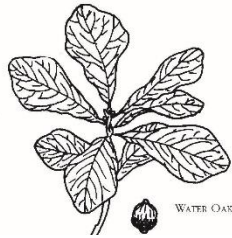
heart-shaped



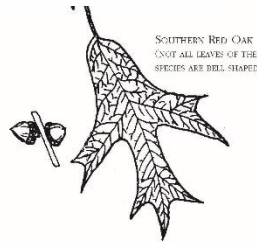
linear



spatula-shaped



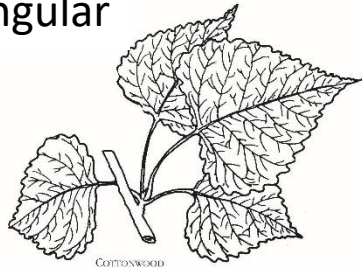
bell-shaped



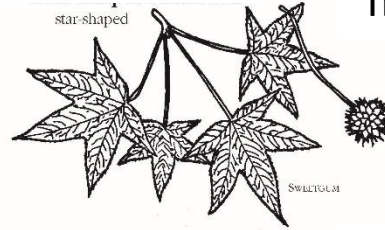
cross-like



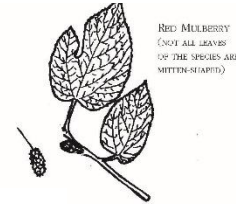
triangular



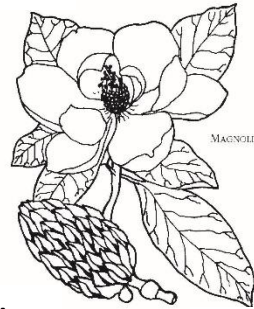
star-shaped



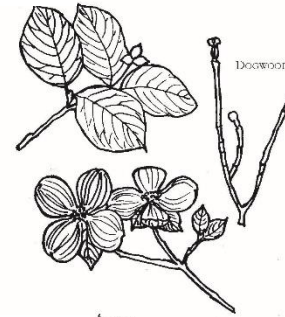
mitten-shaped



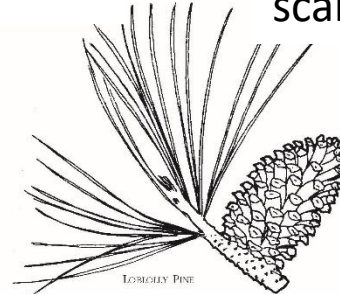
oblong



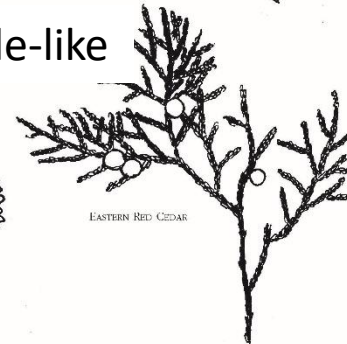
oval



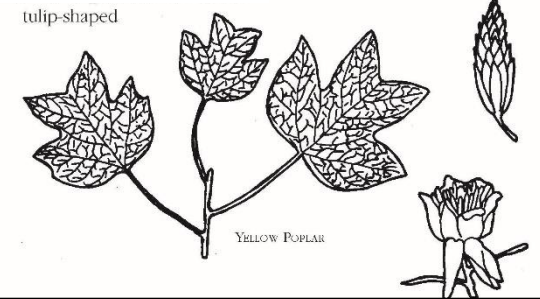
needle-like



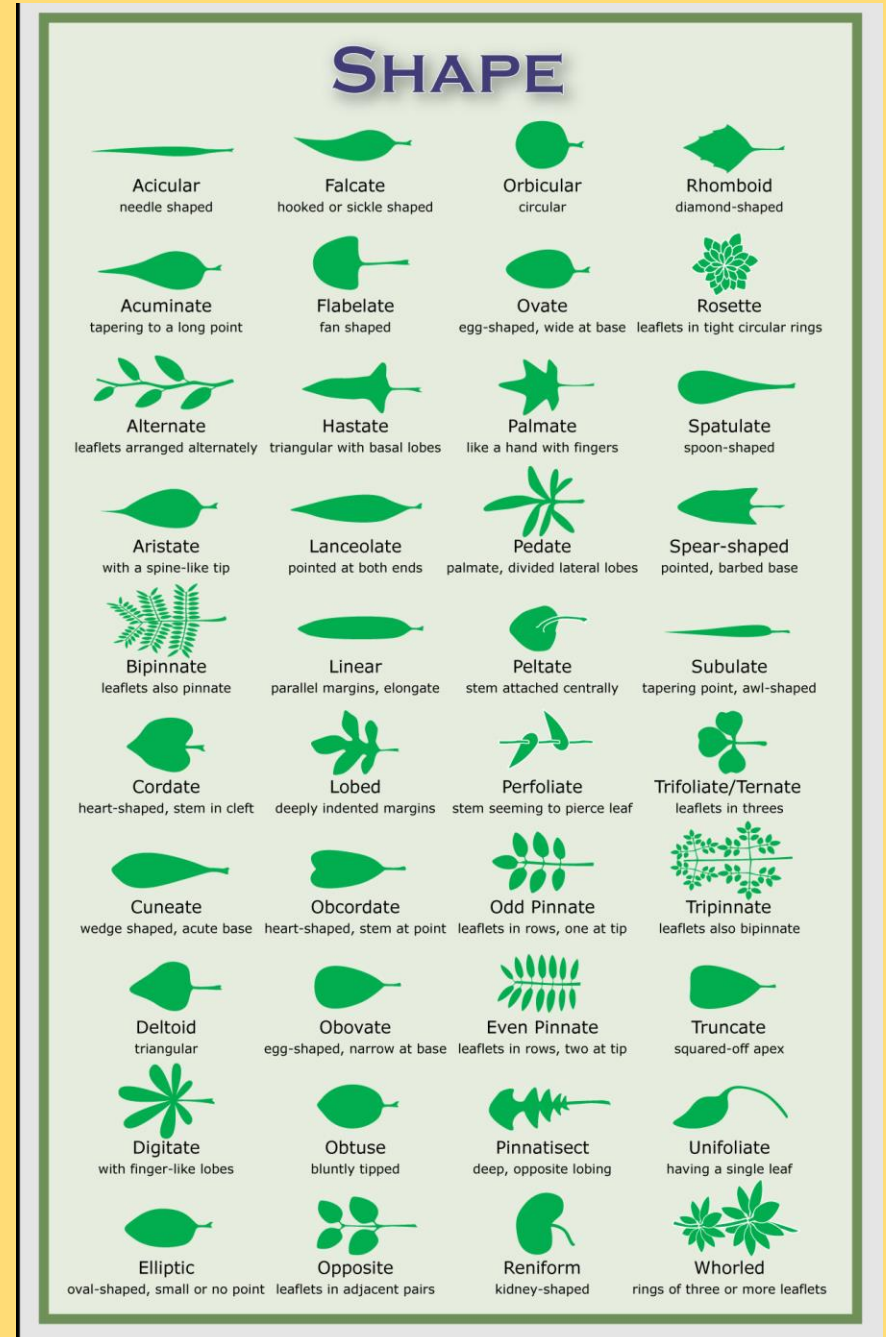
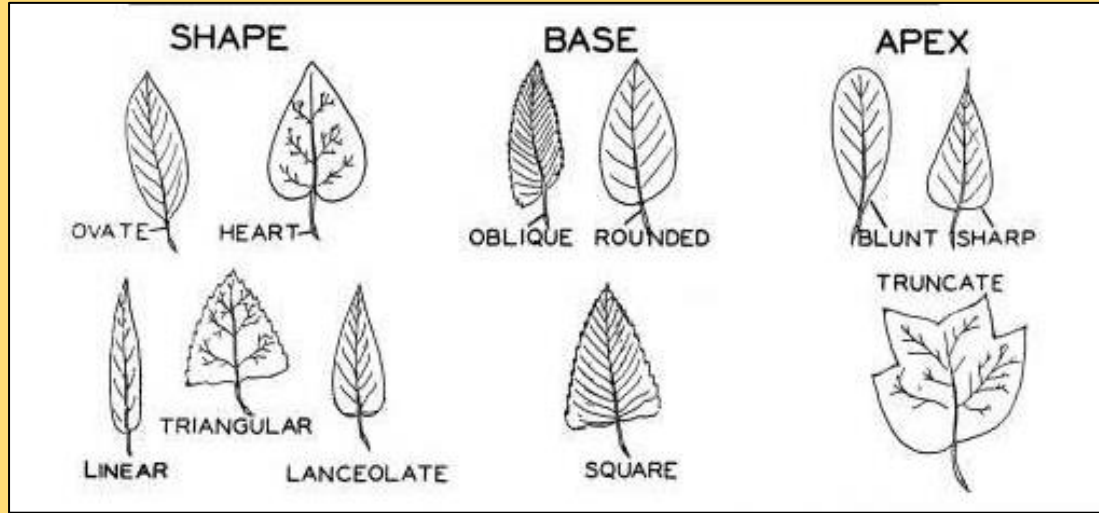
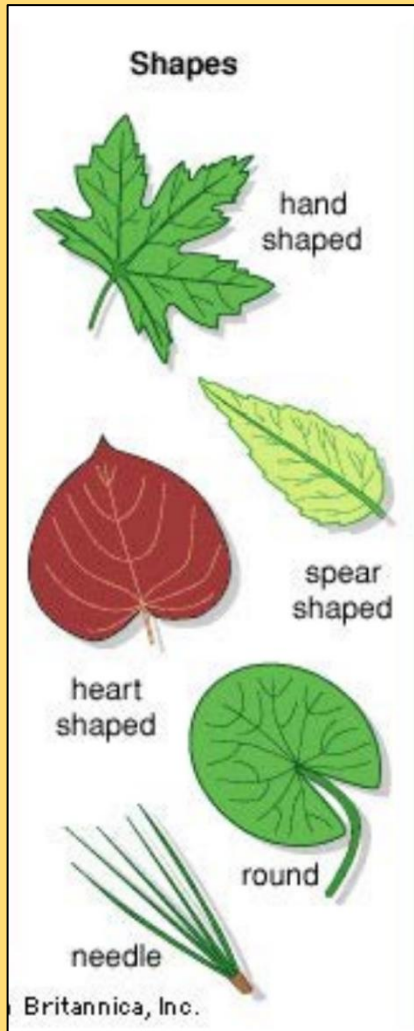
scale-like



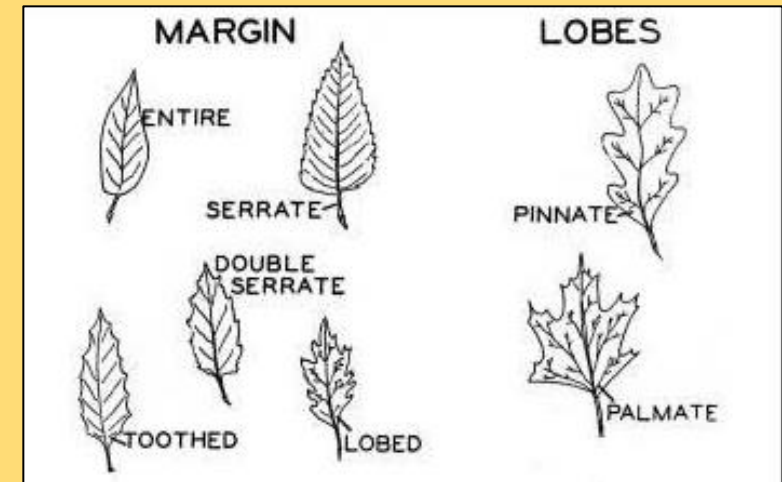
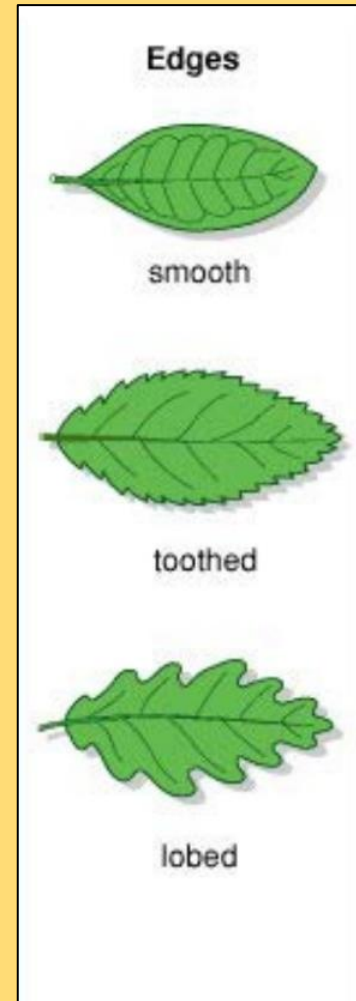
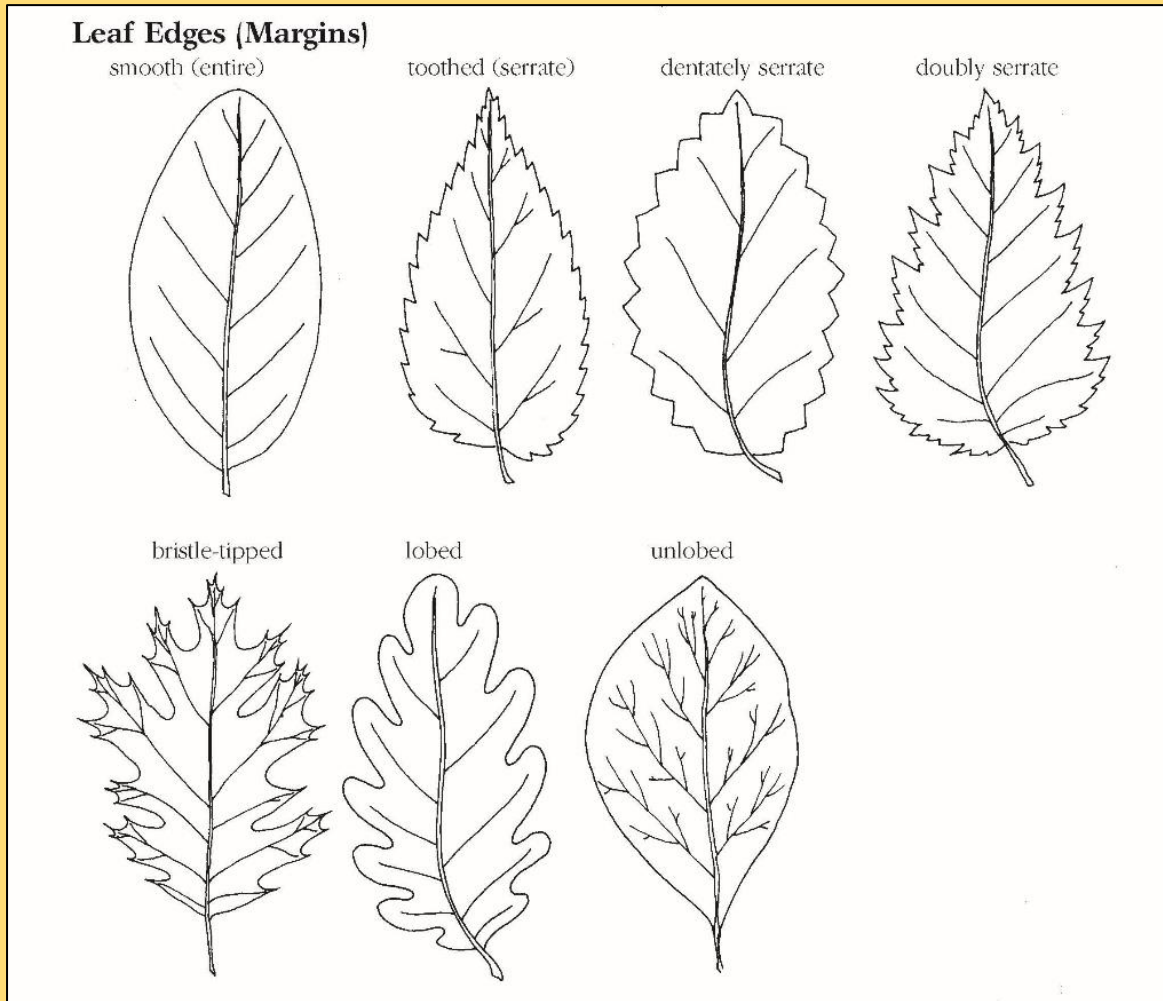
tulip-shaped



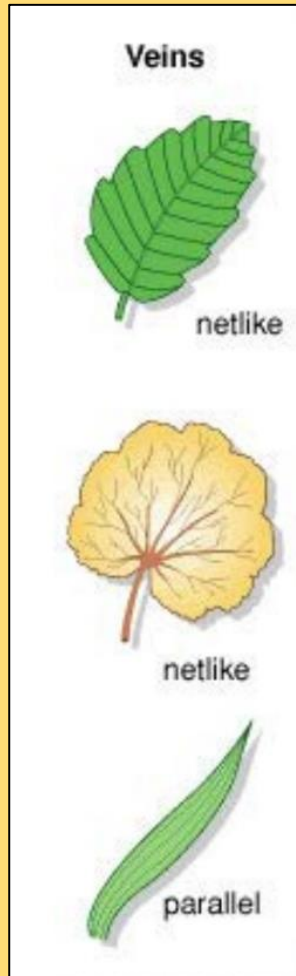
Leaf Characteristics: SHAPES



Leaf Characteristics: EDGES, MARGINS & LOBES



Leaf Characteristics: VEINS & TEXTURES



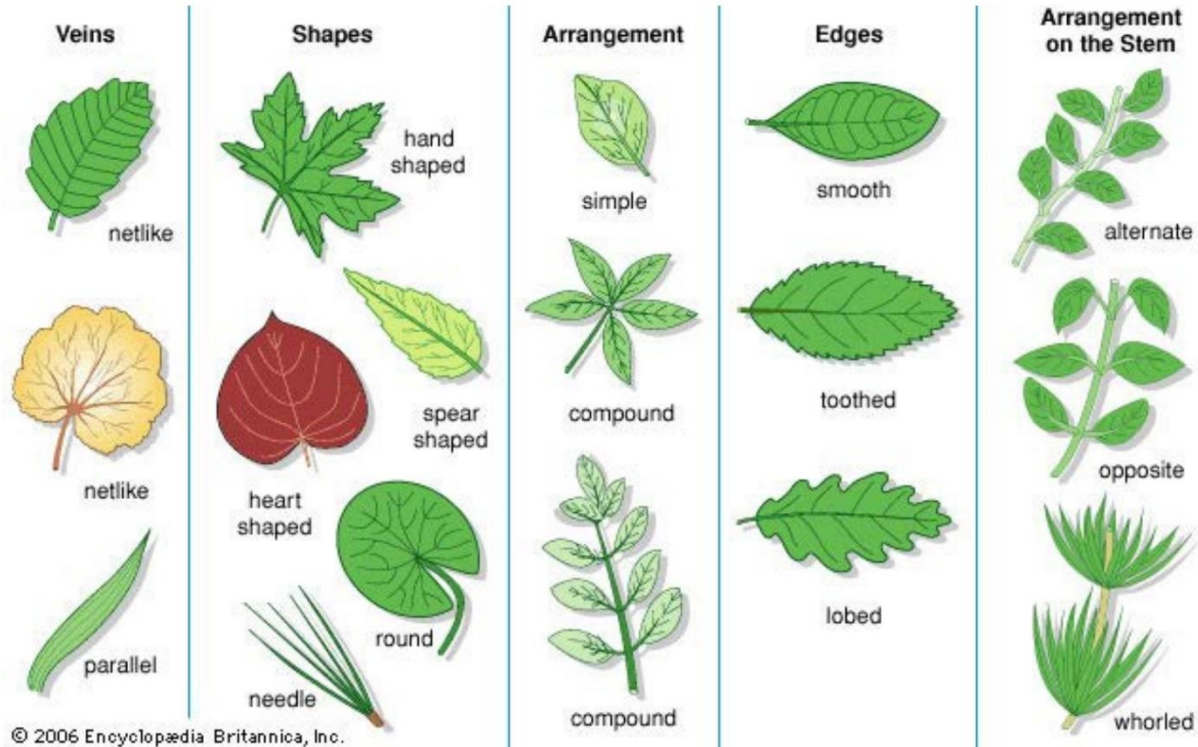
- Leaf veins
- Textures – What does your leaf feel like?
hairy, smooth, thick, thin, rough, or waxy?
- Let's compare our leaves & try to ID them...

On AWF's Common OC Plants Webpage

- <https://www.alabamawildlife.org/uploadedFiles/File/Common Leaf Shapes and Arrangements Chart.jpg>

Common Leaf Shapes and Arrangements

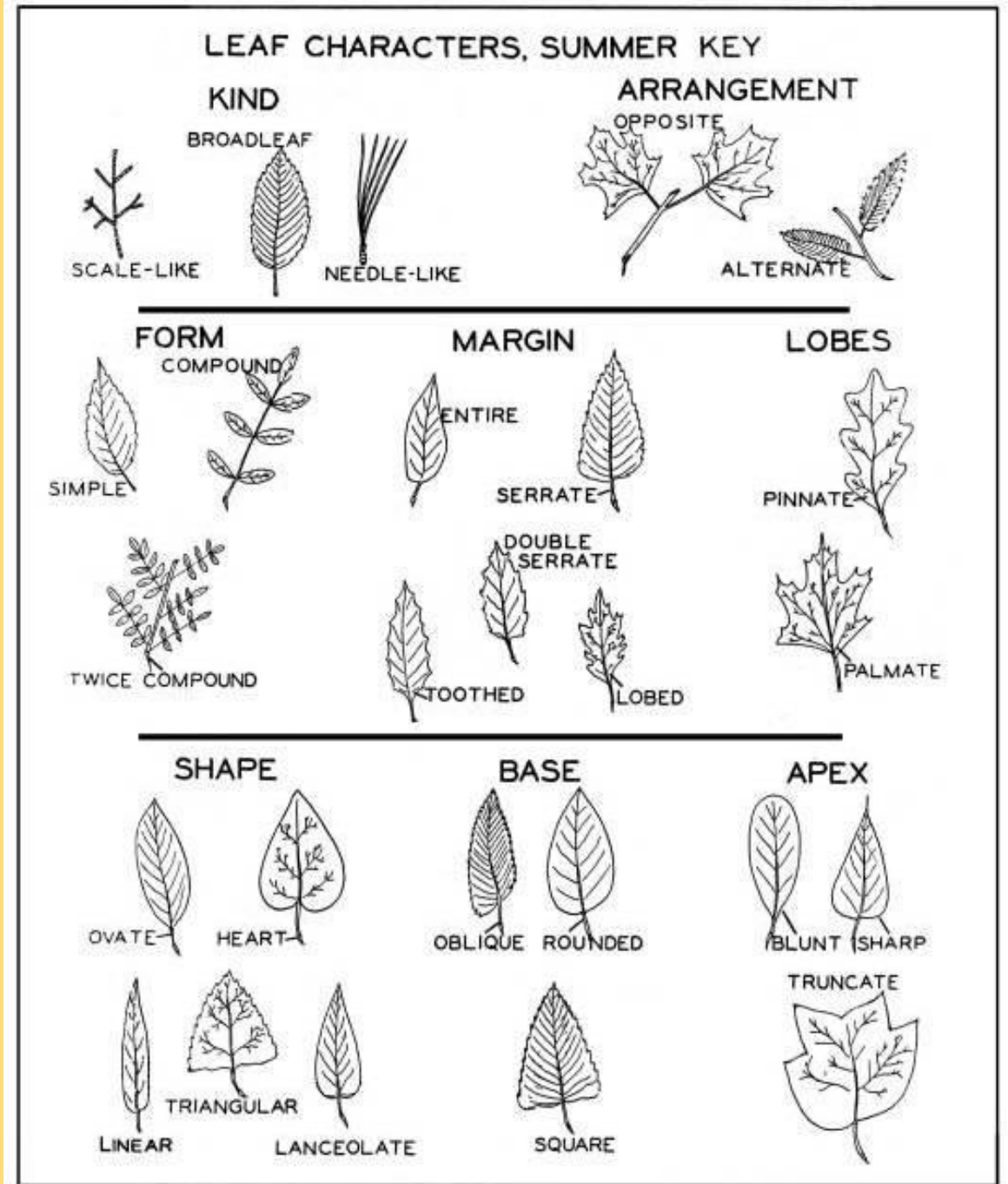
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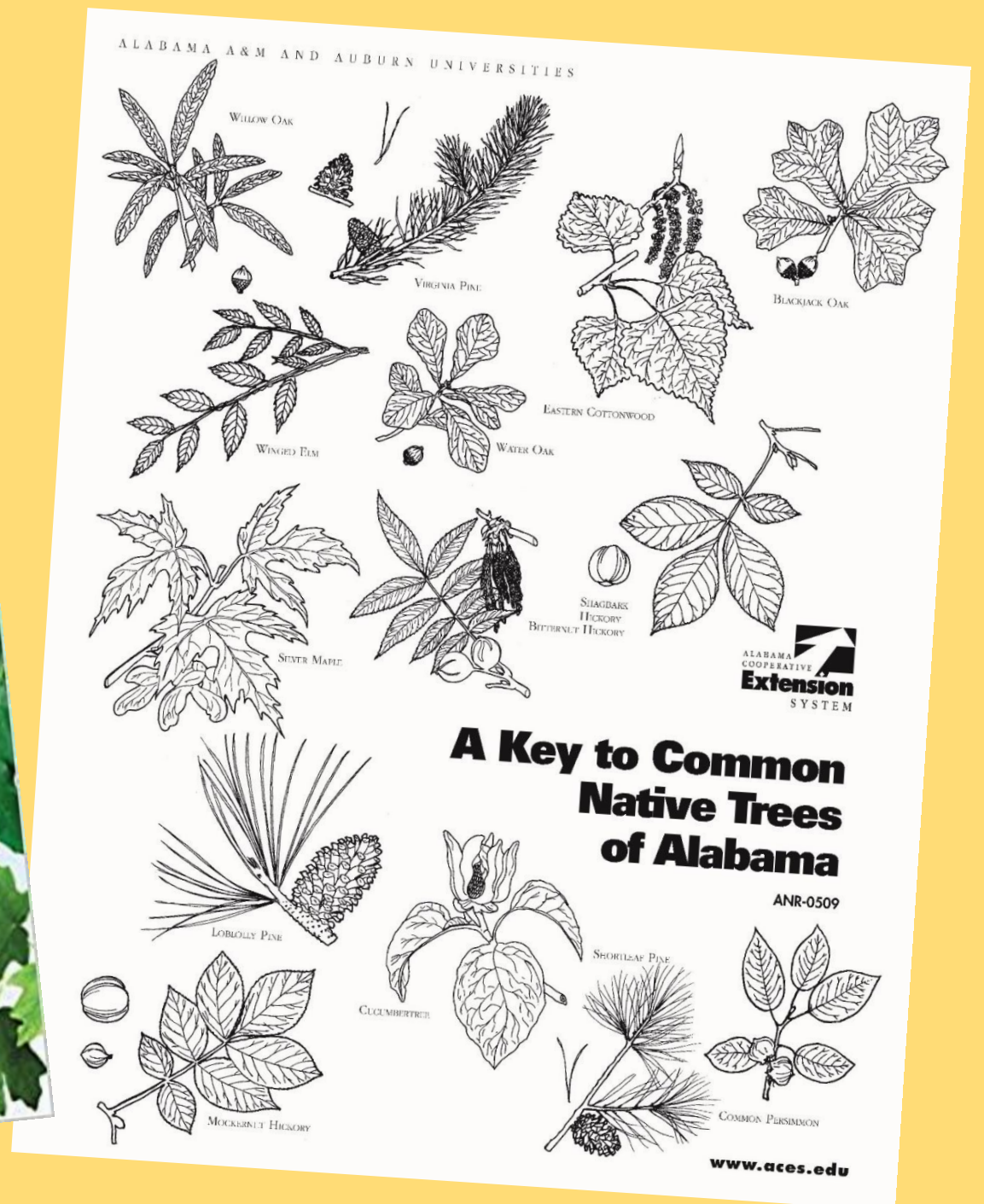
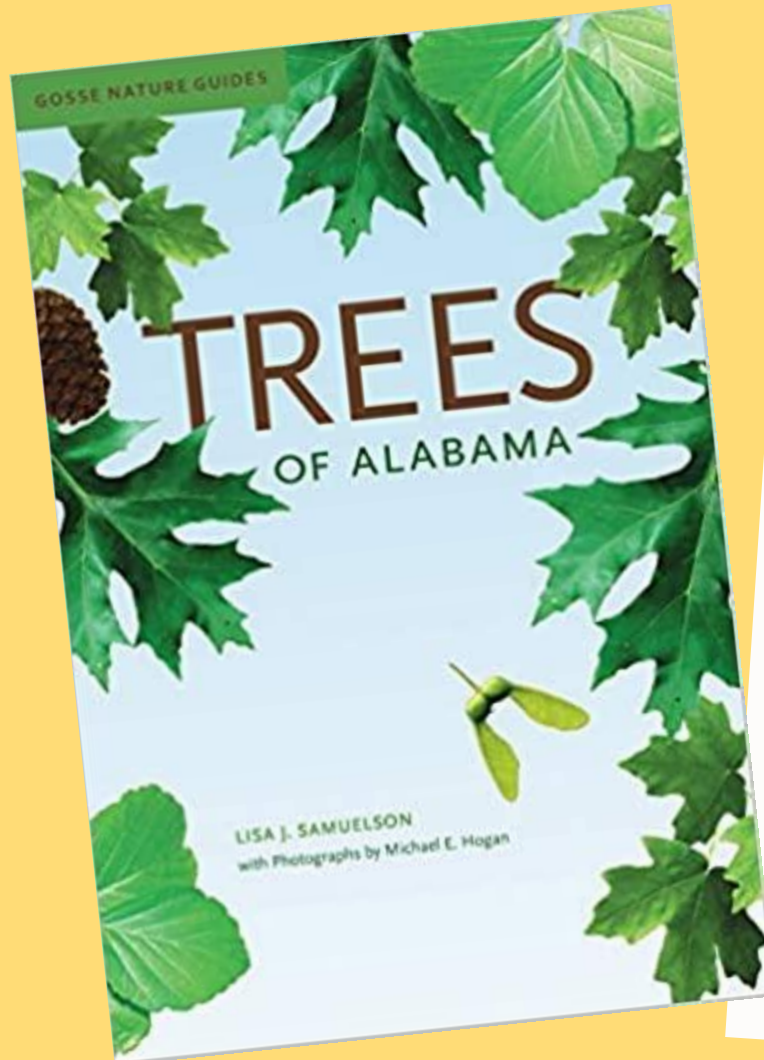
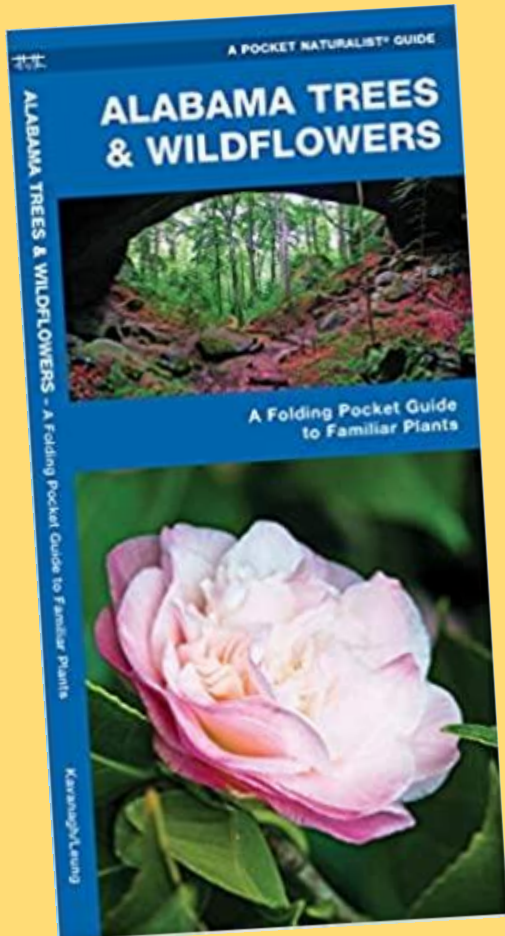


Provided by the Alabama Outdoor Classroom Program



Looking at Leaves

Field guide

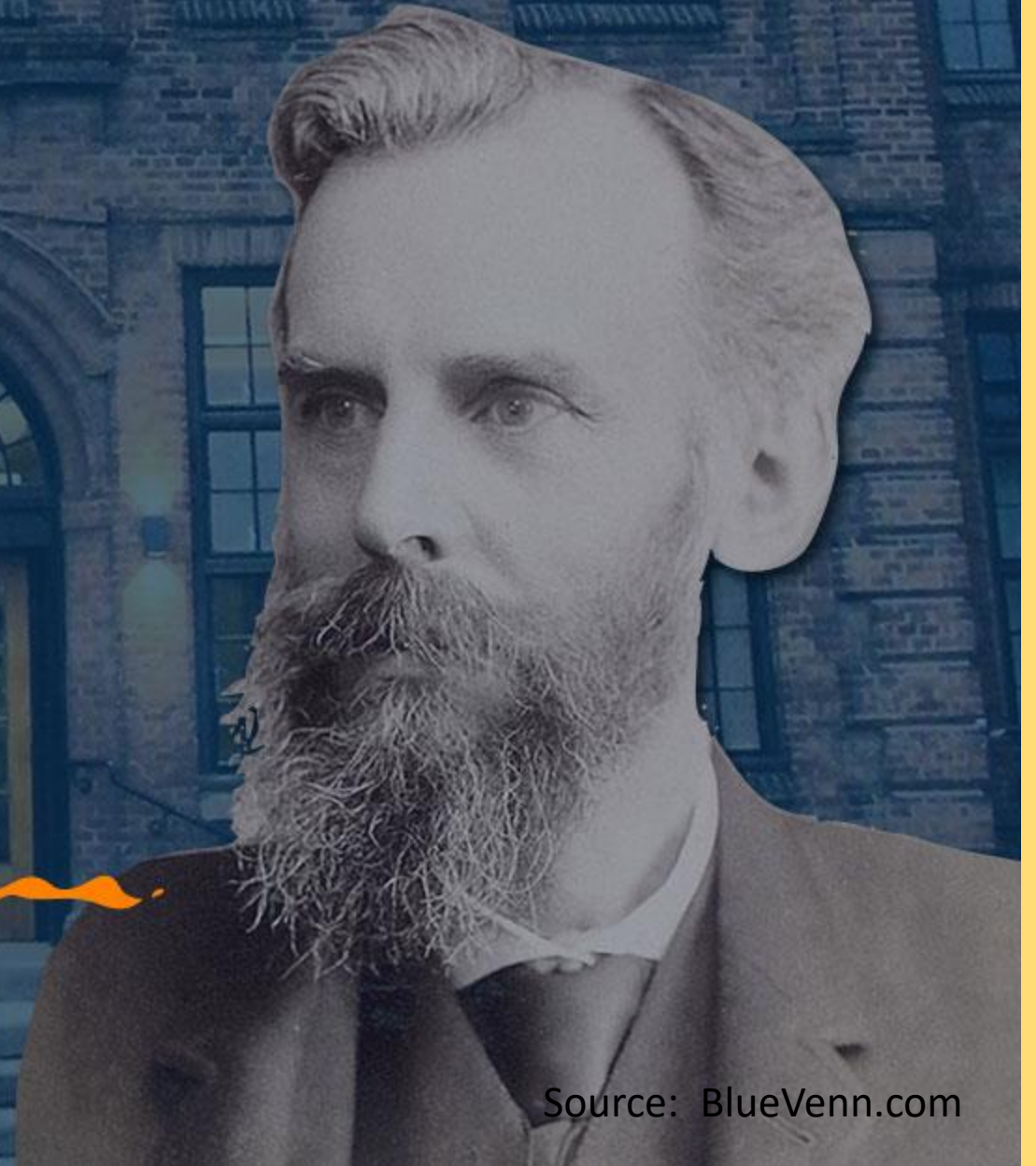


Venn



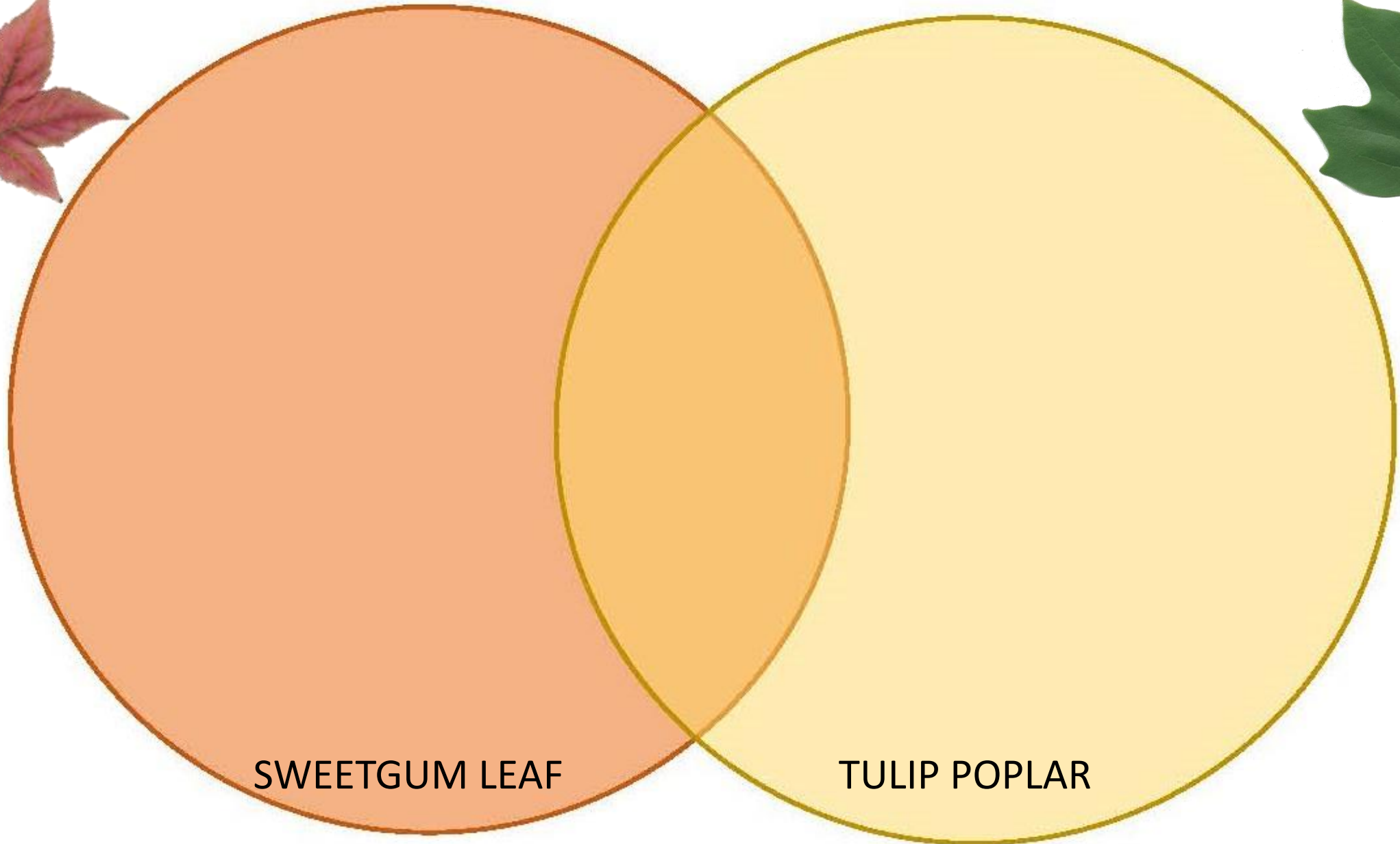
John Venn

1834 - 1923



Source: BlueVenn.com

VENN DIAGRAM: LOOKING AT LEAVES



SWEETGUM LEAF

TULIP POPLAR

PLT's Activity #64: Looking at Leaves

- Locate area to collect leaves
- Ask students to collect 3-5 different kinds of leaves
- Examine and sort leaves in small student groups
- Swap leaves among students
- Find trees that match leaves
- Examine trees for detail (bark, flowers or nuts, how leaves grow on tree, etc.)




Looking at Leaves

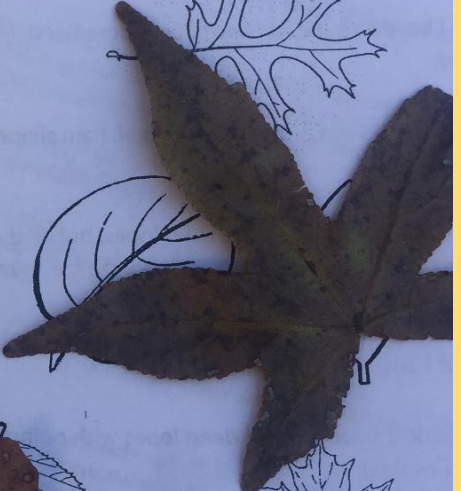
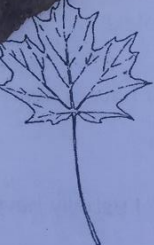



PLT student page

What kind of leaf is it?


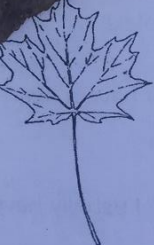


Is it Pine needle or Broadleaf?




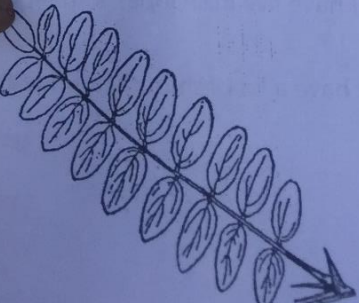

How is the leaf shaped?





What are the edges like?



Is it Simple or Compound?




Outdoor Classroom Field Investigation: Observing a Leaf

  **Observing a Leaf**

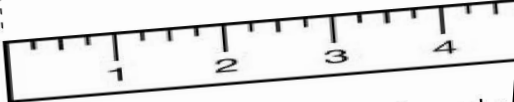
Name: _____

Pick a leaf in the outdoor classroom.
Trace the leaf with a pencil or make a rubbing of it with a crayon in the box below.

Put the stem of the leaf on the dotted line on the left side of the box, with the leaf pointing to the right side of the box so that you can measure it. For example, see the leaf below...




Put stem of leaf on this end of box.




Using the ruler, how long is your leaf in inches? _____

Next, cut out the frog and use it to measure your leaf.





How long is your leaf in "frogs"? _____
(Your leaf should be the same number of inches and "frogs" in length.)





 Alabama Wildlife Federation Outdoor Classroom Field Investigation Worksheet


 **Look at your leaf.**

What color is it? _____





What shape does it look like?


circle  oval  square  rectangle 

triangle  heart  star  diamond 


 **Feel your leaf.**



How does it feel? _____

smooth  bumpy  rough  prickly 


 **Crush your leaf in your hand.**

Does it make a noise? yes no Is it crunchy? yes no
Is it dead? yes no

 **Smell your leaf.**

How does it smell? sweet  stinky  no smell

Write a sentence describing your leaf.

 Alabama Wildlife Federation Outdoor Classroom Field Investigation Worksheet: Observing a Leaf, page 2 of 2

Enrichment

Leaf crayon rubbings



Enrichment

Cherokee leaf printing



Enrichment



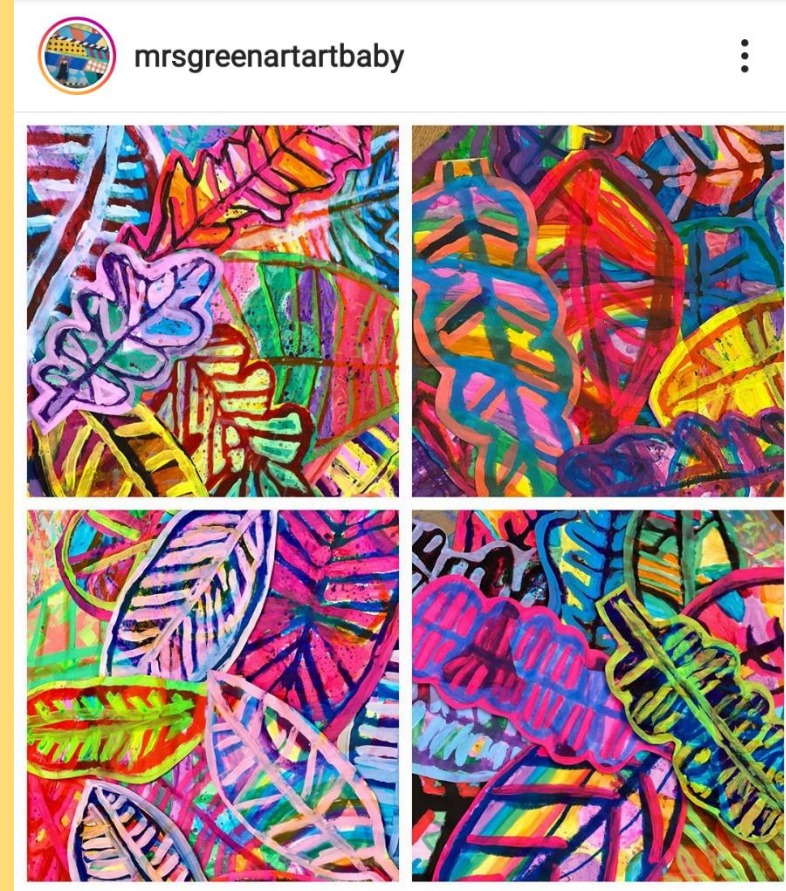
Enrichment

Leaf printing



Enrichment

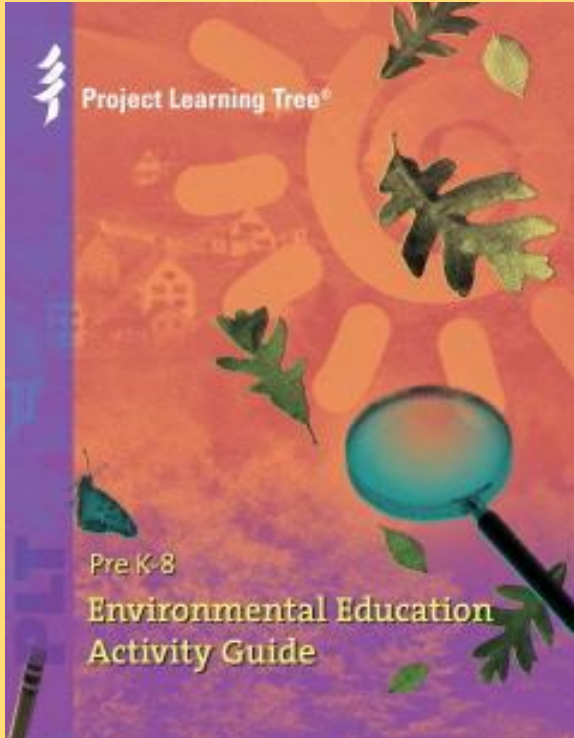
Online leaf activities and projects



Enrichment

Leaf fingerprints





Additional PLT Activities

- **Name that Tree, #68** – summer, fall – students use tree's features to identify it
- **Bursting Buds, #65** – winter – students learn about the stages that leaf buds go through
- **Germinating Giants, #66** – spring – students compare local trees to giants across the world

Outdoor Classroom Leaf Creatures Activity

Leaf Creatures
ALABAMA OUTDOOR CLASSROOM ACTIVITY

Outdoor Classroom Connections
Students will learn to identify various species of trees as they take a walk in the outdoor classroom and collect a variety of leaves in various colors and shapes.

Alabama Course of Study Objectives
Science:
Kindergarten: 2, 4, 7, 8, 9
First: 2, 4, 8, 10
Second: 5
Third: 2, 3, 7, 8 & 10
Fourth: 3
Mathematics:
Kindergarten: 1, 2, 5, 7, 8 & 9
First: 1, 2, 3, 5, 10
Second: 1, 3, 4, 10
Third: 1, 7, 8 & 10
Fourth: 12 & 14

Literature Connections:
Edith Lewis LEAFMAN, 1928-10-01/2005-04-02

Other Related Conservation Education Activities
Project Learning Tree
→ The Shape of Things
→ Paper #240
→ Learning at Leaves
→ Nature that One
Access Nature
→ The Leaflet
→ Nature Storage Place
Discovering Alabama Videos
→ Alabama Trees
→ Alabama Wildlife
→ A Walk in the Woods

Page 2 of 2

The Alabama Outdoor Classroom Program

Extension System
Alabama Cooperative Extension System

BETUL
Alabama Wildlife Feed
www.alabamawildlife.org

Leaf Creatures
ALABAMA OUTDOOR CLASSROOM ACTIVITY

Background Info
In the fall of the year, the leaves on many deciduous trees change color before they fall to the ground. This happens because plants make their own food through a process called photosynthesis, using water and nutrients from the ground, carbon dioxide from the air, and sunlight. In each leaf, there is something called chlorophyll. Chlorophyll is green which gives leaves their green color. As the number of daylight hours decreases, the chlorophyll in the leaves goes away and they stop making food for the plant. The plant also stops transporting water and nutrients to the leaves. As the green color disappears from the leaves, the other colors in the leaves are revealed, allowing us to see the vivid fall colors that we enjoy. Since the leaves are not needed by the tree as it is going into a dormant state, the leaves are shed, falling to the ground where they can be recycled back into the soil for next year's green-up.

Preparation
It is important that as you prepare to do this activity with the students, you gather several heavy books (textbooks will work) or have several leaf presses on hand for pressing the leaves. You will also want to have some newspaper paper (recycled) or other paper available to place between the pages of the books and the leaves so that the leaves do not stain the pages of the books.

Objectives
• Learn the parts of a leaf.
• Use leaves found in the outdoors and to change colors and sizes.

