



Learning Activities: Trees

Objective:

To help students recognize the value of native trees and how to protect the health and future of trees specifically in the local environment. Educate students in the selection and maintenance of native trees and to share that information in the community.

Tree Values include:

- Roots help maintain the soil to lessen land loss.
- Air quality is improved when trees are allowed to mature.
- Shade from trees can lower the temperature with their leaf canopy.
- Placed correctly, trees can add value to any landscape for years.

Personalize the lesson: Have students identify their landscape at home.

- New construction
- Lot with existing trees
- Existing plantings (if any)

Selecting the location:

- Living conditions (shade/sun)
- Soil type (site preparation)
- Water supply
- Space allotment (maturity)

Selecting the species:

- Required conditions
- Deciduous
- Evergreen
- Flowering
- Fruit or nut bearing

Planting tree selections:

- Container
- Bare-root
- Balled and burlapped





The Life of the Tree

Did you know?

An area twice the diameter of the root ball and a depth of 12 inches should be loosed (dug out) to promote healthier root growth. The months of November through March are optimum planting times for new trees. Never hang anything from the branches of a tree or nail anything to the trunk. Swings, wind chimes and bird houses fastened to the bark will scar the tree and allow space for insects and disease to enter. Mulching the base of the tree will protect the trunk from regular lawn care. Weed eaters scarring a tree in a ring around the trunk will kill any tree. Examine trees for signs of stress. Faded or discolored leaves indicate that there is a problem. Inspect the health of the trunk and the base of the tree near the ground to search for insects.

Explain to students that trees are divided into two main groups: conifer and broadleaf.

Conifers can be defined as trees with cones that have needle-like or awl-shaped leaves. Most are evergreen since they do not lose all of their leaves at once. Cedars, spruce, and pines are examples of common conifers. Bald cypress is an example of a conifer that loses its leaves annually and has cones. Deciduous or broadleaf trees shed their leaves annually. Some varieties may bear flowers, fruits, or nuts. Oaks, maples, birches, and sycamores are some of the varieties of broadleaf trees. The specimens are sometimes referred to as deciduous trees. In warm climates like that of Terrebonne Parish, some trees, do not shed all of their leaves at the same time and appear to remain evergreen.

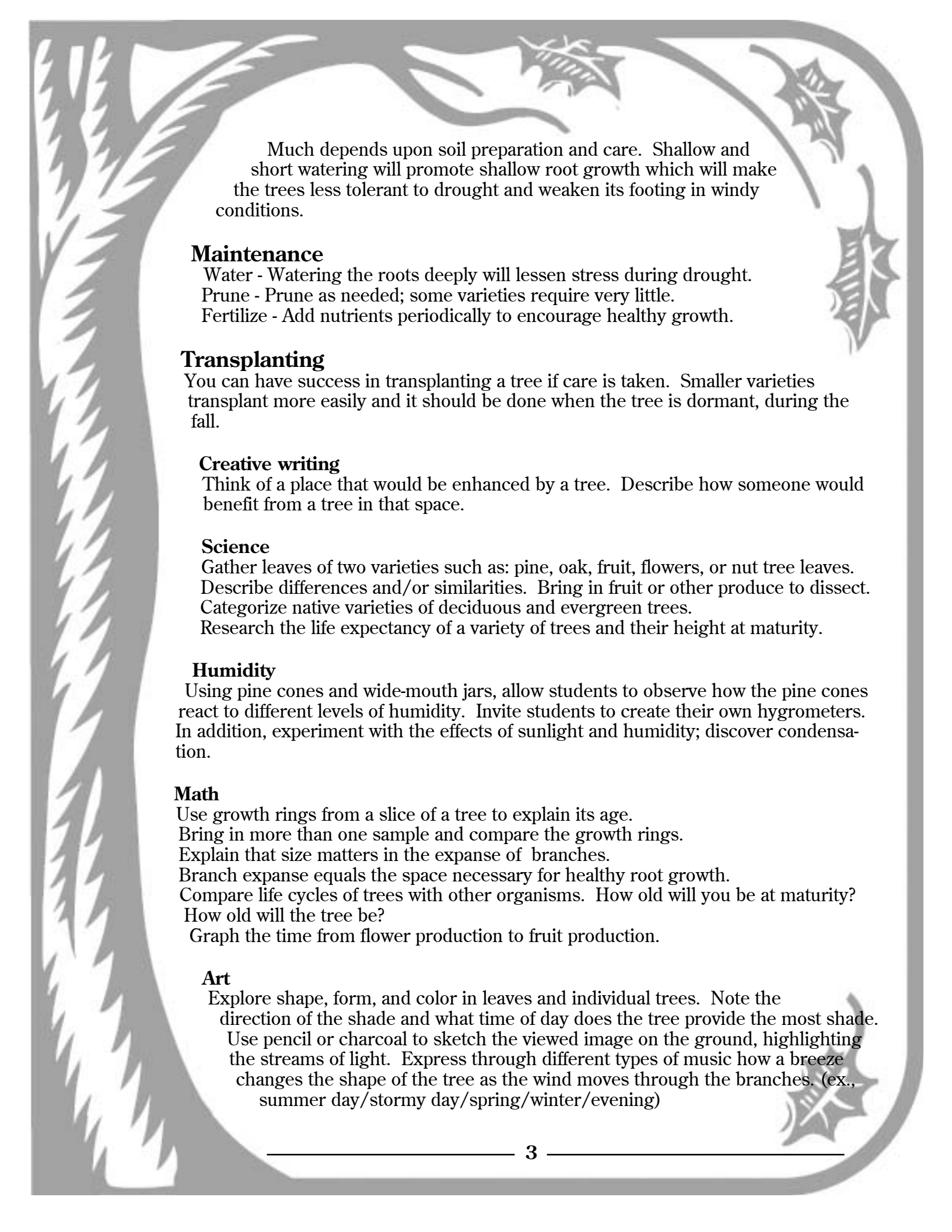
How should a selected tree be planted?

First, establish that there are no underground cables. Next, the site should be prepared to enhance overall development of the tree to be planted. Once the hole has been prepared and filled with water, adjust the soil to accept the roots and eliminate any air pockets. Care should be taken during this transitional period as it is crucial to success in the new planting site.

Inspect the tree for insect or transportation damage. Remove any grass and prepare the hole to accept the size of the roots. Keep in mind that the roots will need to spread without crowding. Remove all packing material from the roots and set tree in hole. Soil should be added to the roots slowly as the tree is held in place. Gently firm soil around the roots to ensure that nutrients feed the tree as the soil level is completed the same as it was in the pot or root ball.

Rake the entire area and add 2 to 4 inches of mulch over the soil, creating a channel to hold water. This will lessen time between watering and keep the roots cool.

Determine if any post-planting treatments such as staking or trunk wrapping are needed. New trees and plants should be watered thoroughly and frequently. Regardless of how drought tolerant a plant is, most plants require at least two growing seasons to become established.



Much depends upon soil preparation and care. Shallow and short watering will promote shallow root growth which will make the trees less tolerant to drought and weaken its footing in windy conditions.

Maintenance

Water - Watering the roots deeply will lessen stress during drought.
Prune - Prune as needed; some varieties require very little.
Fertilize - Add nutrients periodically to encourage healthy growth.

Transplanting

You can have success in transplanting a tree if care is taken. Smaller varieties transplant more easily and it should be done when the tree is dormant, during the fall.

Creative writing

Think of a place that would be enhanced by a tree. Describe how someone would benefit from a tree in that space.

Science

Gather leaves of two varieties such as: pine, oak, fruit, flowers, or nut tree leaves. Describe differences and/or similarities. Bring in fruit or other produce to dissect. Categorize native varieties of deciduous and evergreen trees. Research the life expectancy of a variety of trees and their height at maturity.

Humidity

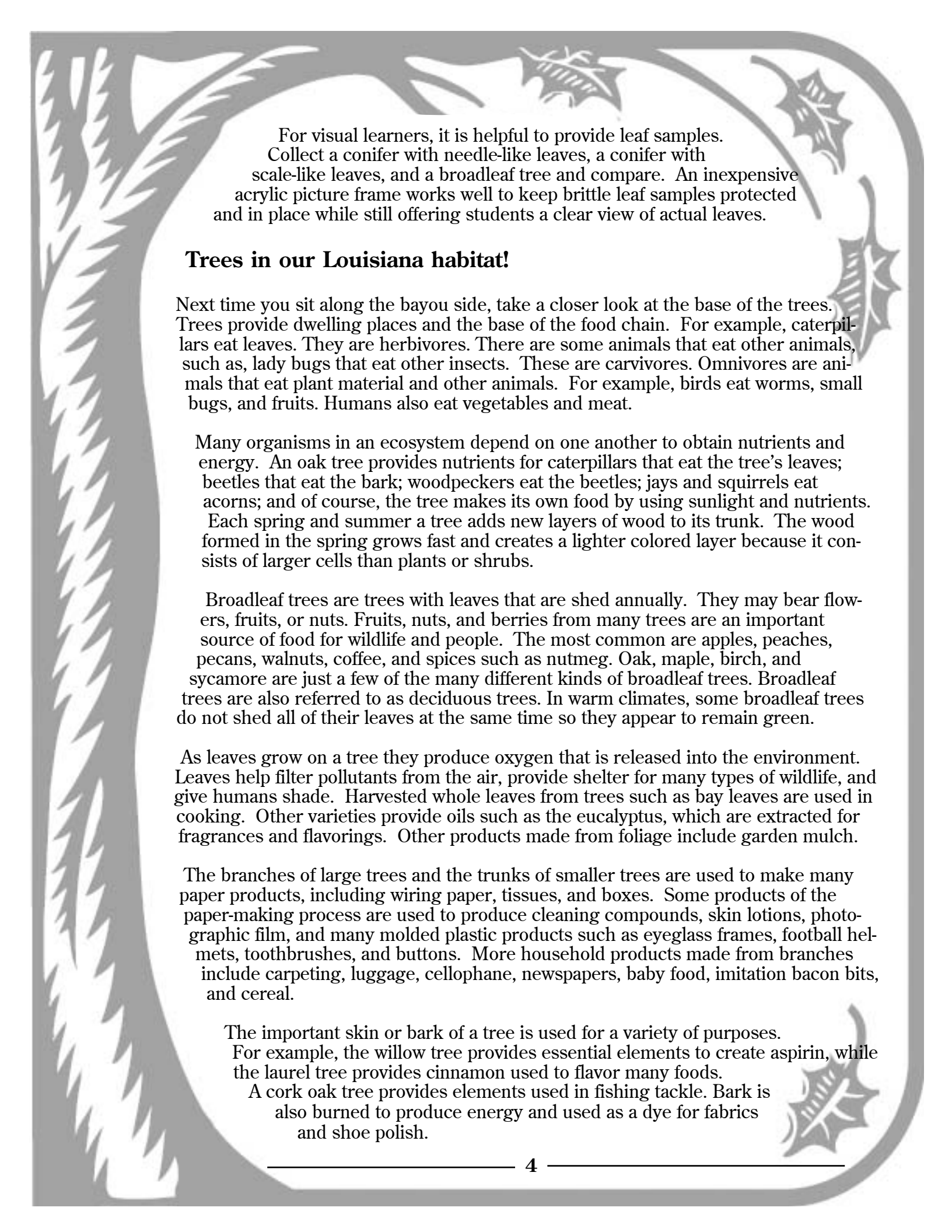
Using pine cones and wide-mouth jars, allow students to observe how the pine cones react to different levels of humidity. Invite students to create their own hygrometers. In addition, experiment with the effects of sunlight and humidity; discover condensation.

Math

Use growth rings from a slice of a tree to explain its age.
Bring in more than one sample and compare the growth rings.
Explain that size matters in the expanse of branches.
Branch expanse equals the space necessary for healthy root growth.
Compare life cycles of trees with other organisms. How old will you be at maturity?
How old will the tree be?
Graph the time from flower production to fruit production.

Art

Explore shape, form, and color in leaves and individual trees. Note the direction of the shade and what time of day does the tree provide the most shade. Use pencil or charcoal to sketch the viewed image on the ground, highlighting the streams of light. Express through different types of music how a breeze changes the shape of the tree as the wind moves through the branches. (ex., summer day/stormy day/spring/winter/evening)



For visual learners, it is helpful to provide leaf samples. Collect a conifer with needle-like leaves, a conifer with scale-like leaves, and a broadleaf tree and compare. An inexpensive acrylic picture frame works well to keep brittle leaf samples protected and in place while still offering students a clear view of actual leaves.

Trees in our Louisiana habitat!

Next time you sit along the bayou side, take a closer look at the base of the trees. Trees provide dwelling places and the base of the food chain. For example, caterpillars eat leaves. They are herbivores. There are some animals that eat other animals, such as, lady bugs that eat other insects. These are carnivores. Omnivores are animals that eat plant material and other animals. For example, birds eat worms, small bugs, and fruits. Humans also eat vegetables and meat.

Many organisms in an ecosystem depend on one another to obtain nutrients and energy. An oak tree provides nutrients for caterpillars that eat the tree's leaves; beetles that eat the bark; woodpeckers eat the beetles; jays and squirrels eat acorns; and of course, the tree makes its own food by using sunlight and nutrients. Each spring and summer a tree adds new layers of wood to its trunk. The wood formed in the spring grows fast and creates a lighter colored layer because it consists of larger cells than plants or shrubs.

Broadleaf trees are trees with leaves that are shed annually. They may bear flowers, fruits, or nuts. Fruits, nuts, and berries from many trees are an important source of food for wildlife and people. The most common are apples, peaches, pecans, walnuts, coffee, and spices such as nutmeg. Oak, maple, birch, and sycamore are just a few of the many different kinds of broadleaf trees. Broadleaf trees are also referred to as deciduous trees. In warm climates, some broadleaf trees do not shed all of their leaves at the same time so they appear to remain green.

As leaves grow on a tree they produce oxygen that is released into the environment. Leaves help filter pollutants from the air, provide shelter for many types of wildlife, and give humans shade. Harvested whole leaves from trees such as bay leaves are used in cooking. Other varieties provide oils such as the eucalyptus, which are extracted for fragrances and flavorings. Other products made from foliage include garden mulch.

The branches of large trees and the trunks of smaller trees are used to make many paper products, including wiring paper, tissues, and boxes. Some products of the paper-making process are used to produce cleaning compounds, skin lotions, photographic film, and many molded plastic products such as eyeglass frames, football helmets, toothbrushes, and buttons. More household products made from branches include carpeting, luggage, cellophane, newspapers, baby food, imitation bacon bits, and cereal.

The important skin or bark of a tree is used for a variety of purposes. For example, the willow tree provides essential elements to create aspirin, while the laurel tree provides cinnamon used to flavor many foods. A cork oak tree provides elements used in fishing tackle. Bark is also burned to produce energy and used as a dye for fabrics and shoe polish.

The roots at the very bottom of the tree play a very important role in keeping our waters free of pollutants. These footprints of the tree stabilize the soil to prevent land loss and increase sedimentation. Roots also absorb nutrients that feed the tree.

In autumn, trees near city streetlights may keep their leaves longer than their country cousins. To understand this surprising fact, you need to first know a bit about how leaves are designed. Transport tubes called xylem and phloem, carry sap into and out of the leaf and run through the stalk. A layer of thin-walled cells in the stalk, the abscission layer, holds the stalk to the tree stem. In the fall, the abscission layer disappears and only the transport tubes remain to hold the leaf to the stem. The tubes aren't strong enough to hold the weight of the leaf combined with the force of the wind, the leaves die and fall from the branch.

So, what causes the abscission layer to disappear in the fall? The decrease in daylight triggers the layer's cells to produce chemicals that dissolve this layer. After September 22, the fall equinox, there are more hours of darkness than daylight. (In fact, night gets a little longer each day until December 22, the winter solstice.) For trees growing near city streetlights, the decrease in light during the fall isn't the same as it is for trees that get light only from the sun. That's why these city trees may retain their leaves longer than trees in the country.

Oak Facts

The oak tree family includes as many as 600 species. Oaks provide habitat for a variety of organisms. Oak is also the major source of hardwood lumber. The wood is durable, tough, and attractively grained. It is especially valued in shipbuilding and construction, and for flooring, furniture, and hand tools.

The bark of some oaks has been used in medicine, in tanning, and for dyes. Acorns, the fruit of oak trees, have long been employed as a source of hog feed, tannin, and oil. A symbol of strength, the oak has been revered for both historical and mythological associations.

Student Activity

Have students locate a photograph of when they were younger that reveals a tree when it was younger. (Compare the picture with the tree now.)

Ask students to search out the trees on their way to school. What type of trees can be identified? Where are the smallest? Where are the healthiest?

Barataria-Terrebonne
National Estuary Program Office
320 Audubon Drive
North Babington Hall Room 105
Nicholls State University Campus
Thibodaux, LA 70301



1-800-259-0869
985-447-0868

Fax: 985-447-0870