



## Looking at Leaves

### Project Learning Tree High School Guide – Activity 64

#### Summary:

Students will take a closer look at the characteristics of leaves from Puerto Rico and Wisconsin. Collect samples of Wisconsin leaves during fall.

#### Background:

In simple terms there are two types of trees in the world, conifers and broad-leaf or deciduous trees. Conifers have seeds that develop inside of cones. Most often conifers have needle-shaped leaves and are evergreen; meaning they don't lose all their leaves each year and are green all year round. Broadleaf trees have broad flat leaves and lose all their leaves each year.

#### Leaf Shapes:

The shape of a leaf gives clues to the tree's identity. Willows have long, slender leaves; cherry trees and swamp magnolias have oval- leaves; and cottonwoods have triangular-shaped leaves. Fir needles are usually flat, pine needles are rounded, and spruce needles are square shaped. The tips of leaf also differ, they may be notched, pointed, rounded, tapered, and so on. The shape of the bases of the leaf should be noted; it can be round, square, heart-shaped, triangular, and so on.

#### Leaf Margins

The edges of the leaf are referred to as margins. When observing the characteristics of leaves looking at margins provide us with clues to its identity. Some margins look like teeth, some are lobed, and some are smooth.

#### Leaf Textures

Leaves can feel hairy, they may be hairy on only one side and smooth on the other. Leaves can be thick, thin, rough, or waxy.

Simple Leaves Have only one piece to them (examples: maple, oak, aspen, sycamore).

#### Grade Level: K-4

**Goal:** For students to compare and contrast leaves of WI and to identify ways these leaves vary from tree to tree. Then students will identify ways that Wisconsin leaves differ from the leaves sent from Puerto Rico.

#### Key Concepts:

- Biological diversity
- Life cycle
- Limiting factors (climate photoperiod)
- Populations

#### Objectives:

- 1.) Comparing and contrasting leaves.
- 2.) Describing size, shape, texture, leaf margin and leaf arrangement
- 3.) Analyzing why Puerto Rican leaves do not turn brilliant colors in the fall and why broadleaf trees do not lose their leaves in the fall.
- 4.) Identifying trees by matching and locating the leaves on the tree poster.

#### Teaching Location:

Natural area or classroom

**Lesson Time:** 50 minutes

#### Subject Areas to Infuse:

Science, Environmental Education

#### Standards:

Science  
A.4.1  
A.4.2  
B.4.1  
Environmental Education  
A.4.1  
B.12.7

Compound leaves Have several leaflets (ash, walnut, and sumac)

Leaf Arrangements Leaves are arranged on their twig in alternate form (staggered) or in opposite form (grow in pairs across from one another).

### **Materials:**

- Poster of trees with the leaf shown to the right of each tree
- Tree leaves gathered on walk
- Tree leaf samples from Puerto Rico
- Pencils

### For Enrichment

- hammers
- piece of linen to pound fall colorful leaves into linen or crayons to do leaf rubbing
- large book to press leaves in masking
- tape permanent marker

### **Set Up:**

Pack a backpack for fall outdoor trip containing the following: large laminated tag board with vis- a- vis pen to write down their observations, clip board box of 20 clipboards, paper for leaf etchings, linen, crayons, and hammer to make leaf prints on linen. Students bring pencils.

### **Procedure:**

### **Introduction.**

Introduce the activity and how students will compare and contrast leaves from Wisconsin and Puerto Rico. Discuss the importance of understanding the earth's different ecosystems.

### **Activity.**

1. Divide students into groups of three
2. Have them collect two or three different kinds of tree leaves preferably from the ground.
3. At a study table area discuss the following in their small group and then share in their whole group:
  - What are the differences between the leaves?
  - Do leaves have teeth?
  - What do your leaves have in common?
  - Do any leaves have hair?
  - What do the leaves feel like?

### **Vocabulary:**

**Deciduous Trees (broad-leaf):** A plant that periodically loses all its leaves.

**Coniferous Trees:** A plant that does not lose all of its leaves at one time, most North American evergreens are coniferous.

**Evergreens:** A type of coniferous tree that doesn't lose all their leaves each year and stay green year round.

**Chlorophyll:** A group of pigments that produce the green hue of plants and are essential to photosynthesis.

**Hardwood:** A deciduous or broadleaf tree.

**Softwood:** a coniferous tree

**Decomposer:** A plant or animal that feeds on dead material and causes its mechanical or chemical breakdown.

- Who found the largest leaf?
  - Who found the narrowest leaf?
  - Can they find veins on their leaf?
  - Have any leaves been eaten by insects how can you tell?
  - Did anyone find or collect needles?
4. Using the Wisconsin trees poster see if they can name the tree that their leaf came from.
  5. Discuss why they think trees shed their leaves in the fall and why leaves change color in the fall.
  6. Discuss the differences between hardwood trees and evergreen trees.
  7. Pull out my leaves from Puerto Rico and compare and contrast them to Wisconsin leaves, try to discuss the differences from a climate/dormancy point of view.

Enrichment: Have students pick from the following activities time permitting:

Leaf Rubbings: set leaf on clipboard, cover it with drawing paper and rub a crayon sideways back and forth across the paper, rub gently to get the veins and margin of the leaf to take form.

Leaf Stamping: Brush off a piece of cement walkway. Place linen on cement. Lay colored leaves face down on linen. Cover leaves with wax paper, hammer the leaves into the linen-must do this a long time. Use linen to make cover of poetry book, glue linen piece onto tag board cover of poetry book.

Leaf Preserving: Select a colorful well shaped leaf, masking tape stem with their initials and press in my large book. Back at school dip pressed leaf into floor wax and let dry.

**Assessment:**

In a follow-up activity, each student will be given a leaf back at school and will orally list 5-10 properties of that given leaf.