
Tree Identification



Purpose:

Many people go through life without knowing the names of trees or recognizing the differences between them. This activity will lead students to closely analyze trees and study their structures. Through Tree ID cards and dichotomous keys, students will learn the names and distinguishing characteristics of many native Oregon trees.

Objectives:

Students will identify native Oregon trees using dichotomous keys.

Students will compare and contrast plant structures and explain how they make a species unique.

Materials:

Provided

- Dichotomous Keys (20)
- Native tree cards (20)
- Tree cookies
- Leaf shape mounts
- Trees to Know in Oregon - ID book (5)
- Mac's Field Guide to Pacific Northwest Trees - ID card (1)
- Cones (from Crazy Cone Activity #4)

Not Provided

- Whiteboards or paper and pens for students to make hypotheses (part 1)

Other Considerations:

This activity can be broken up into two days, Part 1 and Part 2.

Part 2 of this activity is best done outside, either in the schoolyard or on a field trip to a nearby park. Teachers can scout the area ahead of time to hand out cards of trees that can be found there. Finding the tree in real life will help make IDing easier, and more applicable!

(If low elevation, likely: Douglas-fir, Ponderosa Pine, Incense Cedar, Black and White Oaks. If near water, then also: Big Leaf Maple, White Alder, Oregon Ash, Black Cottonwood)

Time Required: 1.5 hours

Appropriate grades: 4th-8th

NGSS and Common Core Standards:
4-LS1-1

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

MS-LS1-4

Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

MS-LS1-5

Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

Activity:

<p>Introduction (15 min)</p>	<p>Are all trees the same? How can trees be different? Leave shape and structure Seed formation Bark Size and shape Define: Evergreen versus deciduous Define: Angiosperm versus gymnosperm Define: Adaptation How are trees the same? (Photosynthesis, perennial, main trunk, etc.)</p>
<p>Body (20 min)</p> <p>(30 min)</p>	<p>Part 1 (Inside)</p> <ol style="list-style-type: none"> 1. Set up tables with leaf shape mounts at one, cones at another, and tree cookies at a third. 2. Set up a timer and do rotations so all students visit each table. Have students make hypotheses about why the plants have adapted to look the way they do. <ol style="list-style-type: none"> a. Why are leaves different shapes? b. Why are the cones different? c. Why is the bark different? 3. After all rotations are done, ask students to share their hypotheses. Lead the discussion towards: trees adapt to their environment to increase the likelihood of reproduction. 4. What do trees need for reproduction? Trees adapt to meet these needs. <ol style="list-style-type: none"> a. Water b. Sunlight c. Air d. Photosynthesis e. Pollination f. Seed protection 5. Go over different leaf shape characteristics <p>Part 2 (Outside if possible)</p> <ol style="list-style-type: none"> 1. Model how to use a dichotomous key, with one tree species. Give students a chance to look over the key and ask questions. Define any vocab that is new for them. 2. Hand out tree cards and dichotomous keys to students. Depending on class size (only 20 cards and keys) and teacher preference, they can work individually or with partners.



	<ol style="list-style-type: none"> 3. If outside: Explain that students will first find the tree that is on their ID card. (Only hand out cards of trees that are found at this location.) 4. Each student uses the dichotomous key to ID the tree card. <ol style="list-style-type: none"> a. Keys have limitations. If a sample does not key out easily, determine the answer from the answer key and key it out backwards to determine the characteristics that describe the species (start at the bottom of the key with the species description and then follow the branches of the key back up to the beginning). b. They can also use ID books to help them. c. Optional: Bring iPads for students to use for looking at the QR codes on the backs of tree cards. 5. After students successfully ID their tree, have them present to the group. What type of tree do they have and what distinguishing characteristics make them know they are correct? 6. What type of environment are we in? How does this affect the trees growing here? <ol style="list-style-type: none"> a. Rainfall b. Temperature c. Fire d. Snow e. Water source 7. How do these environmental factors shape the trees we found here? What plant structures did they adapt?
<p>Closure (10 min)</p>	<p>What patterns did you notice regarding plant growth and form? Think about other places that you have visited and how plants were adapted to these locations? The coast? High elevation? Deserts? Wetter climates?</p>

Modifications:

- **Elementary:**
 - Exploration can be the same, but make the questions easier. Dichotomous keys are probably too advanced.
 - Common Riparian Plant Cards may be easier for younger students, if you can take a field trip to a riparian area. These have the tree name on the cards, but students can use them to identify the trees in nature.



- In the fall: Do a leaf scavenger hunt, and have them find as many different leaves as possible. Use leaf shape mounts to help teach about leaves and categorize leaves into different species. Try to ID the leaves with the tree cards (add
- Meet a Tree Activity: Blindfold kids and lead them to a tree to make observations. Afterwards, take the blindfold off and try to ID the tree!
<https://www.sharingnature.com/meet-a-tree.html>
- **High School:**
 - Look at tree species' distribution and ranges. Having more in-depth discussions on abiotic factors that determine where certain trees can successfully compete will add an important ecology lesson to the activity. These keys might also act as tools to a larger activity that looks at how species composition changes as abiotic factors change, i.e. elevation, moisture, soils, aspect, etc. How do ranges change with elevation? Distance from the coast and precipitation?
 - Students could compare two areas and describe what factors differ to explain differences in species composition, or they could pick a species of tree and try to describe its preferred growing conditions.
 - Make predictions of how climate change will affect these tree species distributions.

