

ID That Tree

Objective

Students will use a scientific key to identify trees by their leaves.

Standards of Learning:

Science 3.6, 4.1, 4.4, 4.5, 4.9, 5.1, 5.5, 6.1, LS.1, LS.5, LS.9, BIO.1, BIO.6

Materials

One-page key to trees of eastern, central, or western Virginia (see pp. 3- 5) – 1 key per pair of students

Background (in class before going outside)

For many reasons, people need to be able to identify trees. Knowing which trees are growing on a site can tell us about the soil, climate, and other environmental conditions there. Certain trees make good lumber, paper, medicines, food, or other products that people need. Some animals depend on particular tree species for survival. Other plants in a forest may grow best in the shade of certain types of trees. Some invasive types of trees can be harmful to the environment and might need to be removed. If you want to plant a tree in your yard, it's helpful to know which trees might grow best there, and what their specific requirements are so that you can take the best care of your tree.

Trees are generally easiest to identify when you can look at the leaves. Other characteristics you can use to identify trees are bark, twigs, reproductive parts, overall form, and growing site.

A scientific key provides a step-by-step method to identify leaves or other natural objects. Teach students that when using a scientific key, they should always start at number one, read both choices carefully, then proceed as the key tells them. Skipping ahead can easily miss important details and lead to the wrong identification.

Before giving students a key, review some identification features of leaves. It is helpful to show the students some example leaves when reviewing these features. An identification guide with drawings, found near the front of [Common Native Trees of Virginia](#) can be printed to help students understand these features better.

Look for these features of tree leaves:

- Are they deciduous (falling off in winter) or evergreen (on the tree all year)?
- How are they arranged on the stem? Are they directly opposite each other, or do they alternate with each other in a zigzag pattern?
- Are they simple (having only one part) or compound (having more than one part)?
- Are the veins and/or leaflets pinnate (branching off from different places along the main vein or stem) or palmate (branching from a single point at the base)?
- What do the leaf margins (edges) look like? Are they smooth, jagged, wavy, or do they have tiny teeth? Are there lobes (parts of the leaf that stick out from the main part, like your ear lobe)? If so, are the lobes pointed or rounded?
- How would you describe the shape of the leaf base and the leaf tip?
- Do the leaves have any special features, like a strong smell or interesting texture?

Activity (in the schoolyard, near a naturally forested area):

Choose a study area with trees in your schoolyard. Note that many planted species are not native and therefore will not appear in the key. So if possible, choose an area that has naturally growing trees, perhaps along the edge of the schoolyard. (Teachers do not have to know what the trees are ahead of time, but can identify them together with the students.) Look for several tree species that seem to be fairly common, and choose several of these for students to identify, taking care to choose trees that have some leaves within easy reach. (It is often helpful to tie flagging around the trees to be identified; however, please remove all flagging when you are done.) Using the one-page key for your area of the state, students should work in pairs to identify the trees. They can check answers back in the classroom by viewing *Common Native Trees of Virginia* (see web site above) or Virginia Tech's *vTree* web site: <http://dendro.cnre.vt.edu/dendrology/factsheets.cfm>.

Questions for Review and Discussion

- What are some reasons it may be important to be able to identify trees?
- What was the hardest part of using the key? How did you handle any problems?
- What are some situations in which using a leaf key would not work well?
- If you did not have a key, what are some other ways you could identify trees?
- How might the tree you identified be useful to wildlife? To people? To the surrounding environment? (Some book or online research may be needed.)
- Why do you think these particular trees are common in this area?

Key to Common Native Trees of Eastern Virginia

This key will help you identify some of the trees in our area. To use the key, always start with # 1, and choose the statement that fits the tree best. Follow the directions to other numbers, reading both choices carefully each time. When you get to the name of a tree, stop, and you'll have the name of the tree. Check a reference book to see if you were right!

- 1) Tree has leaves – go to 2 OR
Tree has needles – go to 3
- 2) Leaves are opposite each other on the stem – go to 4 OR
Leaves alternate with each other along the stem – go to 6
- 3) Needles are less than ½ inch long – **Eastern redcedar** OR
Needles are longer than ½ inch – go to 5
- 4) Leaves are oval, with smooth edges – **Flowering dogwood** OR
Leaves have several lobes and ragged edges – **Red maple**
- 5) Needles are short and twisted, in bundles of 2 – **Virginia pine** OR
Needles are long and straight, in bundles of 3 – **Loblolly pine**
- 6) Leaves are compound (have more than one part) – go to 7 OR
Leaves are simple (have only one part) – go to 8
- 7) Leaves have 5 to 9 pointed leaflets, with little teeth along the edges – a **Hickory** species OR
Leaves have 7 to 19 rounded leaflets, with smooth edges – **Black locust**
- 8) Leaves are thick, with sharp spines – **American holly** OR
Leaves are not spiny, although they may have pointed tips – go to 9
- 9) Leaves have lobes, either rounded or pointed – go to 10 OR
Leaves have no lobes – go to 14
- 10) Leaves are shaped like a 5-pointed star, with tiny teeth along the edges – **Sweetgum** OR
Leaves are not shaped like a 5-pointed star – go to 11
- 11) Leaves have rounded lobes, with no points or bristles – **White oak** OR
Leaves have pointed or bristle-tipped lobes go to 12
- 12) Leaves have 4 to 8 lobes; the two end lobes are even with each other – **Yellow-poplar** OR
Leaves have bristle-tipped lobes, with one main lobe at the end – go to 13
- 13) Leaves have 7 to 11 main lobes and no fuzz underneath -- **Northern red oak** OR
Leaves have 3 to 7 main lobes, a bell-shaped base, and tan fuzz beneath -- **Southern red oak**
- 14) Leaves have large or small teeth along the edges – go to 15 OR
Leaves have no teeth, but do have one tiny bristle at the tip – **Willow oak**
- 15) Leaves have one tooth at the end of each major vein -- **American beech** OR
Leaves have many tiny teeth along the edges -- **Black cherry**

Key to Common Native Trees of Central Virginia

This key will help you identify some of the trees in our area. To use the key, always start with # 1, and choose the statement that fits the tree best. Follow the directions to other numbers, reading both choices carefully each time. When you get to the name of a tree, stop, and you'll have the name of the tree. Check a reference book to see if you were right!

- 1) Leaves are broad and flat – go to 2 OR
Leaves are needle-like – go to 3
- 2) Leaves are attached opposite each other on the stem – go to 5 OR
Leaves alternate with each other along the stem – go to 6
- 3) Needles in bunches of 5 – **Eastern white pine** OR
Needles in bunches of 2 or 3 – go to 4
- 4) Needles are short, twisted, always in bunches of 2 – **Virginia pine** OR
Needles fairly straight, in bunches of 2 or 3 – **Shortleaf pine**
- 5) Leaves are oval, with smooth edges – **Flowering dogwood** OR
Leaves have several lobes and ragged edges -- **Red maple**
- 6) Leaves are compound (having more than one part) – go to 7 OR
Leaves are simple (having just one part) – go to 9
- 7) Leaflets are smooth-edged – **Black locust** OR
Leaflets have tiny teeth along the edges – go to 8
- 8) Most leaves have 10 to 24 leaflets – **Black walnut** OR
Most leaves have 5 to 9 leaflets – **Hickory species** (e.g., mockernut, pignut)
- 9) Leaves have no lobes and have smooth edges – **Black gum** OR
Leaves may have lobes, toothed edges, or both – go to 10
- 10) Leaves have sharply pointed lobes – go to 11 OR
Leaves have either rounded lobes, or no lobes at all – go to 12
- 11) Leaves have 4 to 6 single-pointed lobes, without bristles at tips – **Yellow-poplar** OR
Each lobe has several bristle-tipped points – **Red oak species** (e.g., northern red, southern red, black, scarlet)
- 12) Leaves have smoothly rounded lobes – **White oak species** (e.g., white, chestnut, post) OR
Leaves have no lobes, but do have teeth along the edges – go to 13
- 13) Leaves have one tooth at the end of each vein – **American beech** OR
Leaves have more teeth than veins – go to 14
- 14) Leaf edges have jagged teeth, like a saw blade – **American hornbeam** OR
Leaf edges have tiny teeth, like a steak knife blade – **Black cherry**

Key to Common Native Trees of Western Virginia

This key will help you identify some of the trees in our area. To use the key, always start with # 1, and choose the statement that fits the tree best. Follow the directions to other numbers, reading both choices carefully each time. When you get to the name of a tree, stop, and you'll have the name of the tree. Check a reference book to see if you were right!

- 1) Tree has needles in bunches of 5 -- **Eastern white pine** OR
Tree has leaves – go to 2
- 2) Leaves opposite each other on the twig – go to 3 OR
Leaves alternate with each other along the twig – go to 4
- 3) Leaves oval; bark gray, with small blocks – **Flowering dogwood** OR
Leaves with 3 to 5 main points, toothed edges; bark gray, smooth or with ridges - **Red maple**
- 4) Leaves simple (having only one part) – go to 5 OR
Leaves compound (divided into several parts); nuts may be on the tree – a **Hickory** species
- 5) Leaves basically oval, with a pointed tip – go to 6
Leaves with lobes (parts that stick out, giving the leaf a unique shape) – go to 8
- 6) Leaves more than 6 inches long, wavy-edged; bark light gray-brown and flaky – **Cucumbertree** OR
Leaves less than 6 inches long, with teeth along the edges – go to 7
- 7) Leaves have tiny teeth along edges; twig smells bitter when scratched; bark may look like burnt corn flakes – **Black cherry** OR
Leaves have jagged teeth; twig smells like wintergreen when scratched; young bark shiny, with small slashes; old bark black, rough – **Black (sweet) birch**
- 8) Leaves with smooth, rounded lobes – go to 9 OR
Leaves with pointed lobes – go to 10
- 9) Bark pale gray, loose and shredding, especially high on the trunk – **White oak** OR
Bark thick, brown, deeply cut into ridges – **Chestnut oak**
- 10) Leaves with 4 to 6 pointed lobes, the last two even with each other; bark light gray and furrowed –
Yellow-poplar (Tuliptree) OR
Leaves with 7 or more pointed, bristle-tipped lobes – **Scarlet, Black or Northern Red Oak**