



# Michigan Nature Association

*Protecting Michigan's Natural Heritage Since 1952*

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## Tree ID

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### Learning Objectives

*At the end of this lesson, students will be able to:*

1. List characteristics used to differentiate between different species of trees.
2. Use a tree key to identify a tree.
3. ID ten common Michigan tree species and tell one characteristic to aid in identification.
4. Compare deciduous and coniferous.

### Supplies needed:

- *Trees of Michigan* book
  - Pencils
  - Magnifying Glasses
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### Introduction

Today, we're going to learn how to identify trees, and at the end of this session you should be able to identify the ten most common trees in our area.

How many of you can tell me the name of a common Michigan Tree?

<ul style="list-style-type: none"><li>- <b>American Basswood</b></li><li>- <b>American White Birch</b></li><li>- <b>American Beech</b></li><li>- <b>American Elm</b></li><li>- <b>Box Elder</b></li><li>- <b>Bur Oak</b></li><li>- <b>Hackberry</b></li><li>- <b>Northern Red Oak</b></li><li>- <b>Red Maple</b></li><li>- <b>Silver Maple</b></li><li>- <b>Trembling Aspen</b></li><li>- <b>White Ash</b></li></ul>	<ul style="list-style-type: none"><li>- <b>Balsam Poplar</b></li><li>- <b>Black Ash</b></li><li>- <b>Black Cherry</b></li><li>- <b>Black Gum</b></li><li>- <b>Eastern Cottonwood</b></li><li>- <b>Honey Locust</b></li><li>- <b>Northern White Cedar</b></li><li>- <b>Pin Oak</b></li><li>- <b>Shagbark Hickory</b></li><li>- <b>Sugar Maple</b></li><li>- <b>Yellow-Poplar</b></li><li>- <b>Yellow Birch</b></li></ul>
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### Why is it important for people to be able to identify trees?

- Different trees give us different things; i.e. timber, food
- Trees have different soil, climate requirements
- To decide which trees are appropriate for planting in a particular area
- How long it takes for a tree to reach maturity and when the should be harvested
- Trees value to wildlife

**What are the parts of a tree?**

- Leaves
- Trunk
- Branches
- Roots
- Seeds

**How are trees different from one another?**

- Leaf shape and size
- Needle length
- Needle characteristics (flat, sharp, color)
- Presence of hairs
- Leaf thickness
- Bark (color and texture)
- Cone size
- What habitat it lives in (wet, dry, shade, sunlight)
- What part of the country it lives in (geographic area)

**What are the characteristics of the leaves on a tree?**

- Color (year-round/changing colors)
- Shape (pointy, round, singular, many, flat, needley)
- Size (long, short)

**What are characteristics of the trunk of a tree?**

- Bark (papery, smooth, rough)
- Wood (color, hard, soft)

**What are the characteristics of the branches of a tree?**

- Branches are alternate or opposite

**What are the characteristics of seeds on a tree?**

- Shape (winged, nut/berry, cone)

**How do we classify a tree?**

There are many kinds of trees all over the world, but they can all be put into one of 2 categories: *deciduous* or *coniferous*.

Who can tell me what *deciduous* or *coniferous* mean?

- Deciduous leaves are broad and flat and change color and fall off tree in winter
- Coniferous trees grow cones and their leaves are needle-shaped and remain green year-round; they fall off throughout the year, not all at once in the fall.

Can anyone name a tree that is *deciduous*?

Maple, Oak, Elm, Aspen, Ironwood, Birch, Walnut

Can anyone name a tree that is *coniferous*?

Spruce, Pine, Hemlock, Cedar

When you approach a tree for the first time, looking at the leaves, branches, trunk and seeds helps us to figure out which type of tree we are looking at. Here's how you do it...

Let's look at the characteristics we came up with for each of our parts. Now, which characteristics are for deciduous trees and which are for coniferous?

	<b>Deciduous</b>	<b>Coniferous</b>
<b>Leaves</b>	Change colors in fall; fall off in winter Flat, wide	Evergreen Pointy, needle-like
<b>Trunk</b>	Smooth, rough, papery	Rough
<b>Branches</b>	Alternate, opposite	Alternate, opposite
<b>Seeds</b>	Winged, nut/berry	Cone

So you can see that we have some characteristics that are only deciduous and some only for coniferous, but a lot are both. That's why you always need to start with deciding if the tree is deciduous or coniferous by looking at the leaves and seeds. Those are always different. From here, you look at the other characteristics. You always want to try and look at what will help you narrow down the tree choices.

### **Activity : Identify the Trees Around You**

ID at least five different trees and bring back a leaf for each new tree you find. (From the ground around the tree, don't pick a live leaf off the tree) Share the trees you identified with the group and the reason why you identified them as that particular tree. Use the tree ID chart below on a separate page to make it easier.

### **Activity: Leaf Relay Race**

Have the kids split into groups of. Each member of the relay team will need to run into the woods and find a fallen leaf for the tree you call out.

To help the kids, hold up an example of each leaf as you call them. Make sure you choose trees in the immediate area.

Continue calling out different trees until every member of each team has gotten to find a leaf. The team with the most correctly identified leaves wins the race.

### **Test What You Learned!**

1. List characteristics used to differentiate between different species of trees.
2. Why is tree identification important?.
3. ID ten common Michigan tree species and tell one characteristic to aid in identification.
4. Compare deciduous and coniferous.

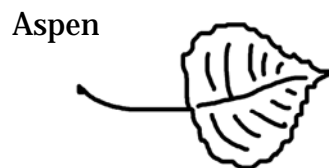
### **Sources**

Michigan Forests Forever Teacher Guide <http://mff.dsisd.net/>

Bill Cook, MSU Extension Forester for the Upper Peninsula of Michigan. [cookwi@msu.edu](mailto:cookwi@msu.edu)

U. P. Tree ID <http://uptreeid.com/>

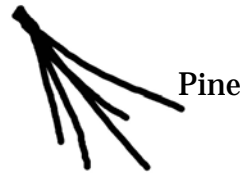
## What Trees Did You Find?



Birch



Spruce



Maple



Ironwood



Hemlock



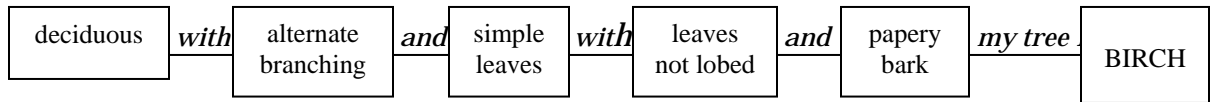
Walnut



## Tree Identification Chart

Fill in the boxes for each tree you see. Use the ID key and your new vocabulary words for help.

**Be sure to collect a leaf from each tree to bring back to the group!**



## Now you try!

## Common Michigan Trees

Courtesy of [www.outdoor-michigan.com](http://www.outdoor-michigan.com)

There are more than 100 species of trees, here are just a few of the most common ones you will find.



**American Basswood** - *Tilia americana* is a medium sized tree native to Northern America. It has a domed crown, reaching a height of 20-35 meters, with a trunk diameter of 1-1.2 meter. The bark is gray with narrow, well defined fissures. Trunks tend to have constant width up most of the tree, tapering only at the top. The twigs are reddish-green. The leaves are simple, alternately arranged, ovate to cordate, inequalateral at the base, 10-15 cm long and broad, with a coarsely serrated margin and an acuminate apex. The fall color is yellow-green to yellow. The buds have two bud scales.



**American Beech** - *Fagus grandifolia* is native to North America. It is a deciduous tree growing to 70 to 80 feet tall, with smooth silvery-gray bark. The leaves are dark green, simple and sparsely-toothed with small teeth, 6-12 cm long, with a short petiole. The winter twigs's are very distinctive among North American trees, being long and slender (15-20 mm by 2-3 mm) with two rows of overlapping scales on the buds. The wood is harvested for uses such as flooring, containers, furniture, handles and woodenware.



**American Elm** - *Ulmus americana* is a species of elm native to eastern North America. It is an extremely hardy tree that can withstand harsh winters and can live over 250 years and can grow up to 100 feet. This tree is mostly used for ornamental and shade.



**Balsam Poplar** - *Populus balsamifera* is a native of North America. It is a medium sized tree growing up to 85 feet. The name is derived from the pleasant balsam smell of the opening buds and leaves in spring, produced by a sticky gum on the buds which also helps protect the buds from insect damage. The balsam poplars are light-demanding trees that requires considerable moisture but are tolerant of very cold conditions, occurring further north than other poplars except for the aspens. This is a fast growing tree.



**Black Ash** - *Fraxinus nigra* is found in most of Northeastern United States and most of eastern Canada. This tree was used by the Native Americans for making baskets. This is a medium sized to small tree, the first to loose its leaves in the fall. You would normally find this tree near swamps. This is one of the trees that you may find the Emerald Ash Borer.





**Black Cherry (Wild)** - *Prunus serotina* is a species of cherry, native to eastern North America. This is a medium sized tree which bark resembles burnt potato chips. The cherries turn 'black' when they are ripe. This timber is used for cabinetry and is the only cherry tree that the timber can be used. They grow fast and have great shade.



**Black Gum** - *Nyssa sylvatica* is a medium-sized deciduous tree which grows around 65-80 ft tall and a trunk diameter of 20-40 inches and is native to North America. The national champion was 141 feet tall. The leaves turns purple in autumn, eventually becoming an intense bright scarlet. The flower is very small, greenish-white in clusters at the top of a long stalk. The fruit is a black-blue, ovoid stone fruit, about 10 mm long with a thin, oily, bitter-to-sour flesh. This tree grows in swamps or places that have low drainage. The timber is hard and difficult to split, especially after drying. It is mostly used for pallets and firewood.



**Box Elder** - *Acer negundo* is a species of maple that is found throughout North America. It is a small to medium sized tree with a bushy crown. This is the only maple that has more than 3 leaflets. Unlike most other maples, the tree is dioecious, so each tree grows only one gender of flower and both a "male" and "female" tree are needed for either to reproduce. This tree is an invasive species in some areas of the United States. The wood is weak so there is not much use for it.





**Bur Oak** - *Quercus macrocarpa* sometimes spelled Burr Oak, native to the eastern and midwestern United States. This is a medium size tree ranging from 70 to 80 feet. The Bur oak is a tree that prefers to grow in the open, away from canopy. For this reason, it is an important tree on the eastern prairies and is often found near waterways in more forested areas, where there is a break in the canopy. It is also a fire-resistant tree. The acorns are distinctive in having large caps that wrap much of the way around the nut, with large overlapping scales and often a fringe at the edge of the cap. They are the largest of any North American oak, and are an important wildlife food; Black Bears sometimes tear off branches to get them. However, heavy nut crops are borne only every few years.



**Eastern Cottonwood** - *Populus deltoides* is one of the largest North American hardwood trees. The average height for this tree is 80 to 100 feet. Although the wood is rather soft, Cottonwood bark is often a favorite for artisans. The bark, which is usually harvested in the fall after a tree's death, is generally very soft and easy to carve.



**Hackberry** - *Celtis occidentalis*, is a large tree native to North America. Hackberry grows in many different habitats, although it prefers bottomlands and soils high in limestone. Its shade tolerance is greatly dependent on conditions. In favorable conditions its seedlings will persist under a closed canopy, but in less favorable conditions it can be considered shade intolerant. One way to distinguish this tree is by its warty bark. The wood is soft and rots easily but is sometimes used for furniture. The berries are edible, but rarely ate.



**Honey Locust** - *Gleditsia triacanthos* is a deciduous tree native to eastern North America. It is a medium sized tree ranging from 65 to 100 feet and can live about 120 years. They tend to lose branches in windstorms. They commonly have thorns on the branches. The legume pulp is edible and sweet; it was used for food by Native American people, and can also be fermented to make beer. The wood itself is rarely used. It is a fast growing tree, but poor for shade.



**Northern Red Oak** - *Quercus rubra* is an oak in the red oak group. It is a native of North America. It is a medium to large tree ranging from 80 to 160 feet. Northern Red Oak is easy to recognize by its bark, which features bark ridges that appear to have shiny stripes down the center. A few other oaks have bark with this kind of appearance in the upper tree, but the Northern Red Oak is the only tree with the striping all the way down the trunk. The acorn is oblong and is no longer than 1 inch long. The wood is used for flooring and furniture.



**Northern White Cedar** - *Thuja occidentalis*, a species of the evergreen coniferous tree in the cypress family. This is a small to medium sized tree. The bark is red-brown, furrowed and peels in narrow, longitudinal strips. The foliage forms in flat sprays with scale-like leaves 3-5 mm long. The cones are slender, yellow-green ripening brown, 10-15 mm long and 4-5 mm broad, with 6-8 overlapping scales. Although not currently listed as endangered, wild Northern White Cedar populations are threatened in many areas by the very high deer numbers encouraged by hunting associations; deer find the soft evergreen foliage a very attractive winter food, and strip it rapidly. The oldest known living specimen is just over 1,000 years old, but a dead specimen with over 1,500 growth rings has been found. These very old trees are, despite their age, small and stunted due to the difficult growing conditions.



**Paper Birch or Canoe Birch or American White Birch** - *Betula papyrifera* It is a medium-sized deciduous tree reaching 20 m tall (exceptionally to 35 m) with a trunk up to 80 cm diameter. The bark is white, commonly brightly so, flaking in fine horizontal strips, and often with small black marks and scars. In individuals younger than five years the bark appears brown with white lenticels, making the tree much harder to distinguish from other trees. The leaves are alternate, ovate, 5-12 cm long and 4-9 cm broad, with a doubly serrate margin. Paper birch is a pioneer species. It needs high nutrients and a lot of sun. Birch bark is a winter staple food for moose. The nutritional quality is poor, but is important to wintering moose because of its sheer abundance. Although white-tailed deer consider Birch a "secondary-choice food", it is an important dietary component. In Minnesota, white-tailed deer eat considerable amounts of paper birch leaves in the fall. Snowshoe hares browse paper birch seedlings, porcupines feed on the inner bark and mice eat the seeds.



**Pin Oak** - *Quercus palustris* is native to the eastern United States. This is a medium sized tree ranging from 70 to 80 feet and generally lives for 90 to 120 years. The acorns, borne in a shallow cup, are hemispherical, 0.4-0.6 inches long, green maturing pale brown about 18 months after pollination. This tree is mainly used as an ornamental plant.



**Red Maple** - *Acer rubrum* is also known as Swamp Maple or Soft Maple. It is one of the most common and widespread deciduous trees of eastern North America. Over most of its range, Red Maple is adaptable to a wide range of site conditions. It can be found growing in swamps, on poor dry soils, and anywhere in between. This is a medium sized tree and can live anywhere between 100 to 200 years. upper side of the leaf is light green and the underside is whitish. The leaf stalks are usually red, as are the twigs. The leaves turn a brilliant red in autumn. This is mostly an ornamental tree but the sap can be used for maple syrup.





**Shagbark Hickory** - *Carya ovata* is a common hickory tree in North America. This is a medium sized tree, growing 70 to 80 feet tall. You can identify this tree by its shaggy bark except for younger trees have smooth bark. The branches can extend as far as 25 feet.

The nuts are edible and have great flavor. The wood is used for smoking meat and sports equipment. The Native American's used the timber for bows. This tree grows around oak trees and prefers well drained soil.



**Silver Maple** - *Acer saccharinum* is a species of maple native to the eastern United States. It is a medium sized fast growing tree and the most common after the red maple. On mature trunks, the bark is gray and shaggy. On branches and young trunks, the bark is smooth and silvery gray. The seeds are the largest of any maple and are also a food source for wildlife. The Silver Maple has brittle wood, and is often damaged in storms. The roots are shallow and fibrous and easily invade septic fields and old drain pipes. It is a vigorous resprouter, and if not pruned, it will often grow with multiple trunks. It is widely used as an ornamental tree because of its rapid growth and ease of propagation and transplanting. They are highly tolerant of urban conditions, which is why it is frequently planted next to streets. Although it naturally is found near water, it can grow on drier ground if planted there.



**Sugar Maple** - *Acer saccharum* is the largest American maple, reaching heights of 80 feet or more. The fall color is often beautiful, ranging from bright yellow through orange to fluorescent red-orange. The leaf buds are pointy and brown colored. Sugar Maple is also often confused with Norway Maple, though they are not closely related. Sugar Maple is most easily identified by clear sap in the leaf petiole (Norway Maple has white sap), orange fall color (Norway Maple is a simple yellow), and shaggy bark on older trees (Norway Maple bark has small grooves). Also, the leaf lobes of Sugar Maple have a more triangular shape, in contrast to the squarish lobes of the Norway Maple. The timber is hard and is used often for flooring and furniture. Bowling pins and alleys are manufactured with Sugar Maple. You can also tap this tree for maple syrup.



**Trembling Aspen or Quaking Aspen** - *Populus tremuloides*, is a deciduous tree native to cooler areas of North America. is a medium-size tree, usually 66 to 82 feet at maturity, with a trunk 20-80 cm diameter. The fruit is a 10 cm long pendulous string of small capsules, each capsule containing about ten minute seeds embedded in cottony fluff, which aids wind dispersal of the seeds when they are mature in early summer. Fall colors are usually bright tones of yellow; in some areas, red blushes may be occasionally seen.



**Tulip-Tree or Yellow-Poplar** - *Liriodendrom tulipifera* are a large tree growing over 100 feet and having a diameter of 3 to 4 feet. The leaves are 4 to 6 inches and turn yellow in autumn. It grows rapidly and is an important timber and shade tree. The wood is valuable for veneer and many other uses. Songbirds and game birds, rabbits, squirrels and mice feed on the seeds. Whitetail deer browse the young growth.



**White Ash** - *Fraxinus americana* is one of the largest of the ashes growing to 35 meters tall. It is native to eastern North American. The leaves are 20-30 cm long, pinnately compound with 7 (occasionally 5 or 9) leaflets, 6-13 cm long. They turn yellow, red or purple in the fall. The average life of a white ash is 100 years. This tree is used for baseball bats and tool handles.



**Yellow Birch** - *Betula alleghaniensis*, is a species of birch native to eastern North America. This is a medium sized tree ranging from 60 to 70 feet tall. This tree is most important to the native birches. Yellow birch reflects the color of the tree's bark. This tree is used for flooring, cabinetry and toothpicks.