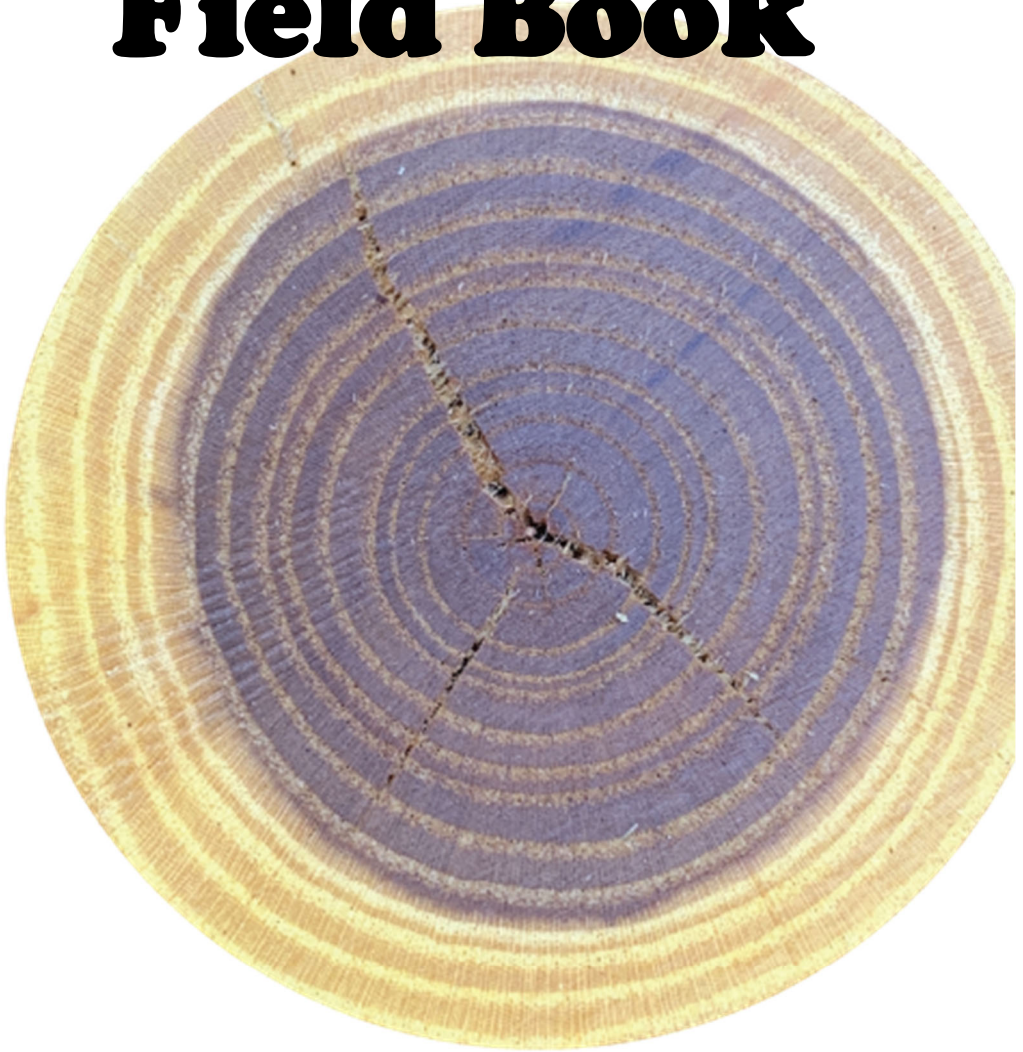


Team Tree Field Book



Take a walk around where you live and play, and look for the things that are in this book. Then you can take notes and draw what you have found!



WHAT SHOULD I PUT IN MY NOTES?

Date: Write down the day that you are looking at this thing, you can come back later and see if it looks different at other times!

Time: What time is it when you are looking at this thing? Sometimes the time of day makes a big difference in how a plant or fungi looks!

Weather: Ask yourself, does this thing act different with different weather? Come back in different weather to see!

Description: Describe what you see!

Field Sketch

Here you can draw a picture of the thing you are looking at, and any of the parts that you find interesting! You can also write down any extra notes that you think will be helpful to explain what you see.

WHAT DOES THIS MEAN?

A Tree With Fruit

All trees that flower have fruit, but many of these trees have fruit so small we might not think of them as fruit. Think of fruits that humans or animals might eat.

A Fungus

There are many different kinds of fungi, like mold or yeast, but some of the easiest fungi to recognize have mushrooms!

Wildlife Habitat

Where do animals spend time? Many different places! Look for places where you think an animal might use to take care of themselves.

Native to MN

Trees come from many different places, and when a tree is “native” to a place, that means it has grown there for a very, very long time.

Introduced to MN

While trees come from many different places, humans and animals can move them around! Trees which are introduced are moved from one place to another where it has not grown for a very long time.

Pollinator Plant

Pollinators are animals which move pollen from plant to plant, helping them make their seeds. Bees are major pollinators, but try to think of other small critters, and find plants that they might visit.

FIND A TREE WITH FRUIT



Date:

Time:

Weather:

Description:

Field Sketch

FIND A FUNGI



Date:

Time

Weather:

Description:

Field Sketch



FIND ANOTHER FUNGI

Date:

Time

Weather:

Description:

Field Sketch

FIND WILDLIFE HABITAT



Date:

Time

Weather:

Description:

Field Sketch



FIND A TREE NATIVE TO MN

Date:

Time

Weather:

Description:

Field Sketch

FIND A TREE INTRODUCED TO MN



Date:

Time

Weather:

Description:

Field Sketch



FIND A POLLINATOR PLANT

Date:

Time

Weather:

Description:

Field Sketch



HOW AND WHY DO WE WANT TO KNOW THE DIFFERENCE BETWEEN TREES?

Knowing different trees from one another can be both fun and helpful. Fun because it feels special to know so many different trees, and helpful because it can teach you how to take care of these trees better, or how to know how trees can help you better! For example, do you like maple syrup? It's helpful to know the difference between a maple tree and a birch tree if you plan on making maple syrup. The next pages are full of tips!



LET'S LEARN ABOUT *Leaves*

FORM

Simple



Pinnately Compound



Bipinnately Compound



Palmately Compound



SHAPES

Elliptic



Obovate



Lanceolate



Cordate



Rhomboid



Oblong



Palmate



Ovate



Linear



Lobed



MARGIN

Dentate



Serrate



Cuneate



Doubly serrate



Toothed



Ciliate



Lobed



ARRANGEMENT ON THE STEM



Whorled

Opposite



Alternate



Department of
FOREST RESOURCES

UNIVERSITY OF MINNESOTA

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Emma Mowery



Ohio Buckeye

Code: AEGL

Family:
Hippocastanaceae

Aesculus glabra

Non-native



Photos: Dave Hanson

Leaves: opposite, palmately compound, 5-7 serrate leaflets each 2-6" long, lance shaped leaflets.
Fruit: 1-2" rounded nut-like, thick husk, prickles. **Twig:** grayish. **Flower:** spikes, yellow, showy.
Bark: grayish brown, corky patches on older trees. **Buds:** light brown, dry appearance.

Ash (green & white)

Code: FR

Family:
Oleaceae

Fraxinus pennsylvanica and *Fraxinus americana*

(Code: FRPE)

(Code: FRAM)



Photos: Dave Hanson

Leaves: opposite, pinnately compound, leaflets have petioles (not sessile as black ash).
Fruit: 1-2" single samara, "wing" stops where seed begins, seed is round in cross-section.
Bark: Gray/brown interlacing ridges form "diamond" patterns. **Twigs:** not as stout as black ash.

Northern Catalpa

Code: CASP

Family:
Bignoniaceae

Catalpa speciosa



Photos: Dave Hanson

Leaves: opposite or whorled, simple, 5-12" long, "heart" shaped. **Flower:** large, showy, white.
Twigs: stout reddish brown, large leaf scars. **Fruit:** 10-18" long, skinny pod. **Pith:** solid, white.
Bark: gray reddish brown, irregular shallow fissures, scaly ridges.

Blue-Beech

Code: CACA

Family:
Betulaceae

Carpinus caroliniana
a.k.a. muscle-wood, hornbeam



Photos: Dave Hanson

Leaves: alternate, simple, 2-5" long, ovate/elliptic, doubly toothed margin, bluish-green.

Twigs: Slender, zigzag twigs, male catkins absent in winter. **Buds:** 4-sided in cross-section.

Bark: smooth, gray, trunk ridged resembles muscle. **Fruit:** 4-6" catkins of nutlets, 3-lobed bracts.

Ironwood

Code: OSVI

Family:
Betulaceae

Ostrya virginiana
a.k.a. hop-hornbeam



Photos: Dave Hanson

Leaves: alternate, simple, 2-5" long, ovate to elliptic, doubly serrate with pointed tip.

Twigs: Slender twigs, pointed buds, male catkins present near twig ends.

Bark: rough, thin, loose rectangular strips. **Fruit:** clustered oval, inflated pouches covering nuts.



Paper Birch

Code: BEPA

Family:
Betulaceae

Betula papyrifera



Photos: Dave Hanson

Leaves: alternate, simple, coarse doubly toothed margins, leaf base - symmetrical, rounded.

Twigs: reddish-brown with prominent lenticels. Male catkins are often present at twig ends.

Bark: young reddish bark, lenticels - matures to white peeling bark, at tree base dark and fissured.





Common Juniper

Code: JUCO

Family:
Cupressaceae

Juniperus communis



Photos: Dave Hanson

Needles: evergreen, whorled in 3s, awl-shape, sharp, concave upper surface is whitish (stomates).

Cones: $\frac{1}{4}$ - $\frac{1}{2}$ " diameter - ovoid, berry-like appearing three-parted, ripens in 3rd season.

Bark: thin reddish-brown - vertical strips. **Form:** in Minnesota - most often a sprawling shrub.

Eastern Red-cedar

Code: JUVI

Family:
Cupressaceae

Juniperus virginiana



Photos: Dave Hanson

Needles: evergreen, opposite, mature needles scale-like, Juvenile needles sharp, awl-like.

Cones: typically 1-2 seeds in a $\frac{1}{4}$ - $\frac{1}{2}$ " diameter - ovoid, berry-like cone, ripe 1st season.

Bark: thin gray-brown - vertical strips. You may notice small, brown pollen cones at branch tips.

Northern White-cedar

Code: THOC

Family:
Cupressaceae

Thuja occidentalis
a.k.a. - Arborvitae



Photos: Dave Hanson

Needles: evergreen, scale-like, flattened and generally soft, fan-like, aromatic.

Cones: $\frac{1}{2}$ " long, oblong, usually upright on branch, light brown in color, typically 4 fertile scales.

Bark: thin gray-brown - vertical strips.

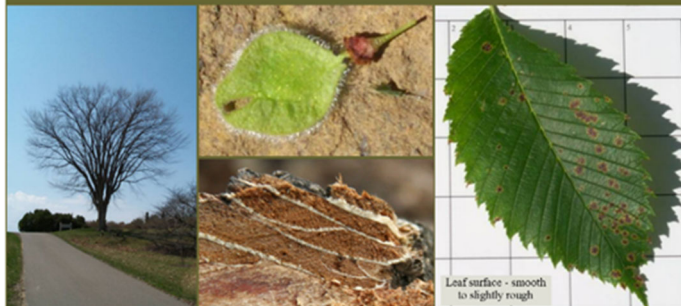
Form: small to medium trees at 25-50'.

American Elm

Code: ULAM

Family:
Ulmaceae

Ulmus americana
a.k.a. white elm



Leaf surface - smooth
to slightly rough

Photos: Dave Hanson

Leaves: alternate, simple, 3-6" long, doubly serrate edges, strongly uneven base, pointed tip.

Fruit: 1/4" - 1/2", papery samara, oval wing, deeply notched tip, hairy; **Buds:** pointed, not hairy.

Bark: grayish, with deep furrowed ridges - in cross-section alternating layers of red and white.

Rock Elm

Code: ULTH

Family:
Ulmaceae

Ulmus thomasii



Photos: Dave Hanson

Leaves: alternate, simple, 3-6" long, doubly serrate edges, slightly uneven base, pointed tip.

Fruit: 1/4" - 1/2", papery samara, egg-shaped, shallowly notched tip, hairy; **Twig:** hairy, pointed bud.

Bark: grayish, deep furrowed ridges, very coarse bark - in cross-section layers of brown/white.

Crabapple

Code: MA2

Family:
Rosaceae

Malus spp.



Photos: Dave Hanson

Leaves: alternate, simple, 1-3" long, elliptical-ovate, finely serrated, showy white to red flowers.

Fruit: small apple or pome (< 2"), variety of colors, some persist into late winter.

Bark: gray/pink thin, scaly/flaky. **Twigs:** moderately thick, foliage/fruit on spur shoots.



Balsam Fir

Code: ABBA

Family:
Pinaceae

Abies balsamea



Photos: Dave Hanson

Needles: evergreen, flattened, soft, 2-ranked (in rows), 2 white lines underside, persist 7-10 years.

Cones: 2-4" long, near tree top, erect on branch - cones don't persist, leaving the central stalk.

Bark: gray, resin blisters - becomes reddish-brown and scaly. **Buds:** 1/6-1/4", resinous.

Hackberry

Code: CEOC

Family:
Ulmaceae

Celtis occidentalis



Photos: Dave Hanson

Leaves: alternate, simple, singly toothed, uneven base; ovate in shape, nipple gall is common.

Twigs: twigs slender, zigzagged. **Pith:** chambered. **Fruit:** 1/4-3/8" single, purple berry-like drupe.

Bark: grayish, with distinct corky ridges. **Form:** medium to large tree at 40-70', rounded crown.

Black Walnut

Code: JUNI

Family:
Juglandaceae

Juglans nigra



Photos: Dave Hanson

Leaves: alternate, pinnately compound, 12-24" long, 9-23 leaflets; terminal leaflet small/missing.

Twigs: stout, light brown/orange, face-like leaf scar. **Fruit:** 1 1/2-2 1/2" round nut, thick husk.

Bark: dark brown / grayish black, rough, deep narrow furrows. **Pith:** chambered, tan color.

Kentucky Coffeetree

Code: GYDI

Family:
Caesalpiniaceae

Gymnocladus dioica



Photos: Dave Hansen

Leaves: alternate, bipinnately (doubly) compound, 12-36" long with 6-15 leaflets.

Twigs: stout, inconspicuous buds. **Fruit:** 4-10" long, 1½-2" wide, dark red-brown seed pod.

Bark: Gray/brown rough fissured, edges lifting/curling. **Pith:** large, soft, salmon colored.

Eastern Larch

Code: LALA

Family:
Pinaceae

Larix laricina
a.k.a. tamarack



Photos: Dave Hansen

Needles: deciduous, ¼-1½", 12-30 flat needles per-spur shoot. Occasionally, tufted at cone tips.

Twigs: slender brown, foliage / cones on spur shoots. **Cones:** ½-¾" egg-shaped, 12-15 scales.

Bark: scaly gray brown, reddish when outer bark is peeled away.

Black Locust

Code: ROPS

Family:
Fabaceae

Robinia pseudoacacia

Non-native



Photos: Dave Hansen

Leaves: alternate, pinnate compound, 6-14" long, 7-19 leaflets, smooth edges, blue-green.

Twigs: brownish with paired spines near buds. **Fruit:** 2-4" long, ½" wide pod, dark brown.

Bark: grayish-brown deeply furrowed, coarse, interlacing ridges, orangish troughs.



Honeylocust

Code: GLTR

Family:
Caesalpiniaceae

Gleditsia triacanthos

Typically sold as variety 'Inermis' (without thorns).



Photos: Dave Hanson

Leaves: alternate, compound pinnately and bipinnately, 15-30 small leaflets.

Twigs: reddish/brown and may have thorns. **Fruit:** 6-18" long, 1" wide, brown twisted pods.

Bark: reddish/brown scaly ridges, a "cracking" appearance - may have sharp, 3-branched thorns.

Boxelder

Code: ACNE

Family:
Aceraceae

Acer negundo



Diocious
female tree

Autumn
maturing
double
samara

Photos: Dave Hanson

Leaves: opposite, pinnately compound, 3-7 leaflets each 2-4" long, coarsely serrate (toothed).

Twigs: green to purplish, waxy coating. **Fruit:** 1-1½" V-shaped paired samaras, persist in winter.

Bark: light brown, slightly ridged and furrowed, orangey at the bottom of the furrow.

Norway Maple

Code: ACPL

Family:
Aceraceae

Acer platanoides

Non-native



Milky
sap in
twigs and
leaves

Spring
flower

Green
foliage

Autumn
maturing
double
samara

Photos: Dave Hanson

Leaves: opposite, simple, 4½-7" wide, 5-7 pointed lobes, shallow "U" sinuses, wavy-toothed.

Twigs: brown, rounded buds. **Fruit:** 1½-2" long, paired, divergent mustache-shape.

Bark: In youth gray/brown and smooth. Becomes dark and deeply furrowed when older.

Many cultivars: green to purple; Emerald Lustre™, Emerald Queen, Schwedleri, & Crimson King.

Red Maple

Code: ACRU

Family:
Aceraceae

Acer rubrum



Photos: Dave Hanson

Leaves: opposite, simple, 2-4" long, 3 up to 5 pointed lobes; "V" sinuses and toothy margins.

Twigs: reddish with red buds. **Fruit:** 1/4-1" long paired (two winged) seeds; red turning to brown.

Bark: Young trees have smooth gray bark, becoming dark gray and rough when older.

Silver Maple

Code: ACSA1

Family:
Aceraceae

Acer saccharinum



Photos: Dave Hanson

Leaves: opposite, simple, 5-7" wide, 3-5 pointed lobes, deep cut sinuses, silvery underside.

Twigs: reddish-brown, clustered reddish buds. **Fruit:** 1-3" long samaras, paired, maturing brown.

Bark: Light, silvery-gray and smooth in youth - gray/brown strips; lifting and shaggy with age.

Mountain Ash

Code: SO

Family:
Rosaceae

Sorbus decora and *S. americana*
Showy mountain ash and American mountain ash



Photos: Dave Hanson

Leaves: alternate, pinnately compound, 6-10" long, 11-17 sharp, finely-toothed leaflets.

Twigs: twig, stout gray-reddish. **Buds:** dark, pointed, resinous, hairy. **Fruit:** small red-orange

"berries" in a cluster. **Bark:** grayish, smooth, lenticels in youth - ages to splitting, peeling, rough.



Mulberry

Code: MO

Family:
Moraceae

Morus spp. Likely white mulberry (*M. alba*),
native red mulberry (*M. rubra*) is not common.

Non-native



Photos: Dave Hanson

Leaves: alternate, simple, coarsely toothed margins, variety of lobe shapes, shiny green, smooth.

Twigs: greenish to red-brown, milky sap. **Fruit:** clustered drupes (raspberry-like) red to black.

Bark: Orangey-brown, scaly ridges, more orangey at the bottom of the furrows.

Swamp White Oak

Code: QUBI

Family:
Fagaceae

Quercus bicolor



Photos: Dave Hanson

Leaves: alternate, simple, 4-7" long, 5-12 shallow rounded lobes, shiny green top, whitish below.

Fruit: 1/4" to 1 1/4" paired acorns, 1"-4" stalk. Acorns mature in the autumn.

Bark: light brown, papery, scales become blocky and deeply fissured with age.

Bur Oak

Code: QUMA

Family:
Fagaceae

Quercus macrocarpa



Photos: Dave Hanson

Leaves: alternate, simple, 4-12" long, 5-9 rounded lobes, center sinuses cut to mid-rib.

Fruit: acorn, fringed (bur) cap covers 1/2 or more of 1/4" to 2" acorn, acorns attached direct to twig.

Bark: grayish with vertical ridges, deeply furrowed. Bur oak can have corky twigs.

Northern Pin Oak

Code: QUEL

Family:
Fagaceae

Quercus ellipsoidalis

Commonly planted: Eastern Pin Oak - *Quercus palustris*



Photos: Dave Hanson

Leaves: alternate, simple, 3-5" long, 5-7 bristle-tipped lobes; sinuses cut nearly to midrib.

Fruit: acorns, cone-shaped cap, $\frac{3}{8}$ - $\frac{1}{2}$ " cone-shaped (ellipsoidal) acorns.

Bark: gray to dark brown, smooth, shiny in youth, develops flat-topped ridges, shallow furrows.

Form for identification: descending lower branches, horizontal central branches, ascending upper.

Northern Red Oak

Code: QURU

Family:
Fagaceae

Quercus rubra



Photos: Dave Hanson

Leaves: alternate, simple, 4-9" long, 7-11 bristle-tipped lobes, sinuses cut $\frac{1}{2}$ way to midrib.

Fruit: $\frac{3}{8}$ " to $1\frac{1}{4}$ " acorn, shallow cap, scales pubescent, acorns mature autumn of second season.

Bark: gray to red-brown, smooth, shiny, becoming grayish flat-topped ridges, deeply furrowed.

White Oak

Code: QUAL

Family:
Fagaceae

Quercus alba



Photos: Dave Hanson

Leaves: alternate, simple, 4-9" long, 5-9 rounded lobes, sinuses nearly uniform in depth.

Fruit: acorn, $\frac{3}{8}$ " to $1\frac{1}{4}$ " acorns, cap covers top $\frac{1}{4}$ - $\frac{1}{2}$, acorn is attached via a $\frac{1}{4}$ " stalk.

Bark: Light ashy-gray, narrow vertical ridges, with age breaks into blocky, irregular shapes.



Jack Pine

Code: PIBA

Family:
Pinaceae

Pinus banksiana



Photos: Dave Hanson

Needles: 2 per bundle, $\frac{1}{4}$ - $1\frac{1}{2}$ " long, often twisted, divergent or forming a "V", persist 2-3 years.

Cones: 1-2", paired, sessile, pointing to twig tip, cones are closed (serotinous), light brown.

Bark: dark, small blocky scales.

Cones persist for many years.

Ponderosa Pine

Code: PIPO

Family:
Pinaceae

Pinus ponderosa

Non-native



Photos: Dave Hanson

Needles: 2 or 3 per bundle, 5-8" long. Persist into 3rd season. **Buds:** reddish, pointed, resin drops.

Cones: 3-6" long, sessile, "armed" with stiff, sharp prickles (spines), light brown in color.

Bark: grayish-black becoming irregular, furrowed reddish brown scales or plates.

Red Pine

Code: PIRE

Family:
Pinaceae

Pinus resinosa
a.k.a. Norway pine



Photos: Dave Hanson

Needles: 2 per bundle, 4-6" long, needles break cleanly when bent, persist to 4th or 5th year.

Cones: $1\frac{1}{2}$ - $2\frac{1}{4}$ " long, sub-sessile, typically paired, unarmed - compare to ponderosa pine.

Bark: reddish-gray large blocks. **Buds:** pointed, reddish-brown, ragged scales.

Scots Pine

Code: PISY

Family:
Pinaceae

Pinus sylvestris
a.k.a. Scots pine

Non-native



Photos: Dave Hanson

Needles: 2 per bundle, 1½-3½" long, twisted, pairs not divergent - almost wrapped.

Cones: 1½-2½", single to paired, light brown, tip bent back.

Bark: upper trunk / branches papery, flaky, orange to green, main stem grayish, scaly plates.

Eastern White Pine

Code: PIST

Family:
Pinaceae

Pinus strobus



Photos: Dave Hanson

Needles: 5 per bundle, 2½-5" long, very soft, persist to end of 2nd season.

Cones: 4-8" long with white (resin) tipped scales, unarmed, cones fall during the winter.

Bark: dark, small blocks - mature trees develop characteristic stag-horn branching.



Eastern Cottonwood

Code: PODE

Family:
Salicaceae

Populus deltoides



Photos: Dave Hanson

Leaves: alternate, simple, triangular/heart shaped, shiny green; blunt, coarse, glandular teeth.

Twigs: large resinous buds, stout twigs. **Fruit:** ¼" long, 2 to 4-valved capsules, cottony seed.

Bark: gray/brown, very thick deep furrows, tall trees can be very large in diameter.





Wild Plum

Code: PRAM

Family:
Rosaceae

Prunus americana
a.k.a. American Plum



Photos: Dave Hanson

Leaves: alternate, simple, 2-3" long, doubly toothed margins, prominent veins, long pointed tip.

Fruit: 1/4-1" diameter single-seeded drupes, maturing late summer to reddish, yellow or orange.

Bark: brown to dark brown becoming slightly fissured with age. **Twigs:** Thorn-like spur shoots.

Serviceberry

Code: AM

Family:
Rosaceae

Amelanchier spp.
a.k.a. Juneberry



Photos: Dave Hanson

Leaves: alternate, simple, 1-3" long, serrated, ovate. **Flowers:** showy white, early spring.

Twigs: slender, long pointed bud; **Fruit:** 1/2" berry - red in June maturing to purple.

Bark: grayish with thin vertical ridges. **Form:** native shrub - available as single stem small tree.

Black Spruce

Code: PIMA

Family:
Pinaceae

Picea mariana
a.k.a. bog or swamp spruce



Photos: Dave Hanson

Needles: single, 4-sided, 1/4-3/8" long, dull points, blue-green color. **Twigs:** red-brown, red hairs.

Cones: 1/2-1 1/4" long, egg-shaped, clustered to interior tree top, scales rounded, rigid, persist years.

Bark: red-brown to gray flaky, scaly. **Buds:** hairy, grayish, outer scales long, slender, pointed.

Colorado Spruce

Code: PIPU

Family:
Pinaceae

Picea pungens
a.k.a. blue spruce

Non-native



Photos: Dave Hanson

Needles: single, 4-sided, $\frac{1}{4}$ - $\frac{1}{2}$ " long, sharply pointed, green to silvery-blue color.

Cones: 2-4" long, papery scales, scales have irregularly toothed margins, flexible scales.

Bark: grayish-brown flaky, scaly. **Buds:** golden, reflexed scales.

Norway Spruce

Code: PIAB

Family:
Pinaceae

Picea abies

Non-native



Photos: Dave Hanson

Needles: single, $\frac{1}{2}$ -1" long, 4-sided, on an orangey twig, not too sharp, dark green color.

Cones: 4-6" long with stiff, thin scales, irregular teeth, green when first forming, turning brown.

Bark: gray flaky, scaly. **Form:** large tree - 40-65', pyramidal, drooping lateral (side) branchlets.

White Spruce

Code: PIGL

Family:
Pinaceae

Picea glauca
a.k.a. skunk spruce



Photos: Dave Hanson

Needles: single, 4-sided, $\frac{1}{2}$ - $\frac{3}{4}$ " long, dull points, dark bluish-green color. **Buds:** reflexed scales.

Cone: $\frac{1}{4}$ - $\frac{2}{3}$ " long, scales have smooth margins. **Twigs:** Gray to orange-brown, hairless.

Bark: red-brown to gray flaky, scaly. Described that crushing needles releases a skunk-like odor.





American Basswood

Code: TIAM

Family:
Tiliaceae

Tilia americana



Tilia americana var. *beadwood*

Photos: Dave Hanson

Leaves: alternate, simple, 4"-8" long, coarsely serrate edges; heart-shaped, unequal base.

Twigs: slender, round 2-scaled, reddish bud. **Fruit:** 1/4-3/4", round, under leaf like bract, no ridges.

Bark: light gray when young, darkens with age, narrow/shallow flat topped ridges.

Little-leaf Linden

Code: TICO

Family:
Tiliaceae

Tilia cordata

Non-native



Photos: Dave Hanson

Leaves: alternate, simple, 1 1/2-3" long, ovate to heart shaped, sharp fine serrate edges.

Twigs: slender, green-brown or red-tinged, buds brownish.

Bark: gray - brown, ridged, shallow furrows. **Fruit:** round nutlets under a bract, slightly ridged.

Eastern Hemlock

Code: TS CA

Family:
Pinaceae

Tsuga canadensis



Photos: Dave Hanson

Needles: flat, 1/2-3/4" long yellow-green, 2 white lines below, minute teeth. Persist to 3rd season.

Cones: 1/2-3/4" long, egg-shaped. **Form:** drooping terminal leader, pyramidal crown.

Bark: reddish to brown, becoming deeply furrowed, inner bark has purplish layers.

European Buckthorn

Code: RHCA

Family:
Rhamnaceae

Rhamnus cathartica

Non-native



Photos: Dave Hanson

Leaves: sub-opposite, simple, 2-3" long, elliptic to oval, finely serrated edge, arcuate venation.

Twigs: Terminal thorn, buds on either side. **Fruit:** round, 1/4" berry, shiny black, 3-4 seeds.

Bark: smooth, gray, reddish brown, lenticels, older trees dark gray and scaly. Yellow inner-bark.

Ginkgo

Code: GIBI

Family:
Ginkgoaceae

Ginkgo biloba

Non-native



Photos: Dave Hanson

Leaves: alternate, simple, 2-3" wide fan-shaped, often separated or cleft into two lobes (biloba).

Fruit: female trees produce orange-gold stinky flesh covering an almond sized nut.

Bark: light gray, irregular ridges, corky appearance. **Twigs:** gray, many spur or short shoots.

Freeman Maple

Code: ACFR

Family:
Aceraceae

Acer x freemanii
(*A. rubrum* X *saccharinum*)

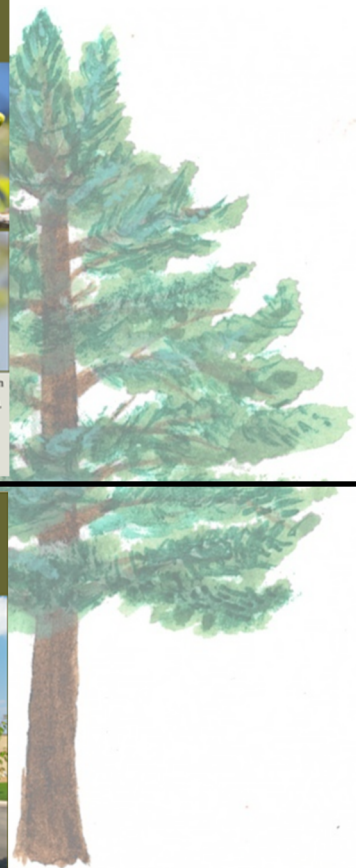


Photos: Dave Hanson

Leaves: opposite, simple, 3-5 lobes. Characteristically similar to silver maple.

Twigs: twigs, brown-red, with red buds in winter. **Fruit:** A pair of joined samaras.

Bark: gray bark, smooth and thin in youth, becoming slightly furrowed with age.





Smooth Sumac

Code: RHGL

Family:
Anacardiaceae

Rhus glabra
shrub form, seldom a small tree



Photos: Dave Hanson

Leaves: alternate, pinnately compound, 9-23 sessile leaflets, lance shaped, toothed margins.

Fruit: Bright red, pyramidal cluster of drupes. **Flowers:** pyramidal cluster, small greenish.

Bark: Young stems - very smooth - with age smooth, gray, and prominent lenticels.

Austrian Pine

Code: PINI

Family:
Pinaceae

Pinus nigra

Non-native



Photos: Dave Hanson

Needles: 2 per bundle, 3-6" long, stiff. **Buds:** sharply-pointed, large whitish.

Cones: 2-3 inch, 'armed' with small spines, light brown in color. **Twigs:** fuzzy.

Bark: pinkish to grayish-black becoming deeply furrowed with irregular plates.

Eastern Redbud

Family:
Caesalpiniaceae

Cercis canadensis



Photos: Dave Hanson

Leaves: alternate, unifoliate (appearing simple), smooth edge, shiny green, 1½-4" petiole.

Fruit: 2½-3½" flat, bean-like pod, matures black. **Twigs:** slender, dark, small rounded buds.

Bark: smooth dark gray. **Flower:** pea-like, reddish-pink hues, on older wood, before foliage.

Poison Ivy

Family: *Toxicodendron radicans*
Anacardiaceae Shrubby plant in Minnesota, to the south and east a vine.



Photos: Dave Hanson

Leaves: alternate, pinnate compound, three-leaved, leaflets lobed or unlobed, often shiny green.
Twigs: young shoots hairy. **Fruit:** creamy white to tannish drupes, approximately 1/4" diameter.
Bark: gray - tan, 1-2' shrub. In States south and east of Minnesota, a climbing vine (upper left).

Eastern Hemlock

Code: TSCA

Family: *Tsuga canadensis*
Pinaceae



Photos: Dave Hanson

Needles: flat, 1/2-3/4" long yellow-green, 2 white lines below, minute teeth. Persist to 3rd season.
Cones: 1/2-3/4" long, egg-shaped. **Form:** drooping terminal leader, pyramidal crown.
Bark: reddish to brown, becoming deeply furrowed, inner bark has purplish layers.

Chokecherry

Code: PRVI

Family: *Prunus virginiana*
Rosaceae



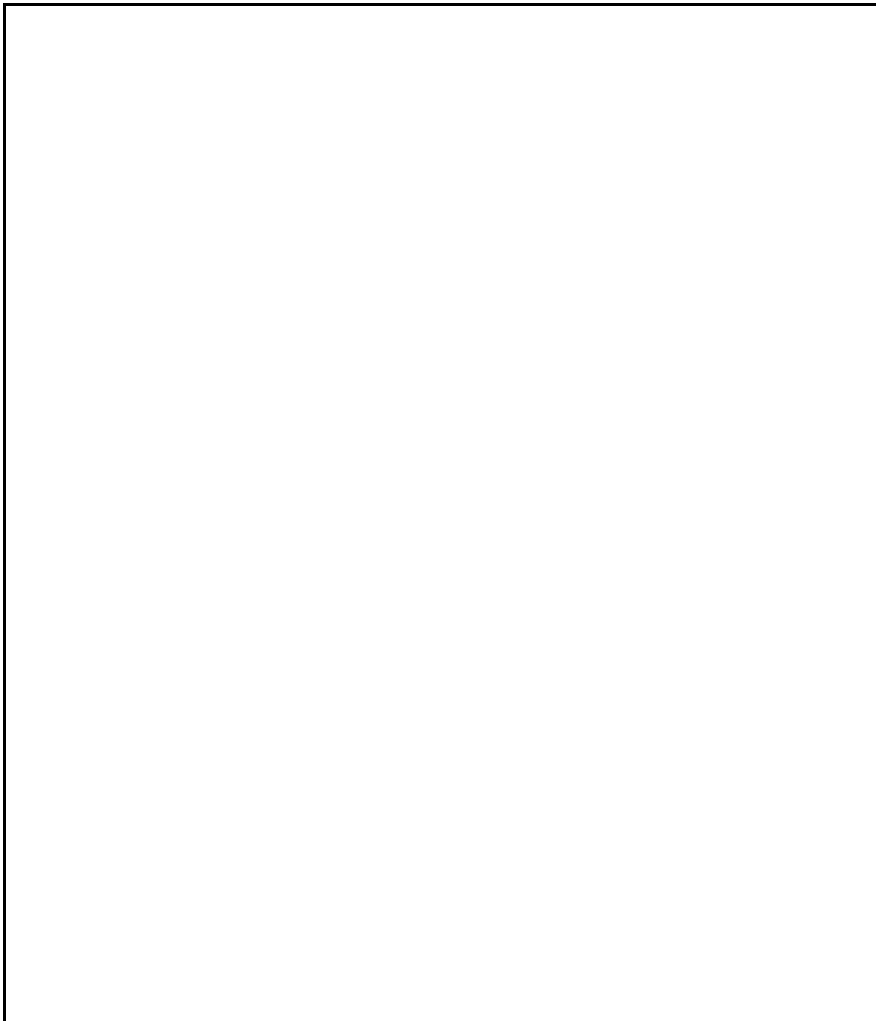
Cherry - glands on petioles

Photos: Dave Hanson

Leaves: alternate, simple, oval - finely toothed margins, prominent veins produce rough surface.
Fruit: drupes 1/4-3/8" diameter, hanging in clusters, red maturing to dark purple.
Bark: brown to gray becoming slightly fissured with age.

WHAT IS ARBORICULTURE?

Arboriculture is the cultivation and trees and shrubs, meaning it is the art and science of growing and taking care of trees. Taking care of trees takes a lot of work, can you think of some things you might need to learn to take care of trees? List your ideas here:

A large, empty rectangular box with a thin black border, intended for the user to list their ideas for taking care of trees.

WHAT DOES AN ARBORIST DO?

If we know that arboriculture means taking care of trees, what is an arborist? An arborist is a tree surgeon, they are a professional who does the taking care of trees! To be an arborist you need to know lots things about trees, and you may even need to know how to climb them! What do you think an arborist might do at work every day? List your ideas here:

A large, empty rectangular box with a thin black border, intended for the user to list their ideas about what an arborist might do at work every day.

WHY DO WE LEARN KNOTS?

Some people who work with trees also climb them to take care of them, these people are called arborists. And some people climb trees just for fun! Tree climbers have to know lots of different knots so they are prepared to climb and work as safely and securely as possible. Along with knowing and using the proper knots, tree climbers also need to know and use the right safety gear, called personal protective equipment.



Gloves



Safety Glasses

Tree Climbing Saddle

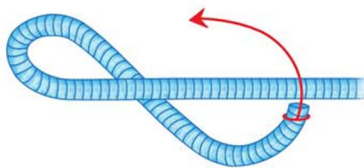


***Climbing
Helmet***

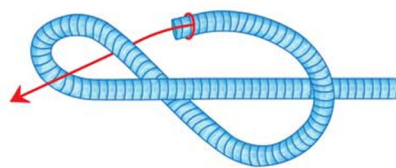


KNOTS

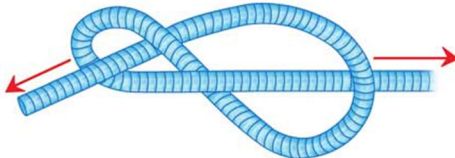
Figure 8 Knot Instructions



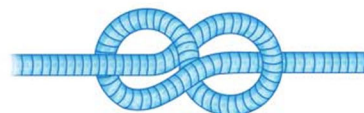
- 1 Make a loop with an end



- 2 Now pass the end through it



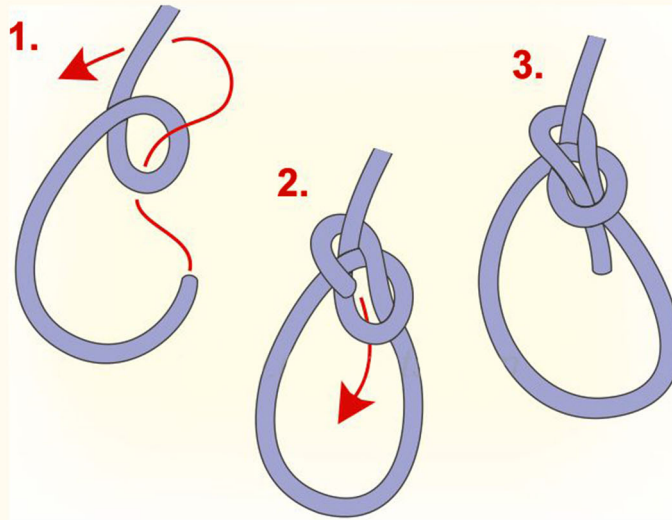
- 3 Pull both sides to adjust the knot



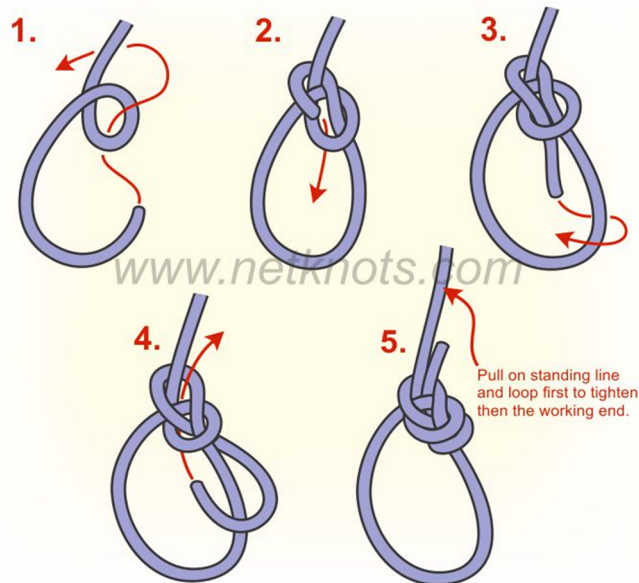
- 4 The finished knot resembles an "8"

KNOTS

BOWLINE

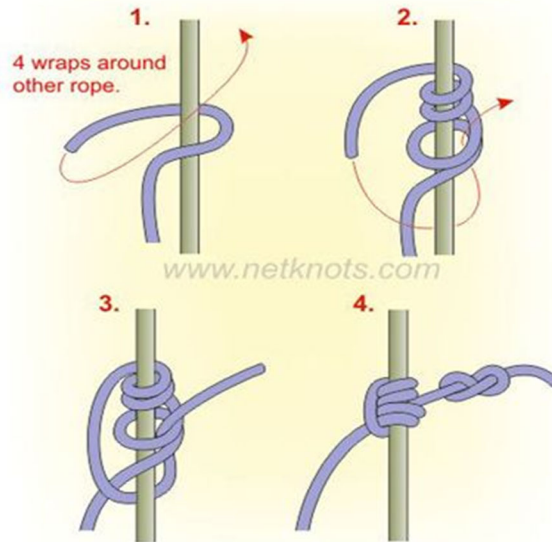


YOSEMITE BOWLINE



KNOTS

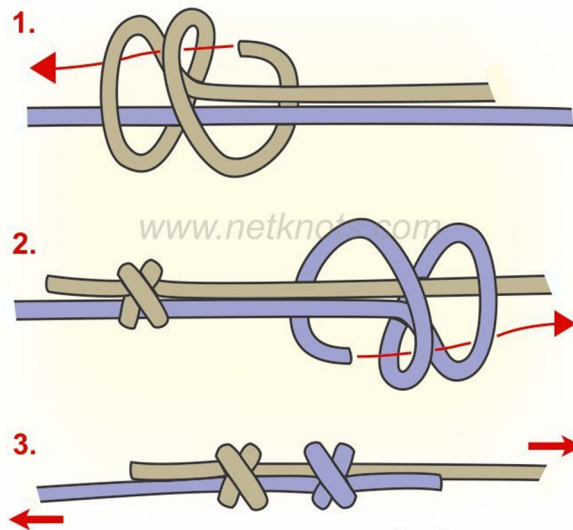
BLAKE'S HITCH



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www.netknots.com

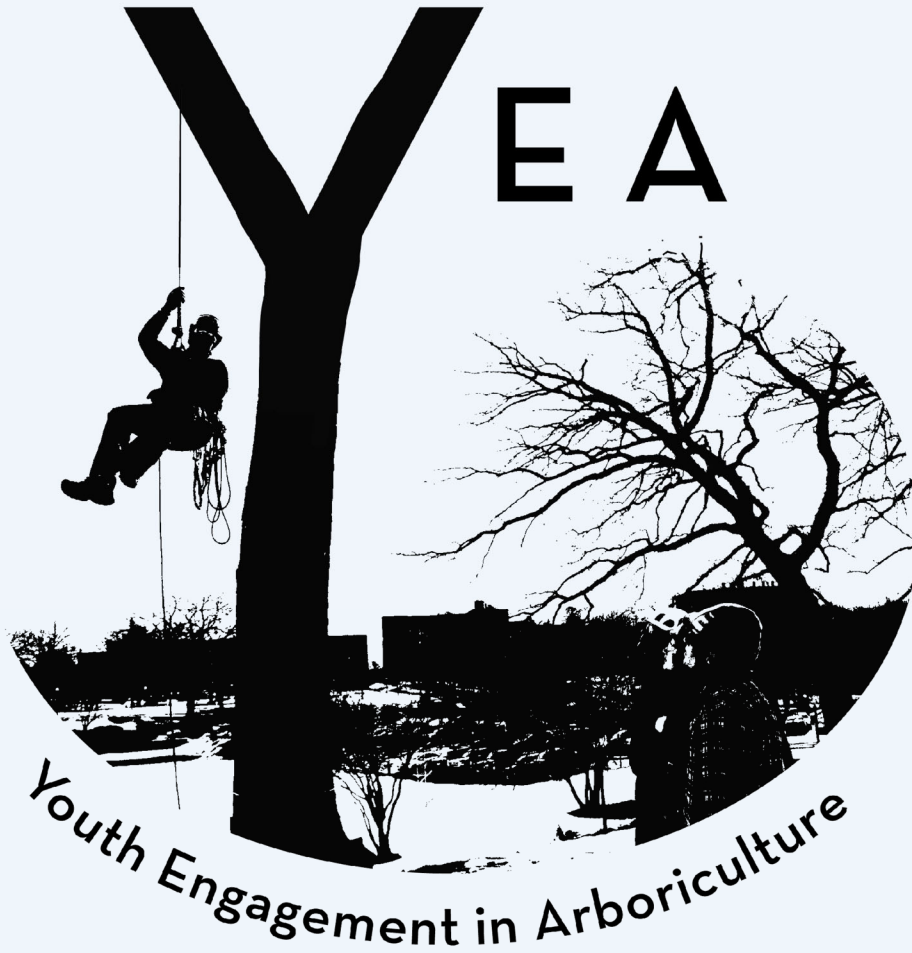
DOUBLE FISHERMAN'S



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