

CALIFORNIA NATIVE PLANT SOCIETY TREE STUDY KIT

What trees should students learn?

Kindergarten: [Monterey pine](#), [redwood](#), [buckeye](#), [Douglas fir](#), [bay](#)

First grade: [live oak](#) , [valley oak](#) , [madrone](#)

Second grade: any 2 additional trees

Third grade: any 2 additional trees

Fourth grade: any 2 additional trees

Whenever possible students should handle real leaves, acorns, and cones. It will help them to remember the trees if they feel the softness of a hazel leaf, smell a bay leaf, touch the spikes on a tan oak acorn cap. The cones of Bishop pine and Monterey pine are too big to scan so they are not in this kit. Monterey pine cones are readily available year round. Students working on this kit should be shown a Monterey pine cone as this is on the test. (Bishop pine cones look quite similar and are not on the test.)

The tree test requires students to match cones/acorns/nuts etc. to the correct leaf as well as to name the tree.

Tree Study Pages - Background Information and photographs

[Monterey Pine](#)

[Madrone](#)

[California Torreya](#)

[Redwood](#)

[Black Oak](#)

[Oregon Ash](#)

[Buckeye](#)

[Tanoak](#)

[Bishop Pine](#)

[Douglas Fir](#)

[Hazel](#)

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[Bay](#)

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[Sargent Cypress](#)

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[Blue Oak](#)

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MONTEREY PINE

Background for teacher/parent:

- Pines always have needles in bundles. (Single needle pines are the exception.) Redwoods and firs do not have needles in bundles. Monterey pines have three needles in a bundle. (Kids who look closely will find a few exceptions to this. There is some variation.)
- Monterey pines are not native to Marin, though they are of course native to California. Our local native pine is the Bishop pine, found at Point Reyes, which has two needles in a bundle. The mnemonic device is 3 needles - 3 syllables (Monterey), 2 needles - 2 syllables (Bishop). If you're in the mountains you may see California's other 2-needled pine, the lodgepole, which also conveniently has two syllables.

Song to the tune of Frere Jaques

Teacher/Parent: Monterey pine

Kids: Monterey pine

Teacher/Parent: I know you!

Kids: I know you!

Teacher/Parent: Three needles in a bundle (hold up three fingers)

Kids: Three needles in a bundle (hold up three fingers)

Teacher/Parent: Mon-ter-ey! (clap with each syllable)

Kids: Mon-ter-ey! (clap with each syllable)

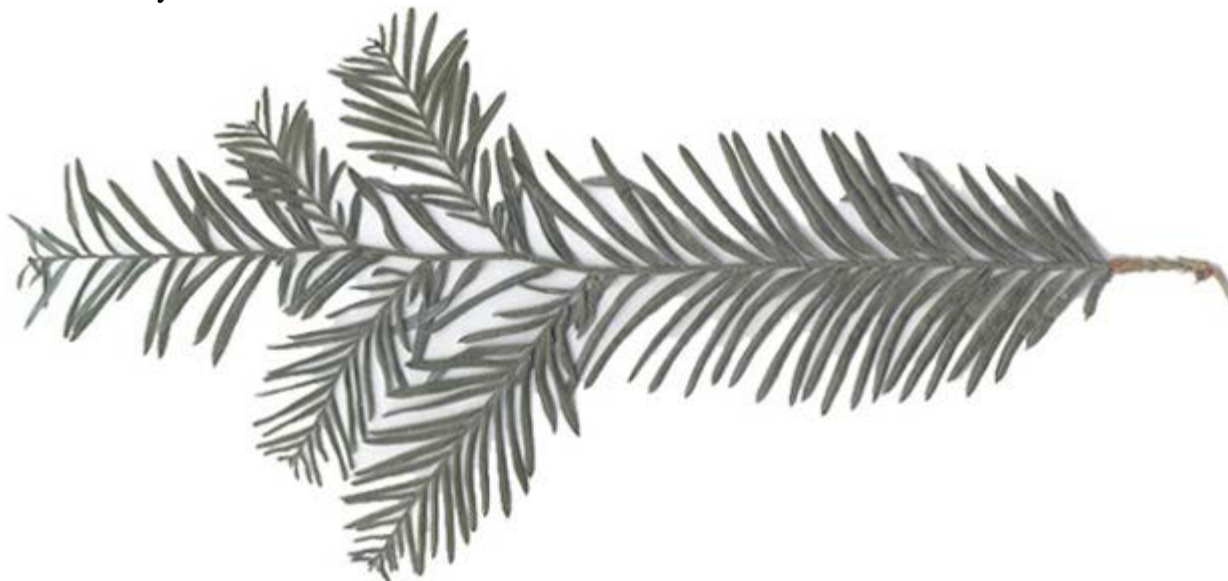


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REDWOOD

Background for teacher/parent:

There are three kinds of redwoods we're likely to find in Marin: the coast redwood, the giant sequoia, and the dawn redwood. Coast redwoods are the tallest, while giant sequoias are the most massive. Dawn redwoods, a deciduous redwood, were thought by botanists to be extinct and were known only from fossils until they were discovered in a remote valley in China in 1944.



Coast redwood facts:

- They grow as tall as a 35-story building.
- The seeds are tiny. It takes 123,000 to make a pound!
- The world's tallest redwood is 3681 tall. It is in Redwood National Park.
- Marin's tallest redwood is 2531 tall and has a 13' diameter. It's in Muir Woods.
- Redwoods can live 2,200 years. (Giant sequoias live even longer, up to 4000 years.)
- Coast redwoods need 40-100 inches of rain each year. They are one of only a few species that can create their own rain through a process called transpiration. A tree can produce 500 gallons of water a day.
- 85% of virgin redwood forests have been logged. Only 150,000 acres of old growth forest remain. The fight to protect the remaining trees continues.
- It's our California state tree.



Song to the tune of Frere Jaques

Teacher/Parent: Hello, Redwood!

Kids: Hello, Redwood!

Teacher/Parent: Tallest tree! (Stand and hold arms straight above head)

Kids: Tallest tree! (Stand and hold arms straight above head)

Teacher/Parent: But cones are very little (hold cone between thumb and forefinger)

Kids: But cones are very little (Kids hold up imaginary cone, fingers spaced to the real size)

Teacher/Parent: our state tree! (Point to yourself.)

Kids: Our state tree! (Kids point to themselves.)

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BUCKEYE

Background for parent/teacher:

- Buckeyes are the first trees to lose their leaves. They lose them at the end of summer, August or early September. They are also the first deciduous trees to get their new leaves in February.
- Native Americans used buckeyes to stun fish in streams (like they used soaproot)
- Native Americans only ate buckeyes in times of famine because of the elaborate procedure needed to get the poison out.
- Mice and other animals eat buckeyes.
- Edible mushrooms growing under buckeye may be toxic to humans. They absorb poison from the buckeye.
- Honeybees cannot go to buckeye flowers because they are toxic.

Song to the tune of Frere Jaques

Teacher/Parent: Hello, buckeye tree!

Students: Hello, buckeye tree!

Teacher/Parent: I know you!

Students: I know you!

Teacher/Parent: Five leaflets like five fingers.

Students: Five leaflets like five fingers.

Teacher/Parent: Buckeyes in the fall.

Students: Buckeyes in the fall.



Leaf and Fruit 3/4 actual size

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DOUGLAS FIR

Background for parent/teacher:

- Tell kids the story about the little mice who were running away and hid in a Douglas fir cone. They didn't quite fit so you can see their hind legs and tails sticking out.
- In Marin Douglas fir usually borders redwood groves. It is often associated with bay, madrone, and tanoak.
- Native Americans used Douglas fir wood for harpoon shafts and handles for dip nets. Small roots were used for basketry but they required elaborate preparation. A tea from the fresh tips was used for TB. In the sweat house people passed steam through Douglas fir branches for relief from rheumatism.
- Squirrels love Douglas fir cones!



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BAY TREE

Background for parent/teacher:

- The bay tree is also known as bay laurel, California laurel, pepperwood, and Oregon myrtle.
- Bay nuts were roasted and eaten straight or ground and made into cakes by Native Americans. Leaves were bound on the forehead for headache, made into tea for stomachaches, and used in the steam house for rheumatism. They were also strewn on floors as insect repellent. When someone had a cold leaves were placed in the fire to "fumigate" the dwelling.
- Bay leaves are used in many recipes including pasta sauce, soups, stews, and curries.



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LIVE OAK

Background for parent/teacher:

- Live oak trees get their names because they look "alive," are not deciduous and are green all year. There are actually two species of live oak in Marin, the coast live oak and the canyon live oak. Children are not asked to distinguish these in the test.
- Acorns were an important staple in the Miwok diet.
- Many native animals rely on acorns. Approximately 170 species of birds use oaks as some point in their life cycle. A scrub jay may cache 5000 acorns in a season! 58 species of lizards, snakes and amphibians are associated with oak habitats. 105 mammals use the oak resource. For example, 35% of the fall diet of deer is acorns. 5000 species of insects use oaks and 1000 are dependent on them.
- Fossil records indicate there have been oaks in California for at least ten million years.
- Oaks woodlands are in trouble in California due to development, dams preventing the floods which reduced the numbers of gophers and other predators of acorns and seedlings, invasion of weeds like French broom which out-compete oak seedlings, and ranching (A cow can eat 1800 acorns a day, not to mention trampling on oak seedlings.)



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VALLEY OAK aka VALLEY WHITE

Background for parent/teacher:

- Valley oaks are unique to California.
- The oak galls (that kids call oak balls) on valley oaks are made by wasps. They start out green (that's why they're sometimes called oak apples), become tan, and later may be found covered with a black mold. Look for the holes where the wasps chewed their way out when they hatched.
- Acorns were an important staple in the Miwok diet.
- Many native animals rely on acorns. Approximately 170 species of birds use oaks as some point in their life cycle. A scrub jay may cache 5000 acorns in a season! 58 species of lizards, snakes and amphibians are associated with oak habitats. 105 mammals use the oak resource. For example, 35% of the fall diet of deer is acorns. 5000 species of insects use oaks and 1000 are dependent on them.
- Fossil records indicate there have been oaks in California for at least ten million years.
- Oaks woodlands are in trouble in California due to development, dams preventing the floods which reduced the numbers of gophers and other predators of acorns and seedlings, invasion of weeds like French broom which out-compete oak seedlings, and ranching (A cow can eat 1800 acorns a day, not to mention trampling on oak seedlings.)



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MADRONE

Background for parents/teachers:

- Think of this as the tree that gets sunburned. Its bark is reddish and peels off.
- Some kids call madrone the "refrigerator tree." When you touch it, it feels cool, even on a hot day.
- Many birds including robins and band-tailed pigeons eat madrone berries. Some mammals like the gray fox like them too.
- If you want to taste a madrone berry choose a dark red one. The yellow/orange ones are "puckery".
- Native Americans made a tea from the roots, bark and leaves for colds. The bark was used for stomachaches. A lotion for sores was made from leaves and bark.



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CALIFORNIA TORREYA (also called California Nutmeg)

Background information:

- California torreyya is in the yew family. (It got its name because the inner seed looks like a nutmeg but it has no relationship to the tree which bears the seed used for the spice nutmeg which is in the family Myristicaceae.)
- They can grow 60 feet tall.
- It is unusual for a conifer (tree with needles) to have a seed like this instead of a cone.
- If children have the opportunity to touch a nutmeg leaf they will feel SHARP spines at the tips of the needles.
- Native Americans used them for tattooing. A design was drawn on the face with poison oak juice and then soot was pricked in with nutmeg needles resulting in a blue-green tattoo.



CALIFORNIA NATIVE PLANT SOCIETY TREE STUDY KIT

BLACK OAK

Background for parent/teacher:

- Black oaks are deciduous. They are the only deciduous oaks with pointy leaves.
- Acorns were an important staple in the Miwok diet.
- Many native animals rely on acorns. Approximately 170 species of birds use oaks as some point in their life cycle. A scrub jay may cache 5000 acorns in a season! 58 species of lizards, snakes and amphibians are associated with oak habitats. 105 mammals use the oak resource. For example, 35% of the fall diet of deer is acorns. 5000 species of insects use oaks and 1000 are dependent on them.
- Fossil records indicate there have been oaks in California for at least ten million years.
- Oaks woodlands are in trouble in California due to development, dams preventing the floods which reduced the numbers of gophers and other predators of acorns and seedlings, invasion of weeds like French broom which out-compete oak seedlings, and ranching (A cow can eat 1800 acorns a day, not to mention trampling on oak seedlings.)

BLACK OAK ACORNS HAVE A CAP THAT GOES DOWN TO THEIR KNEES - OR EVEN THEIR TOES!



Leaf is 3/4 actual size

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OREGON ASH

Background information:

- Oregon ash is in the Olive Family.
- It grows along the west coast of North America.
- It likes moisture and usually grows along streams.
- This is the only native species of ash in Marin County.
- The winged seeds are called samaras.
- The Oregon ash is a deciduous tree.
- Native Americans used ash wood for fuel, canoe paddles, canes, and digging sticks. Some tribes used the bark for a medicine for worms, and mashed roots for wounds. Roots were also used for basketry.



Leaf is 1/2 actual size

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TANOAK

Background for teacher/parent:

- Tanoaks have features of chestnuts and of oaks.
- Tanoak acorns were considered the second tastiest by Native American tribes in Northern California. (Black oaks were first.) Acorns of different types were kept separate.
- Tanoak acorns are the only ones with spiky caps.
- Bark is a source of tannin used for making hides into leather.
- Tanoak is usually associated with bay and madrone trees along borders of redwood forest.
- Leaves are very variable in size depending on conditions and may vary from 3cm to 20 cm in length.
- Also called tanbark oak.



Song to the tune of ABC

Tanoak in the forest grows,
T for teeth so you will know.
Every fall the acorns drop,
Spiky caps are on the top.
Tanoak in the forest grows
When you see one you will know!



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BISHOP PINE

Background for parent/teacher:

- Bishop pines have 2 needles in a bundle
- They are closed cone pines, which means the cones open when a fire sweeps through. Because of this trees in a given forest are usually the same age and size.
- You can see how bishop pines regenerated at Point Reyes in the area of the Inverness fire.
- See a mature bishop pine forest at Tomales Bay State Park.



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HAZEL

Background for parents/teachers:

- Hazel trees are deciduous. They begin to leaf out in late March/early April.
- Hazel leaves are very soft.
- Hazelnuts are ripe in the fall. They were gathered by Miwoks.
- They are a source of food for animals.



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CHINQUAPIN

Background information:

- Chinquapin is in the Oak Family.
- It may be considered a large shrub or a small tree.
- The species name of the tree found in Marin is *chrysophylla* which means yellow leaf. The undersides of the leaf are a striking yellow. Another species grows in the Sierra Nevada.
- The nuts inside the spiny cases were eaten roasted and raw by Native Americans or ground into meal. They were also stored in the shell as a winter source of food.



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WILLOW

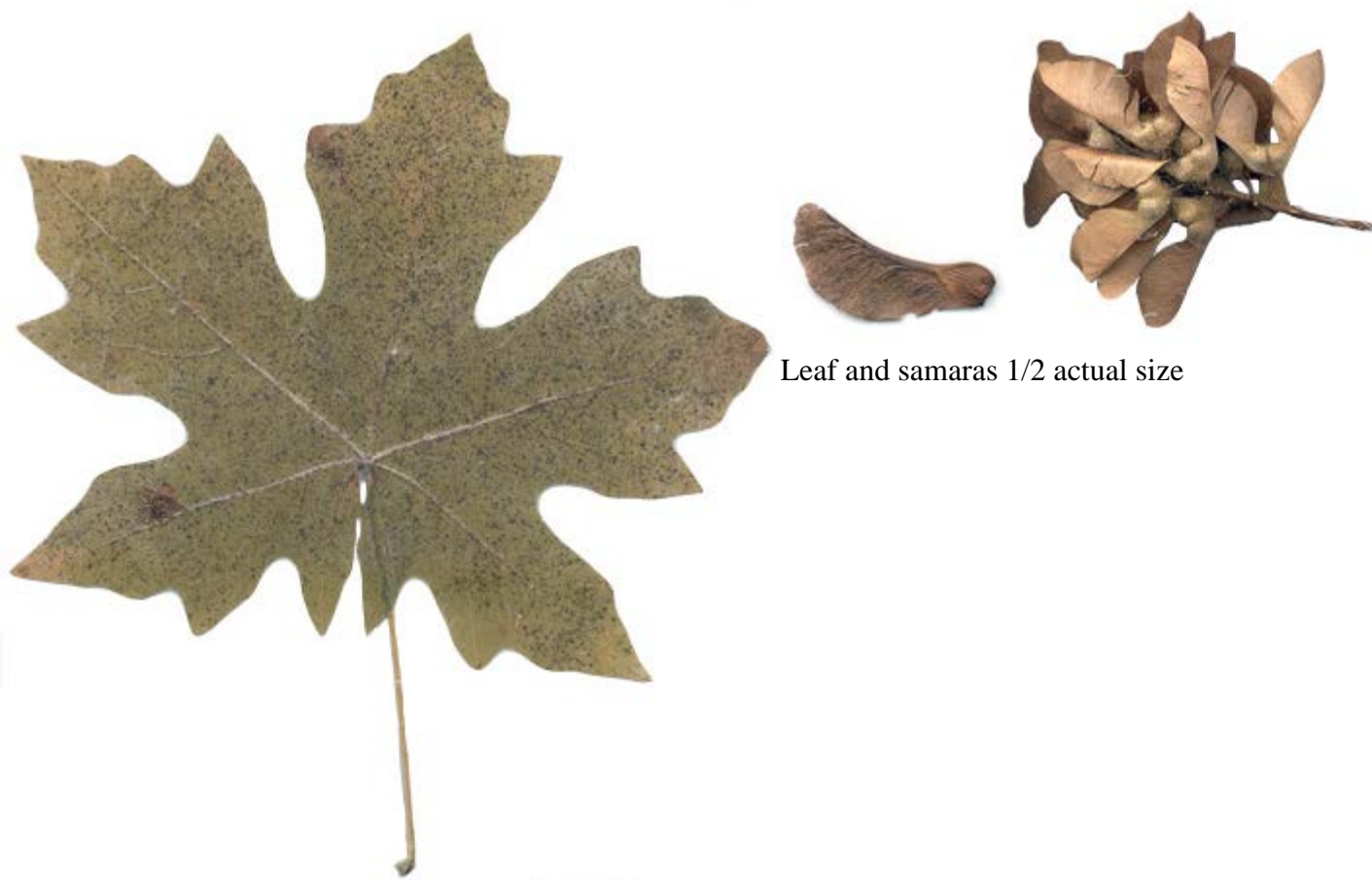


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BIGLEAF MAPLE

Background information:

- Bigleaf maple is the only native maple in Marin County.
- It often grows along streams in the company of redwoods. The large leaves are an adaptation that allow it to make use of as much as possible of the light that filters through the canopy of taller trees.
- Many children are familiar with the maple helicopter seeds called samaras by botanists. The wings of these seeds allow them to travel away from the parent tree and hopefully land in a place where they have more room to grow than if they had simply fallen at the foot of the parent tree.
- Native Americans in Washington and British Columbia used an infusion of bark for tuberculosis, the sticky bud gum for hair tonic, the leaves in steaming pits to flavor meat, and the sap as maple syrup. California Native Americans used the seeds as food and the twigs in basketry.



Leaf and samaras 1/2 actual size

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ALDER

Background for teacher/parent:

There are two kinds of alder in Marin, the white alder and the red alder (sometimes called Oregon alder). Both grow along streams, often along with redwoods. The red alder grows near the coast, while the white alder does not grow along the immediate coast. This is a white alder, but children can simply call this tree alder.

The female catkins look like little cones but alders are not related to pines. Often you can see new green cones on a tree along with older brown ones. Alders also produce males catkins.

Native Americans made a red-brown dye from alder bark.



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SARGENT CYPRESS

Background information:

- There are many species of cypress in California, but Sargent cypress is the only native cypress in Marin County.
- It grows mainly on serpentine and is found only east of the San Andreas fault.
- On Pine Mountain there is a pygmy Sargent cypress forest where mature plants are only a few feet tall.
- On Mt. Tamalpais these trees can be fifty feet tall.
- Miwoks used a decoction of stems for rheumatism and for colds.



Leaf is 1/2 actual size

CALIFORNIA NATIVE PLANT SOCIETY TREE STUDY KIT

BLUE OAK

