

How to Make Tree Cookies

Provided by Project Learning Tree at the Minnesota Department of Natural Resources

Use this “recipe” to make tree cookies that not only look good but will also hold up in the classroom for years. **DO ALL THE STEPS!**

Tree cookie size varies. For classroom use, the best cookies are about $\frac{1}{2}$ to **1-inch thick**, and **3 – 6 inches in diameter**.

1. Select a Species ... Select species that have nice, dark annual rings, such as pines, spruces, firs, walnut, and buckthorn. Conifers and Christmas trees (spruce, fir, cedar, pines) provide wood that is soft, easy to cut and sand, and display nice rings. Deciduous trees that show nice rings include oaks, ashes, maples, elms, cherry, and walnut. Both trunks and thick branches contain annual rings. Some of the most interesting cookies have rings that show a variety of growth patterns, or fire scars, or wounds.

2. Cut the Tree ... Use a large tooth pruning saw (available at hardware stores) to cut the tree at the base and trim off the branches. Then cut the main tree stem into log segments three or four feet in length and transport them back to work on.

3. Dry the Logs ... Set the logs or thick branches in a dry, well-ventilated place until sufficiently dried, usually a couple months, depending on the size. Better, if you have access to a lumber kiln, dry the log. Just ask the yard supervisor to stick the tree cookie logs in with the lumber being dried. After three or four days in the kiln, the logs should be sufficiently dry and feel much lighter.

4. Slice the Logs ... Slice the logs or thick branches as thin as the wood allows (typically $\frac{1}{2}$ to 1-inch thick). Use a large-tooth pruning saw or a motor-driven saw such as a radial arm saw.

5. Dry the Cookies ... If you dried your cookies as logs, skip this part. Otherwise, **drying is crucial!** If cookies are not dried properly, they will attract mold and fungus. Store your cut cookies in a dry, well-ventilated surface under low humidity for three to ten days. Turn them over daily to allow both sides to dry. Placing them on a driveway on a sunny day also works well. Air movement is more critical than the amount of sun. If you need faster results, it is possible to very carefully and slowly dry them in an oven set on “warm” (200 degrees or less). This should be done under close monitoring and supervision. Place the cookies on a cookie sheet or foil and allow to slowly dry for three to five hours, turning cookies over occasionally.

A note about cracking... By nature, wood often cracks when it dries, and that is just fine for this project! However, if you desire the perfect “uncracked” cookie, there is a lot of discussion about achieving this. The best way to prevent cracking is to cut cookies from a dried, not green, log or branch. The smaller the cookie, the less likely cracking will occur. Some say that cookies are less likely to crack if they are cut at an angle so that the edges are slightly sloped. Others say it’s better to cut cookies from dried limbs, as the grain is often tighter in the limbs than in the main stem.

Some cookie-makers soak freshly-cut cookies in a solution of 2 pounds of sugar for every gallon of water for at least two days. Use a non-metal container and hold the wood down with rocks to submerge. Cookies larger than 3 inches in diameter and ½ - inch thick need more time. Stir the solution daily. After soaking, put in a well-ventilated place to dry (1 week).

Finally, you can get a similar result if you soak fresh-cut cookies in polyethylene glycol (PEG) when the wood is still green. PEG draws the water out and replaces it with the PEG—a waxy material. It takes a few days to dry and the wood becomes a little heavier. PEG looks and feels like paraffin wax. Dissolve it in an equal amount of hot water, then soak the wood in it for about a month, making sure the wood is totally submerged. PEG is sold under the name of “MiraLAX” (it’s used for constipation). It can be expensive. However, you can get a coupon for it online at the MiraLAX website and find it at Target.

6. Sand the Cookies ... Properly dried cookies may be sanded by hand or with a mechanical table mounted belt sander. Sand first with course paper and finish with medium paper. Sand the cookies until you can count the annual rings easily.

7. Almost Done ... To stand up to the rigors of classroom life, brush, dip, or spray each cookie with a coat of clear varnish or polyurethane.

8. Label ... It’s an added educational benefit if you can tell the students what kind of tree this cookie came from! Write the species’ name on a piece of masking tape and stick it to the final product. Common names like “white oak” or Latin names like “*Quercus alba*” are ok.

9. Deliver the Cookies

Put the cookies in a box and label them with the species names (if known), location of harvest, and your name. Then, **drop the cookies off at any DNR office or field station.** Tell a DNR staff person on site that the cookies are for Laura Duffey in the Central Office (651-259-5263 or 888-646-6367 or laura.duffey@state.mn.us)

The staff person will be responsible for arranging for the cookies to be shipped, delivered or picked up. The Minnesota PLT program then distributes the cookies to teachers who attend PLT educator workshops. Teachers use the cookies with students in their classrooms to teach about how trees and other woody plants grow, environmental factors affecting tree growth, tree identification, and more.

Finally: THANK YOU! Your work will benefit teachers and their classes across Minnesota!

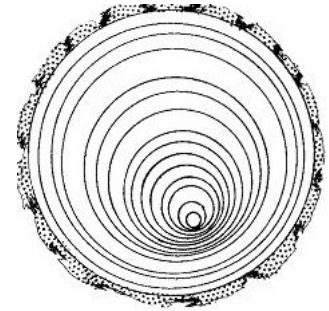
Why does the DNR need tree cookies?

The Minnesota Department of Natural Resources distributes tree cookies to teachers around the state who participate in the “Project Learning Tree (PLT)” program. Educators use these cookies in their classrooms to teach kids how nature records annual events such as droughts, fires, floods, insects, and growth. The Minnesota PLT web site is www.mndnr.gov/plt

How to Read Tree Cookies

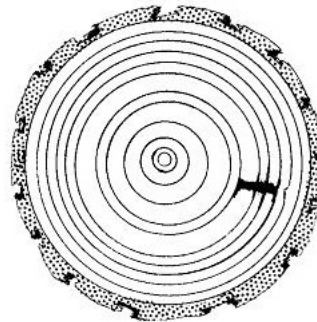
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Sometimes you may notice a ring with wider growth on one side and narrower growth on the other (A). Competition from other nearby trees can cause this condition. Sometimes uneven growth rings result when one tree falls and leans against another live tree and the live tree grew more on one side to curve up around the fallen tree. Other explanations may include a tree growing on a slope or on slumping ground, or a windstorm may have pushed the tree to lean to one side. When that happens, the tree lays on thicker growth on the side closest to the ground in an effort to grow upright again.

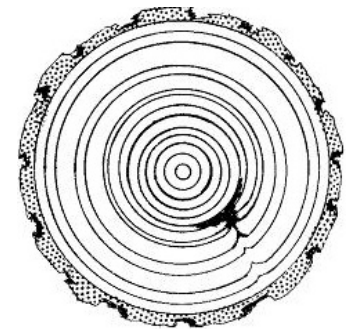


A

Trees record injuries in the form of scars (B). Scars on tree rings may come from fire, insects, or damage from machines like lawnmowers, earth movers, or vehicles. The mark beginning in year six (in C) is all that's left of a branch that died and fell off. Eventually, the tree's trunk grew around the remains of the branch and covered it.

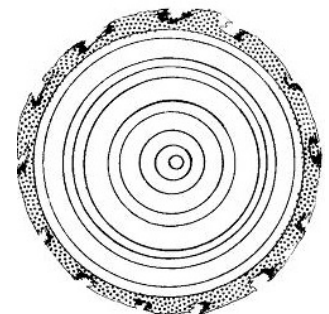


B



C

Narrow and wide rings on the same tree (D) could have been caused by intermittent years of drought, insect damage, construction damage or other disturbance. If a tree loses all or most of its leaves because of an insect attack or drought, it is not able to make food and grows very little that year. Root damage from the construction of a house or sidewalk too close to the tree reduces the water and minerals the roots can absorb.



D

Fun fact: Studying tree rings is called **dendrochronology**. When foresters notice the outside rings of a tree beginning to narrow, which could be a sign that the tree's neighbors are crowding it out.

Are big trees older than smaller trees?

Just because a tree is large, don't assume that tree is older than a small tree. For example, a 50-year old cottonwood can grow as tall as 100 feet and grow more than 300 inches in circumference, while the same aged red maple tree could rarely match the cottonwood in diameter and height.



*Time to thin
this forest.
Notice the
trees' rings are
narrowing
toward the
outer edges*



*Heartrot in
American
basswood*



Fire scar
