

LESSON 7

Traditional Uses of Native Plants

OBJECTIVES

Students will understand that there are many ways in which native plants can be used directly by people today. They will learn at least 2 ways to use native plants themselves. They will consider a variety of topics related to the firsthand use of native plants by people.

METHOD

Students create a craft project, a medicinal salve, and/or a food item from common native Montana plants that are safe for human use.

MATERIALS

(For all 3 activities)

- ✎ Plant identification guide
- ✎ Carving knives (see end of lesson for possible source)
- ✎ Waders (optional)
- ✎ Roasting equipment (fire, oven, or grill)
- ✎ Small pot
- ✎ Beeswax
- ✎ Cheesecloth
- ✎ Olive oil

BACKGROUND

Throughout history, humans have relied on plants for food, medicine, construction and cultural uses. This is still true today. A great number of our medicines, many staple foods (wheat, rice, corn) and material items like clothing and lumber are derived wholly from plants.

In early societies it was impossible to “run to the store” for anything. A bow and arrow for hunting big game, starchy roots for the diet and medicines for managing infection had to be gathered from the landscape. Time of year for harvesting, specific applications, location of resources, how to process and rituals pertaining to some species was information critical to transmit from one generation to the next. Today, we have lost much of this knowledge, even though it was historically present in all cultures.

By engaging students in the study of *ethnobotany* (people & plants), we can rekindle a more fundamental relationship with the landscape.

Grade level: K-12

Subject Areas: Biology, language arts, visual art, social studies

Duration: 1-2 hours for each activity, plus travel time to field site to collect plants, and preparation time for crafting.

Setting: Field site for gathering plants, any location for crafting (may need access to kitchen, grill, or fire; see procedures).

Season: Fall or Winter to collect plants; anytime for crafting

Conceptual Framework Topic: Ethnobotany

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DISCUSSION TOPICS:

How do we live here?: Learning traditional uses of native plants challenges our modern view that natural resources are either completely exploited or completely “preserved”; discussions of sustainable & appropriate use of resources can be readily integrated into lessons. For example: What is sustainable use? Is it different for societies now than in the past? How should natural resources in Montana be used over the short and long term? Do we have an ethical obligation to maintain species diversity, ecological processes and natural beauty? Can we use Nature for our needs without permanently harming it? Is using native/wild plant species for the study of ethnobotany a legitimate use of natural resources today? How might it compare to other resource use in our daily lives?

Cultural/Historical connection: Sampling wild foods, learning about traditional medicinal uses and natural-crafting with plants link students culturally to the past. How did plants help Native & Pioneer peoples deal with medical concerns, potential hunger and material needs? Was it in their best interest to conserve plants in some way? How do you think harvest by Native peoples affected populations of plants?

Living closer to the land: Interacting with nature as an active participant creates an intimacy with the land that cannot be achieved with traditional environmental education. It helps us recognize that humans have a place in the natural environment. How does using plants for various projects make you feel about the species? Does it make you view the landscape differently?

Invasive Species: The problem associated with invasive species becomes more tangible when viewed from an ethnobotany perspective. That is, because weeds threaten the native plant communities that we use for educational purposes, they are a management concern. How do invasive plants affect native plant populations? Do invasives threaten ethnobotany-education?

CONSERVATION, ETHICS & POTENTIAL RISKS

It is important to conserve native plants and habitats. Lessons that focus on gathering must take this into consideration. We should not impair a species’ ability to reproduce at particular sites. Plants must occur in healthy abundance if some are to be harvested. If it is possible to harvest a species after it has gone to seed, all the better.

There are no hard and fast rules about gathering wild plants, so a sense of overall ecological health of the species and ecosystem is a prerequisite to heading out into the field. It is a good idea to move around frequently so no single

population of plants is too heavily impacted. ***It is important for teachers to closely supervise students' harvesting of plants***, for safety as well as conservation reasons. Any aesthetic impacts of plant harvesting (i.e. digging, cutting, etc.) should be mitigated after gathering takes place.

In this lesson, the cattail doll and toy duck projects are based on Ojibwa designs. Most native peoples in our region used aspen and cottonwood for medicine and material culture. This practice was likely passed on to trappers and settlers of euro-American/euro-Canadian descent. The medicinal salve we make today differs from the past in that we use an olive oil base instead of bear fat.

PROCEDURE

Cattail (*Typha latifolia*), widespread across Montana in wetlands, some riparian areas, and other moist habitats, has many uses.

CAUTION: There are always risks present when using wild plants, particularly for food or medicine. Especially in wetlands, cattails should not be gathered if either Douglas' water hemlock (*Cicuta douglasii*) or poison hemlock (*Conium maculatum*) is nearby. See the *Resources* section of this Guide for identification and resources to learn more about these plants. Although cattails are universally known as a safe food source, teacher discretion is advised.

Food

Cattails are highly edible; in the spring, the new shoots are a delicacy. (Always take care to ***avoid using plants that may have been sprayed with herbicide, or that may be growing in polluted water.***) The golden pollen (late summer) can be made into flour or mixed with wheat flour. Cattail roots contain a significant quantity of starch, a rarity for plants in the Rocky Mountain region. The root is the most calorically valuable part of the plant. The easiest way to consume cattail roots is simply to roast them whole. Find an area where the plants are growing in at least a few inches of water; this operation may require waders. Slowly pull up the desired number of plants and try to preserve the spreading (rhizome) horizontal root stalks. Cut them off near the base of the plant. Rinse any soil from the roots and set them on a bed of glowing coals. Roast for several minutes, turning occasionally. Pull from the fire and let cool. Peeling the outer skin will reveal an inner core of fibers and a white, starchy material. The whole package (minus the skin) is chewed. Swallow the starchy matter, which has a pleasant potato-like flavor, and spit out the stringy fibers.

Source for Scandinavian "Mora"
knives and carving tools:
[http://www.ragweedforge.com/
SwedishKnifeCatalog.html](http://www.ragweedforge.com/SwedishKnifeCatalog.html)

Crafting

As a material for natural crafting, cattails are superb. They should be harvested in autumn, when the leaves turn brown. They can be kept indefinitely if dried and stored. To use, soak them in water (warm is better) for an hour or so, until pliable. (They are unusable if green or too brittle) A simple toy duck can be made even by young children. Cattail dolls are generally reserved for older kids and adults. *Please see instructions with illustrations at the end of lesson.*

Cottonwood or Aspen (*Populus spp.*)

Cottonwood (Black, Plains and Narrow-Leaf species) are widely scattered across Montana and strongly associated with streamside, riparian habitats. Aspen are usually found in moist montane forest or montane meadow habitats. The presence of aspen clones indicates water near the surface.

Medicinal Uses

Both aspen and cottonwood contain salicylic acid, which is a pain reliever similar to aspirin. A simple and safe way to use cottonwood medicinally is to make a medicinal salve. Gather some of the buds in late fall or spring. They exude a sticky, yellow-red substance called "balm of Gilead" by herbalists. Be sure not to harvest buds from the tips or "terminal end" of branches since this will inhibit growth of the limb. Gathering from "side branches" is fine, just be sure to move around and not overdo it. You will only need about a handful per ounce of salve to be made.

Put the buds in a small pot and cover them with olive oil. Add a small quantity of beeswax (the ratio of beeswax to olive oil is about 1 to 8) and gently simmer for about 10-15 minutes. Strain with cheesecloth and pour the mixture into a tin like an Altoids® candy container or something similar. Once the salve cools, it can be used on sprains, cuts, etc. It is mildly antiseptic and promotes healing of minor skin injuries. If your finished product is too "thin", reheat and add more beeswax.

Crafting:

The wood of standing dead aspen and to a lesser extent cottonwood is excellent for carving spoons, bowls and other useful implements. The best wood to harvest is upright, without bark and not rotten. Sections of wood at least 2 inches in diameter can be used for spoon carving. Sections about 6 inches in diameter can be split in half and made into bowls by using the burning method. *Please see instructions with photos at the end of lesson.*

How to Make a Cattail Toy Duck



1. Take a well-soaked cattail leaf that is relatively long.



2. Cut off any "woody" sections from the end of the leaf.



3. Tie a simple overhand knot (half-hitch) on the narrow end of the leaf. This forms the head.



4. Make a 90-degree bend about two inches from the head.



5. Begin wrapping the remaining leaf around the base of the neck; this forms the body.



6. Cut off any excess.



7. With a thin strip of cattail tie off the middle of the body.



8. Before long, you'll have many waterfowl in your life! And yes, they float!

Cattail Doll Instructions



1. Begin by wrapping one or two leaves around the fingers to fashion a head.



2. You want to end up with a head that is slightly oval. It should be about 1/7 to 1/8 the height of the finished doll.



3. The head is neatly covered with 3-5 leaves and twisted at the "neck".



4. Tie off the neck with a strip of cattail and set aside.



5. For the arms, you will need 3-4 leaves; the ends should be alternated for consistent thickness. Hold them in a bundle in front of you. Imagine the bundle divided into thirds; at the spot $\frac{1}{3}$ from one end of the bundle, begin twisting until the cattails kink.



6. Put the "kink" between your teeth; you will continue twisting the ends as before, but now also wrap both ends clockwise. This will create a rope or cord that will serve as arms for your doll. This cordage technique can be tricky to learn without an instructor.



7. When you have twisted enough cord that equals about half the height of your finished doll, tie it off with a strip of cattail (like you did with the neck earlier). Then begin twisting the other arm just like before.



8. You should end up with two arms that will be approximately the height of your finished doll.



9. Take the arms and insert them in between the leaves of the head & neck.



10. Begin laying leaves over the shoulders. This will create the impression of clothing and give mass to the body. Continue until you feel the body has enough bulk.



11. Take a strip of cattail and tie off at the doll's "waist".



12. With scissors cut off excess leaves. Ending up with a good doll is all about proportion; the head is about 1/8 the length of the body, the arm span should be about the height of the doll.



13. The completed doll (left) and some variations.

Cottonwood or Aspen Crafts



1. Sections of sound (not rotten) dead aspen or cottonwood that are at least 6 inches in diameter can be fashioned into bowls, cups and other containers. Split a “round” of wood in half and place a coal or coals from a fire on top. A straw of some kind will help you focus your breath on the coal, which will begin to burn the wood. After a few minutes of burning, dump the coals back into the fire and use a rock or stick to thoroughly scrape out the cavity. Do not use steel tools for this, as it is unnecessary and will dull them quickly. Once you have burned out the desired amount of wood, do a final scraping and pour some water in the bowl to extinguish any remaining hot spots.



2. Using carving knives, rasps and sandpaper it is possible to create simple, beautiful and functional objects from wood. After a final sanding with a high-grit paper, give your bowl or spoon a few light coats of olive oil to protect them from moisture.