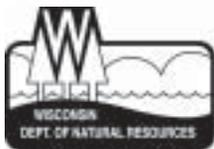


Learning to Hunt

Hosting a hunting-based outdoor skills event in your community



Mary Kay Salwey, Ph.D.
Wisconsin
Department of Natural Resources
2004

Credits

Project Director

Mary Kay Salwey, Ph.D.
Wisconsin DNR
Bureau of Wildlife Management
Box 7921
Madison, WI 53707-7921

Editorial Assistance

Nancy Williams
Carrie L. Armus

Artwork

Eric DeBoer
Mary Kay Salwey
Dynamic Graphics
Cindie Brunner

Photos

Robert Queen
Mary Kay Salwey
Mike Roach



Design Concept

Blue Raven Graphics

Electronic Layout

Mary Kay Salwey, Wisconsin DNR

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Blowing Embers

The woodcraft of fire making

Participants learn how to safely build three types of campfires and how to get them

started in any weather.

They also learn how to make a firepack and how to start a fire without matches.



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Blowing Embers

Learning to Hunt

Objectives

Participants shall:

Demonstrate how to build three different styles of campfires.

Describe or demonstrate how to get a fire started in any weather.

Start a fire without matches.

State several important rules of fire safety.

Equipment

Assorted matches: safety, paperbook, fireplace, etc.

Candle in a glass jar with a glass lid

Shovel

Buckets of water

Adequate supply of tinder for four fires

Adequate supply of kindling for four fires

Adequate supply of seasoned firewood for four fires

Clean cloth

Magnifying glass

Two flashlight batteries

One piece of fine mesh

steel wool

Flint and steel

Bow and drill

Per participant:

1-gallon size ziplock bag

1 thick rubber band

Tinder and kindling

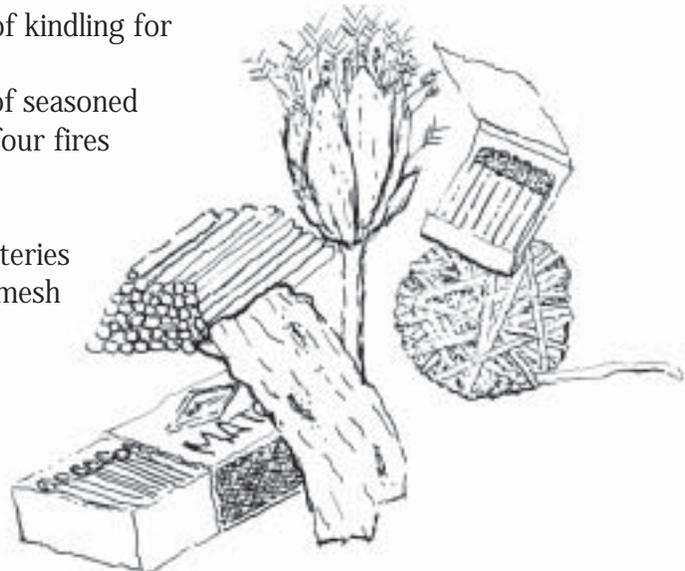
10 wooden matches

Whittling knife

Small, dry stick

Station Setup

Locate a sheltered area and create four fire rings using your shovel to dig out the sod or scrape away the forest floor debris in a 3-4 foot diameter circle. Place one set of tinder, kindling and firewood at each of the four fire rings. Get one of the fires started before your group arrives. Have a large assortment of tinder, kindling and firewood all mixed in a big pile near your fire circle. Have all the equipment ready for making fire packs, and for making fire without matches.





Background Information

There's nothing like the ancient symbolism, the warmth and feeling of security and sense of cheer that a campfire adds to an outdoor activity. To build and share a campfire with others is a bonding experience. It can strengthen existing bonds between old friends and build bonds between strangers who may be part of an organized outing. For an individual, a campfire builds bonds between that person and the natural world and its elements: wind, smoke, fire, heat, nighttime sounds and nocturnal wildlife.

A person who practices traditional woodcraft such as firemaking acquires a key to the door of the natural world. The aspiring woodswoman or woodsman soon learns which trees, shrubs and herbs provide tinder and kindling,

where these plants grow, and how and when to gather the flammable materials. While some hikers find campfires offensive and they say the only ethical way to travel in the wilderness is to cart along propane backpack stoves, they are paying a price in their own way. True, camp stoves and other modern hiking equipment allow hikers to leave little trace of their passing. However, the equipment they carry tends to isolate them from the wilds and to keep them ignorant of woodcraft. Even a half-century ago, Aldo Leopold lamented the trend towards woods ignorance when he exclaimed that woodcraft was becoming the art of using gadgets.

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Activity A

Fire legend

Procedure

When your group arrives at your station, seat them around your fire circle.

Tell them that they are going to learn some basics about firebuilding, but that you would first like to share with them a story about the first fire on Earth.

To Native Americans fire was an extremely important element in the natural world...one they highly

revered. Some tribes viewed fire as one and the same person as their sacred sun, which they often considered as a god. Some native tribes thought of fire as a grandmother, and respectfully addressed her as "Ancient White" or "Ancient Red." Native hunters who returned to camp after a hunting expedition would feed Grandmother's sacred flames a piece of any animal they had killed.

Native Americans used fire to cook their meats, smoke their buckskins and straighten the spear and arrow shafts they used for hunting. They used fire to hollow

out their wooden canoes, bake their bread, harden their pottery, prepare their herbal medicines, illuminate their dances, and light their peace pipes. They also used fire to burn off and rejuvenate grasslands to attract the animals they hunted.

Tell your group the following legend by one of the last traditional medicine men of the Cherokee Nation. In 1888, this medicine man recounted the Cherokee creation myth about the first fire.



In the beginning there was no fire, and the world was cold. The Thunderers, who were gods of the upper world, sent down lightning and put fire into the bottom of an old hollow sycamore tree. Many animals tried to get the fire. The raven tried, but his feathers were scorched to black. He flew away frightened. The barred owl tried, but she ended up with white rings around her eyes from the windblown ashes. The black racer, a very fast snake, was charred all over by the hot coals. Finally, the littler water spider said that she would try. So she spun a thread from her body and wove it into a little bowl that she fastened on her back. Then she crossed to where the fire was still burning. She put one little coal of fire into her bowl, and came back with it, and ever since the Cherokee have had fire and the Water Spider still keeps her little bowl.



Fire building basics

Procedure

Safety First

Begin your demonstration by reminding your participants to be careful so they will avoid injuring themselves, other people, plants and the natural world when working with fire. They can prevent unwanted fires by always using a fire ring if one is provided. They may want to avoid circling a fire with rocks as some rocks contain moisture and can explode. Fire also scars rocks. Explain that the most frequent fire injuries occur from striking matches, being burned by hot coals, stepping or falling into fire pits, or spilling hot liquids or foods. Never allow horseplay around a fire, such as running or playing with cooking skewers and hot sticks. Tell your group that the best initial treatment for a burn is to cover it with ice or cold water, then wrap in a clean cloth. If people are seriously burned, rush them to a doctor or hospital emergency room right away. Avoid using lotion, first-aid cream or ointment.

Never leave a fire unattended, and be ready to put out the flame if needed. Keep a bucket of water or dirt nearby in case of

Activity B

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emergency. Remember that windblown sparks can travel 100 feet or more. Be extremely careful on windy days. Explain the importance of striking matches away from the body. Wooden matches are easier to light than paperbook matches and long, wooden fireplace matches are safest.

Fire Building Techniques

Explain that in order to have a fire you need three things: a source of flame, a fuel to burn and oxygen. Take out your jar candle and a match. Explain that in this case, your source of fire is the matchstick, the fuel is the wick and wax and oxygen is in the air. To demonstrate the need for oxygen, place the lid on the burning candle to demonstrate that as the flame uses the remaining oxygen trapped by the lid, it eventually extinguishes itself.

To provide more heat for warmth and cooking than the candle provides, you will need more than a small wick and wax. Describe the three sizes of wood necessary to build a successful campfire:

Tinder. Tinder consists of dry, fibrous or flaky material that catches on fire easily. The dry, shredded inner bark of eastern red cedar or the flaky bark of river birch or paper birch is a great source of tinder. Mouse nest material, dry shredded grasses, dry pine needles, wood

shavings, pine cones, tiny twigs and even milkweed fluff, thistledown and the down from virgin's bower will also work. Dead greenbrier vines make excellent tinder even if it has rained for days. Ask participants where they would collect tinder around their campsite without damaging the environment. Bark peelings and twigs should be taken from dead and downed trees. Dead wood should make a snapping sound when broken. Have participants make a "fuzz" stick. This is a good fire starter. To do this, have them take a small stick and whittle the ends so that the shavings stick out around the core of the stick.

Kindling. This consists of twigs about the size of your thumb. Long, pitchy slivers from a wind-shattered pine, and thick bark from hemlock or pine snags burn quickly to a bed of coals. Kindling is added after the tinder has caught to get the fire established.

Fuel. Fuel is larger wood, that we normally call "firewood." This maintains the fire once it is going.

Ask participants to sort a pile of mixed-up firewood into the three categories of tinder, kindling and fuel.

Next, demonstrate how to build a fire. Begin by building a small

triangle of sticks. Take two medium-sized sticks and criss-cross them in a “V” shape. Then place a third stick across the two legs of the “V,” closing the “V” and forming the triangle. Place a small pile of dry tinder inside the “V” against the front, elevated stick. Light this tinder. Carefully blow on the flame, if necessary. Again point out the need for plenty of oxygen and that blowing helps get more oxygen to the flames. After a flame is established, add more tinder and kindling. Add fuel wood in one of three different designs:

A **teepee** fire is the basic starter fire. Fire burns best when it has something to climb up. The teepee fire produces hot quick flames. To build this fire, place several logs leaning on each other in an upright fashion...in the shape of a teepee. Set these logs inside the “A frame” containing the tinder and kindling.

The **log cabin** fire is built by stacking fuel wood in a square, log cabin fashion, around the tinder and kindling. This type of fire produces a good bed of coals that can be used for Dutch oven cooking, foil cooking or grill cooking.

The **wagonwheel** fire is created by placing fuel logs in a wagonwheel-spoke fashion around the center of the bundle of tinder and kindling. This type of fire concentrates heat in the center and is good for one-pot meals. As the fire burns down, the log spokes must be pushed in toward the center to keep the fire burning.

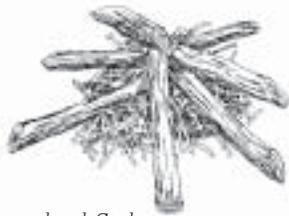
Keep your fire burning throughout this demonstration. Go to the other three fire pits and let your participants place tinder, kindling, and fuel in each one of the three fashions described above, but don't let them light the fire.



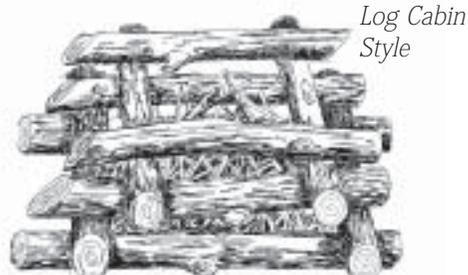
Triangular Base



Teepee Style



Wagonwheel Style



Log Cabin Style

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Leave No Trace

Encourage your participants to respect the natural world. In areas without existing campgrounds, build a fire in a forested area near a stream with plenty of dead and downed wood. Avoid building a fire on top of a rock outcrop or on exposed or fragile terrain for the fire will damage and scar rocks and adversely affect the plants growing in sensitive areas, such as alpine meadows. In the forested area, select a spot for a fire pit that is away from overhanging or outstretched limbs of trees and shrubs. Clear away the twigs, leaves and needles on the forest floor and put them off to one side for later use. Then dig a small hole in the cool dirt to contain the flames and cradle the coals. If possible, dig up a several-inch deep sod layer and place it to the side for putting back later. If rocks are handy, place them in a horseshoe shape around the fire to reflect the heat back into camp. However, be aware that some types of rocks

contain moisture and can explode as the moisture heats and expands rapidly.

Participants should, likewise, be encouraged to take as great a care in dismantling their fire as they did when building it. Never leave ash heaps and charred logs behind. Scoop up cold ashes and broadcast them into the underbrush, or scatter them in the small pit before replacing the chunk of sod back over them. Be certain the ash and small coals are completely out. These should be cold to the touch. If uncertain, sprinkle water over the unburned fuel, charcoal and ashes until all steaming and sizzling stops. Put the rocks back where you found them. Press the sod down firmly into place and cover the spot with the twigs, leaves and needles you cleared away earlier. Try to leave no clue of your presence.



Fire packs

Procedure

Now ask your participants to make a fire pack that they can take home with them. A firepack is the makings of a campfire, tucked away in one's pack for a soggy day. It contains a handful of dry tinder, a handful of kindling and some wooden matches stuffed into a waterproof container such as a plastic bag wrapped tightly with a rubber band.

To use the fire pack, take out the tinder, fluff it into a nest and set it upside down on the ground. Open up one side of the tinder nest to accept a lit match, then arrange the firepack kindling in the shape of a teepee over the nest. Enlarge the teepee with the driest pieces of wood you can find. Don't lay on chunks, but choose long, thin pieces that the flames can quickly grab. And leave a space between the kindling sticks, because fire needs as much oxygen as it does wood to burn. When the teepee is a foot high and a foot wide at the base, strike a match and put it to the tinder.



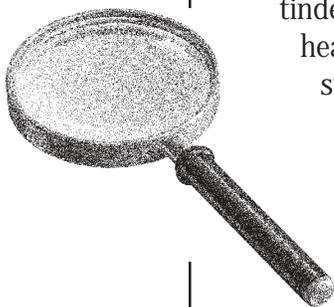
Activity C

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Activity D



Making Fire

Procedure

For an advanced lesson, demonstrate some of the matchless methods of making fire.

Magnifying Lens. Use a magnifying glass to catch and concentrate the power of the sun's rays. When you direct the concentrated heat source at dry tinder or leaves the intense heat causes the tinder to start smoking and eventually burst into flames. Encourage the flame to appear by gently blowing on the smoking tinder.

Flint and Steel. For this method, you will need a hard carbonized steel striker such as an old file or pocketknife, a sharpened piece of flint, and some charred cloth, steel wool or cotton balls. To make charred cloth, take a metal container, such as an old film canister. Punch a hole in the metal lid with a nail. Fill the can with strips of 100% cotton cloth. Set the can on a stovetop until it smokes. When the smoke ceases coming out of the hole, remove the can from the stovetop until it cools. The cloth should now be well charred. Now, place a piece of charred cloth on a chip of

wood. Strike the flint downward across the steel striker until a spark falls on the charred cloth. Place the spark and cloth in a nest of dry tinder and blow gently on it. This may take quite some time to get the hang of this, but it **does** work! Keep trying.



Batteries and Steel Wool. You will need two flashlight batteries, a piece of fine-mesh steel wool (you can find this at most hardware stores), and a pile of tinder. Stretch out the piece of steel wool. Stack the batteries on top of each other and hold in your left hand. With your left hand's little finger, firmly hold one end of the steel wool at the bottom of the lower battery. With your right hand, take the other end of the steel wool and rub it across the top node of the upper battery. When you see a spark, place it on your tinder and blow gently. This is a fairly easy way to start a fire.

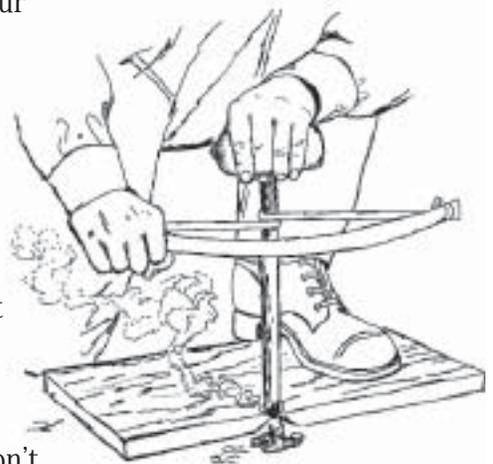
Bow Drill. This Native American method of making fire was used for thousands of years. It represents an ancient and distant way of life, largely destroyed and lost in the white man's world. The bow drill allows one to gain a sense of appreciation for this way of life. The bow drill creates fire by friction. A wooden spindle, or drill, is held vertically in place against a flat piece of wood (the fireboard) at one end, by a socketed wooden handhold at the other end. The drill or spindle is turned in place with a curved wooden bow strapped with a piece of rawhide, sinew or nylon parachute cord.

Some of the best woods for making fire include western red cedar, basswood, and yellow poplar. The fireboard should be about a half-inch thick, three inches wide and a foot or so long. Carve a spindle out of a piece of wood (the same species as the fireboard) about 8" long and $\frac{3}{4}$ " in diameter. Taper both ends. Grease the handhold end of the drill by running it through your hair or by dipping it in some pine sap. Find a slightly curved 2-foot-long branch for the bow. Sugar maple works well. Tie a thong of rawhide, sinew or nylon parachute cord to each end. The handhold should be a four-inch length of walnut or eastern juniper heartwood split in half. With a large pocket or sheath knife, start the socket hole in the handhold by



sticking the point of the knife into the flat side of the handhold and twisting it a few times to make a shallow hole. The same should be done toward one end of the fireboard, about three-quarters of an inch to a full inch from the long edge of the board.

Shape your tinder bundle into a little bird nest. Place the fireboard on the ground at your feet. Kneel on your right knee. Place your left foot on the fireboard to hold it in place. Loop the bowstring once around the drill. Set the dry end of the drill in the socket of the fireboard. Hold the greased end in the socket of the handhold. Place firm but not hard pressure on the handhold.



Now, align yourself so you don't lose your balance and begin to move the bow back and forth in a

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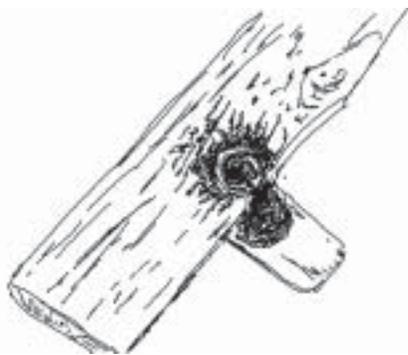
sawing motion, causing the spindle to spin. When you have created an indentation in the fireboard deep enough so the spindle doesn't pop out, put the spindle down and cut a notch in the fireboard. Cut a V-shaped notch all the way through the board, with the wider end of the V at the edge of the board, and the point of the V not quite to the center of the hole. The ashes you create will get caught by the notch and be pushed down into it. Place a wood chip under the V-shaped notch of your fireboard to collect the ashes.

Again, align yourself directly over the spindle and begin the bow strokes. Start the movement slowly, using long strokes. Gradually increase both the speed of the bow and the pressure on the spindle. Smoke will begin to rise from the fireboard. Continue the stroke with increased speed and pressure until smoke is rising freely from the pile of ashes you have collected.

Watch for a change in color of the smoke. At some point, when the ash pile has grown and is smoking steadily, pick up the wood chip and very gently blow on the pile to see if a coal begins to glow red.

Gently place the glowing coal into your tinder nest. Blow gently, wrapping the tinder bundle around the live coal, until a flame appears. The tinder will burst into flames as shown on page 345. Be prepared to place the tinder onto the ground and begin piling small slivers of kindling around it in a teepee fashion until the kindling is going strong. Then continue to add larger kindling and finally the fuel wood.

The first attempt may not produce a fire. Be sure your wood is dry, the bowstring taut enough to create enough spin on your spindle, and your notch is cut correctly. Keep trying—it takes practice!



Catch the ashes on a small woodchip.

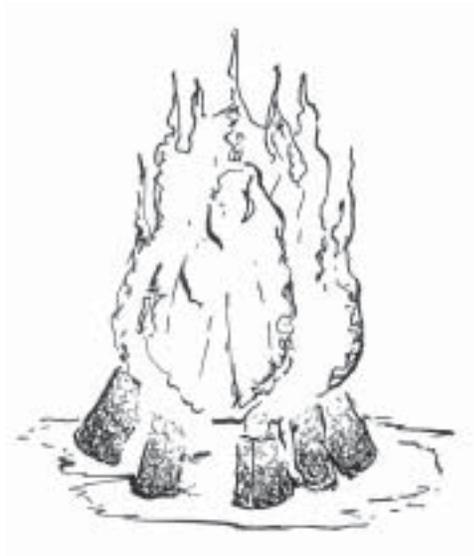
Pick up the woodchip with ashes on it and blow gently to see if a tiny coal will glow red. Then place the coal in a prepared pile of tinder.



Fire challenge!

Procedure

- Ask participants to build a fire with two matches.
- Ask them to build a fire with one match.
- Ask them to build a fire with wet wood.
- Announce the approach of a thunderstorm, douse your fire with a half-gallon of water and ask participants to remake the fire.



Activity E

Station
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Blowing Embers

Learning to Hunt

References

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- Ancient White, Ancient Red***, Burt Kornegay, Wildlife in North Carolina, 1995. (article).
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