

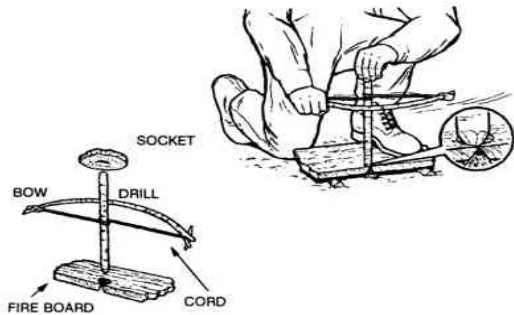


BADEN-POWELL LYME BAY SCOUTS

Fire Lighting Methods



TO MAKE A FIRE BOW & DRILL FOLLOW THESE INSTRUCTIONS:



Find or make a bow by looking for a 2 to 3 foot long curved branch or flexible piece of wood.

Either make a string or use a ready made one such as a shoelace or piece of cloth. The bow should be strung and have slight tension but not enough to use for casting arrows.

The bow spins a dowel or pin as you pass the bow back and forth while the string is wrapped once around the middle of the dowel.

The dowel or pin is made of 1/2 to 1 inch diameter wood being a branch or cut from a piece of wood and whittled into a pencil shape about 8-10 inches long.

One end is made to prevent friction by being very pointed like a sharpened pencil end. The other is whittled to be broad and slightly rounded to create a lot of friction. The typical shape of the edge of your thumbnail is a good start. It is recommended to lubricate the frictionless pointed end to further prevent friction.

A handhold or socket is made by finding or making a small 1, 1/2 by 3 inch handhold that is about 1/2 to 1 inch thick. This can be a rock or a piece of thicker branch that has a small whittled hole in the very middle that simply hold in the frictionless pointed end of the dowel. This hole should be minimal and not penetrate the handhold and not allow any part but the very tip of the dowel point to touch, thus creating minimal friction.

The hearth or fire-board is made of the same material or a softer material as the dowel or pin and has a hole for the friction side of the dowel. The fireboard should be flat and have a hole along an edge with a "V" shaped notch cut into it to allow for heated char to fall into while spinning the dowel with the bow.

The char or coal is made and caught with a leaf or other flat piece of material placed under the V notch. Once the coal is made red hot it is put into a tinder bundle and blown until it ignites the tinder bundle.

The fireboard should be on the ground with the dowel placed vertically in the hole. The frictionless end being upright and in the hole of the handhold, which is grasped by the crouched user. The dowel has the bow string wrapped once around it in the middle and so when the user pushes or pulls the bow the dowel being sandwiched between the handhold (socket) above and the fireboard below has to spin along the string.

The user aggressively passes the bow back and forth maintaining downward vertical pressure on the dowel, which spins creating friction at the base. The friction causes the fireboard and dowel fibres to heat up and break and fall into the notch which catches them and provides some insulation. This accumulation of fibres heats up more with each pass, begins to smoke and is made into a red-hot coal and fire is produced! This coal is put into a tinder bundle and blown aggressively until the tinder lights and that is placed under more tinder and kindling to get a sustainable fire. Nothing beats your first fire started in this way!!!



To make a fire plough follow these basic instructions.



Begin by creating a fireboard that is at least 10 to 12 inches long. Either notch a groove the entire length of the fireboard or do this by applying some controlled passes with the “plough-stick” The groove is what guides your plough-stick as you vigorously push and pull the plough-stick down the length of the fireboard. A V-notch is made at the end of the groove to catch the heated fibres in the same manner as with the bow-drill.

The plough-stick is made of a harder wood than the fireboard and is worked at a 30-45 degree angle to the fireboard. The friction end is made to have the entire tip surface touching the groove so it appears as a bevelled tip coinciding with the angle of use.

Hold the plough-stick in both hands and with your body weight adding additional downward pressure, vigorously pass the plough-stick back and forth along the groove in the fireboard up to the v-notch, pushing heated fibres into notch. Do this until a lot of smoke and a good size pile of fibres/char is built up. It takes a bit of practice not to let the plough-stick fall off the board and wreck your pile of char. Blow and place coal in tinder bundle when red hot.

Practice, practice, practice! This takes a lot of stamina! When doing these techniques you have to keep an eye on the friction surfaces, sometimes they glaze over and don't create much heat and so you have to roughen them or change woods. See other fire methods posts for choosing wood and materials.

Fire Making & Fire Starting:

There are a few fundamental fire making secrets that will help you become a fire making expert. After you understand them you will be able to generate warmth in just about any circumstance if you apply the physics and the techniques correctly. We will focus here on the theory and physics using a match as our ignition source. Simply apply the following information to the other different fire-making techniques shown in this website and you'll find success in your new found skill!

How to make Fire. All fires need;

1. **Oxygen**
2. **Heat/Ignition Source**
3. **Fuel**

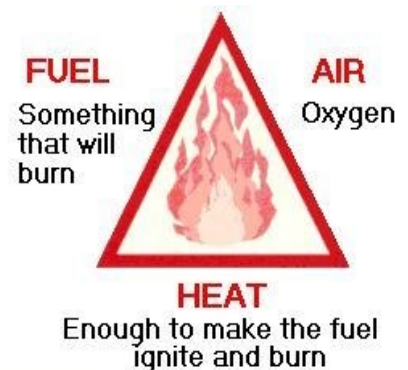
Without each of these three things present, you will not have fire.

Essential terms and definitions.

Oxygen- Essential for combustion (burning). Luckily for us it's in the air we breathe, so as long as you are breathing you have it available. You'll notice if we try to put a fire out we try to eliminate the fire's access to oxygen by smothering the fire in sand or water.

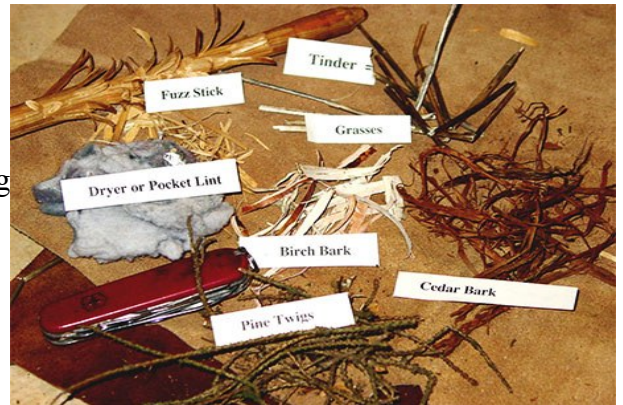
Heat/Ignition source- Any source of heat can potentially be used to ignite a fire. To ignite the fuel must reach a temperature at which it can no longer hold onto its trapped elements. Heat excites the material's molecules and at a certain point for each individual fuel there comes a reaction we know as ignition or combustion. A match will provide sufficient heat to warm certain fuels up to the required temperature allowing ignition, if oxygen is present as well.

Fuel- Material that will heat up to the required ignition temperature and sustain at least that heat given sufficient oxygen supply. Wood is typically used although various kinds of fuel may be used such as clothing, fibres, certain metals, polymers and flammable liquids.



Tinder- Very dry fine fibres that easily heat up and ignite. Examples are very small (toothpick diameter or smaller) broken twigs, bark strips, shavings and grasses. They must be thin and dry to allow heat to penetrate them quickly causing the essential rise in temperature, in turn causing ignition.

Kindling- Working from the small size and dryness of tinder you need gradually larger pieces of fuel to supplement the ignition and grow the fire. This Kindling can be anything from the size of toothpicks up to the diameter of a pencil. After you have gathered plenty and started a healthy fire using first the tinder then the kindling you add larger fuels/wood until you can add large logs if needed. Each new larger fuel piece is heated and dried by the smaller source so it is important to have plenty of kindling and a good amount of tinder to insure enough fuel is present to heat and ignite the larger longer burning fuels.



1st Gather the tinder by fleecing the area for very small twigs such as the dead and dry pine twigs found near the base of pine trees. The smaller the tinder the easier to light. Breaking it into smaller pieces can help. If you peel the already loose strips of bark from cedars, and birches and agitate it by grasping it in both hands and twisting and rubbing it will break up and burn very easy so long as it is dry. Making a “tinder bundle” is very helpful. This is a bird nest shaped bundle of grasses, bark or other tinder that allows you to set a coal inside and while holding and blowing, to ignite the tinder which is then placed among more tinder and some kindling.

2nd Gather the kindling which should be of dry wood, plant stalks, larger thicker pieces of bark and branches. Having a large pile in advance is very important as the tinder burns very quickly and you won't have time to run out and scavenge more wood if you run out.



3rd Gather the larger pieces of wood and logs that will be used for sustaining the fire for longer periods of time. Again... Have a large pile ready and accessible! (Saves you having to gather in the middle of the night or a snow storm.)

4th Prepare the fire site. After you have gathered all the necessary materials, and designated a location away from vegetation and on sandy or rocky soil make sure you have a wind block if it is at all windy. This could be made of the soil mounded up, a snow wall, tarp, coat or clothing or a large log will do. This will protect the fragile flames of your match and lighted tinder as well as deflect heat back into the fire causing

the fuel to raise temperature and dry out that much quicker. If the soil is not sandy or is full of roots you may decide to carry in sand or rocks from another area. I used to be a forest fire fighter and saw many fires stay active by burning through the “duff” or the thick peat or decomposing plant fibre rich soils. Be wise.

5th Recheck steps 1-4 and place 2 or 3 sticks about the diameter of your finger on the fire site allowing a slight gap for air (oxygen) circulation. This is also where you hold the match when starting the fire.

Digging a small pit with a stick then building up the tinder on top can also aid in this. Build up the tinder on top of these sticks or over the hole and then add some kindling so as to have plenty to start heating but so as to leave large gaps for the oxygen to penetrate the igniting tinder. Keep the tinder somewhat loose as well or it will be too dense to light.

6th place yourself in a position to block the wind and very close to the tinder/kindling pile and hold the match near the bottom of the matchstick. The closer you are to the fire the less likely the match will go out and the sooner the match's heat will begin heat the tinder. Go ahead and use one match to light the fire. Hold onto the match for as long as you can and slightly inverted to allow the flame to burn upwards on the matchstick. Keep the match in one spot in your little pit or in the gap between the 2 or 3 sticks. After you are sure the tinder is ignited go ahead and slowly add either more tinder or some small kindling and push the fuels into the flame without smothering it. After it has taken a hold of the tinder you can stoke the flames by pursing your lips and carefully blowing the base of the burning pile. (Carefully! Don't get too forceful.)

Add the kindling and then gradually increase the size and diameter of your fuel and keep adding the kindling

strategically into the base "coals" until your fire is to your size for whatever your purpose!



Fire Hints-

-Dryer lint/pocket lint is a great tinder! I try to always have a little tucked away somewhere.

-Plant fluff like cattail down is much like lint when pulled apart and ignited.

-Birch bark can be lit even when wet but may take longer exposure to a heat source.

-In the morning after your fire "has gone out" you can likely roll over any remaining coals and blow them into hot red coals by using the pursed lips technique.

- Hard woods burn longer and hotter but with less light. Soft woods burn quickly with less heat, but with a lot of light. Keep this in mind and use the right fuels for the purpose of your fire.

-Make a "fuzz stick" by taking a larger dry stick and with your knife splitting off shavings but leaving them attached to the stick. go down each side of the stick and by the end the stick will look hairy or spike-like. These little hairs or carved fuzzes are tinder size and light well.