**FIRE BUILDING**

**FIRES provide heat for cooking, warmth, light, comfort and protection from wild things.**

**They can also be deadly if not used safely.**

**FIRE NEEDS THREE INGREDIENTS:**

1. **FUEL** – The ingredient that combines with oxygen to generate heat and light, and the main subject of this paper.
2. **HEAT** – raises the fuel to ignition temperature
3. **OXIGEN** – Necessary for fuel to oxidize (burn).

**An interesting video** I just saw (7/21/20) on making fire with a sandwich bag, water and the sun.

The video gives good examples for tinder, kindling and fuel, also one survival method for starting a fire:

<http://www.outdoorhub.com/news/2016/07/20/video-start-fire-crisis-plastic-baggie/>

**FUEL** –HAS 3 INGREDIANTS - Don’t even look for a match until you have enough of each to satisfy why you are building a fire.

1. **TINDER** – the very smallest fuel and is used to ignite the rest of the fuel. It ranges in size from a hair to a wooden match stick. It must be ABSOLUTELY dry. Tinder is your FIRE STARTER after you have HEAT.
2. **KINDLING** – A little larger that TINDER and about the size of a pencil
3. **FUEL** – the main ingredient, ranging in size from finger diameter to large logs.

 **TINDER** – Good tinder is everything starting a fire. Unless you have good tinder, it is difficult to get the kindling and them the fuel to burn. **There are two types of tinder**:

1. **Natural Tinder** – Some examples:
* The **match stick or smaller dead twigs** that SNAP when you break them. If they bend and don’t snap, they are green and still have some life. You find them on live trees and bushes. They are the dead twigs that plants shed all the time. Pick about a 2 inch bundle. Leave them the length you find them. You can always shorten them later. These can be gathered even in the rain and they will still light.
* **Paper Birch bark** can be collected from dead limbs and trees, even if the rest of the tree is completely rotted. There is so much rosin in Birch bark that the bark can be stored under water and still light. The rosin is why Birch bark can be used to cover canoe frames. Don’t cut bark from live trees.
* **Cedar bark** from either dead or (pulled very sparingly) from live trees is an excellent tinder. If the strips are wide, use a stick and pound them against a log to separate the fibers into smaller strips. Fine cedar bark is very flammable and can be lit with a spark or a glowing ember
* **Dry Cat Tail fuss** as well as Thistle Down are extremely flammable. They are good candidates for tinder when using just a spark like from flint & steel. They all burn so quickly that larger tinder should be close by or better yet placed among these fibers. Dryer lint is a good source of cotton fuzz as long as you don’t mix synthetics with cotton clothing in the dryer.
* Use the **whole Thistle Pod** (the prickly part, too) for tinder. It all burns nicely.
* The **sticky sap from most conifers**, like Pine and Fir, is mostly rosin and burns very well. It works best if you can spread it on small kindling rather that jus lighting a lump of sap.
* **Pine and Fir cones** make good tinder as long as they are dry and haven’t started to decompose.
* **Fat Wood** (the heart of a conifer) is good tinder and kindling depending on the size of the stick.
* A **Fuzz Stick** can be made from any dead wood that has not started to decompose. Use a knife to cut thin shavings. The shaving can be cut off or left on the stick (making a Fuzz Stick) resembling a pine cone.
* **Some grasses** make good tinder as long as they are absolutely dead and dry.
* **Natural fiber rope** can make good tinder as long as it’s not be treated with fire retardant. Test it first.
1. **Man Made Tinder** – Some examples:
* **Char Cloth** – Made by heating pieces of cotton cloth in a metal container with a small hole to allow the smoke to escape. The charcoal-cloth that is left easily catches a spark which can be fanned (remember fire needs oxygen) into a flame.
* **Cotton balls** impregnated with petroleum jelly are a good fire starter. Plane cotton balls can be spread apart and lit with a spark
* **Paper egg cartons** pockets filled with sawdust and paraffin wax are good fire starters.
* **Birthday candles** are the back-packer versions of the egg carton candles.
* **Fine steel wool** can be used as tinder. It can also be ignited with a battery. The stronger the batter, the easier it is to ignite.
* **Fritos Corn Chips** contain enough oil to light easily and burn for a long time.
* **Commercial chemical fire starters** are available at most camping stores. I don’t use them so I don’t have any recommendations.
1. **POOR Tinder** – **not recommended**:
* **Leaves** – they are porous and absorb moisture plus they do not generate much heat. If they are absolutely dry, they work sometimes but usually they are a waist of matches.
* **Paper** is just a leaf. It absorbs moisture and generates more smoke that heat.
* **Pine needles** are a little better that leaves since they don’t absorb moisture as readily but they generate more smoke that heat.
* **Twigs picked up off the ground** usually have been shed because they are beginning to rot and are not as dry as those snapped from a living plant.

**KINDLING** – Small wood that tinder will light easily.

1. **Dry sticks** about pencil to thumb size in diameter. More pencil size than thumb. You’ll need about a 4”-5” bundle and the length should be about 8”–12”. This should be plenty of kindling to get the fuel lit.

Be sure it’s dry. Wood from the ground may be damp and/or dirty. It’s better to pick it off standing brush. Damp wood and dirt don’t burn very well

1. Split wood about the same size - again, dry and clean.

**FUEL – WOOD** **There are 3 categories of wood**:

1. **Seasoned Wood** – Wood that has not started to decay. This makes the best fire especially for cooking.
2. **“Doubty” Wood** – Wood that has started to decay i.e. hardwood the can be scratches with a fingernail.
3. **Rotten Wood** – Wood that has not started to decay

Seasoned wood makes the best fire.

**There are 3 types of wood to consider for fuel:**

**Hardwood –** burns hot with little smoke and makes hot coals good for cooking.

**Examples** are Oak, Hickory, Maple and Walnut.

**Softwood –** Burns less hot than hardwood, generates more smoke, does not make good coals for cooking and leaves an oily black soot on pots & pans. It gives grilled food the flavor of its sap, similar to petroleum products.

 **Examples** are Pine, Fir, and Cedar.

**Fruitwood –** burns hot with very little smoke and does not leave many coals at all. Gives a pleasant flavor to grilled food

**Examples** are Apple, Mulberry, Pear, and Cherry.