

# Campfires



## **Introduction**

The use of campfires, once a necessity for cooking and warmth, is steeped in history and tradition. Some people would not think of camping without a campfire, but fires now are more of a luxury than a necessity. Campfires can cause lasting impacts especially in wilderness or backcountry areas. If possible, use a lightweight stove for cooking and use a lantern for light.

It is still important for campers to know how to build a safe, low-impact fire when needed for cooking or survival. Consider the amount of wood available in the area, the impact of a fire, and how heavily used the camp site is when deciding whether to build a fire or use an alternative heat source. Campfires can be dangerous if not properly built, maintained, and extinguished. Many forest fires are started with campfires not properly tended, so it is important to take precautions when you are using campfires.

There are methods of building campfires for specific purposes. A campfire used for cooking would be designed differently than a campfire used primarily for heat. The placement of logs and sticks determines the intensity of the heat, burning time, and spark emission.

## **A Brief History**

People have been using fire to cook their food for almost as long as there have been people on earth. Fires were essential for cooking, warmth, and light. Fire was so important that many ancient cultures had legends relating to the origin of fire. Recent evidence suggests that the earliest cooking fires date to about one and a half million years ago in South Africa. There is also evidence of cooking fires from about 300,000 years ago in China. At first, people cooked on outdoor wood fires. Perhaps the last Ice Age, which ended about 10,000 BC, taught people to use fires inside, to keep their shelter warm as well as cook their meals.

The early fires also formed a nucleus for human grouping, and became tribal or communal fires. Out of these group fires, individual family fires were derived. Fires needed watching, not only to keep them from going out, but also from spreading, so some cultures designated fire-keepers to keep fires safe. When possible, the communal fire was placed in front of a rock shelter or cave and in a safe and convenient place for the use of everyone. The necessity for a screen to protect the early bonfires from the wind may have been the reason that some primitive shelters were round in shape.

Symbolic and superstitious uses of fire have been common to all races. In early time periods, altar fires were considered sacred as symbols of religion. As time went on the significance gradually lessened, and finally the hearth became the center of the home.

### **Things to Consider When Deciding to Build a Fire**

- When deciding if it is appropriate to build a campfire, consider the potential damage to the area and the amount of wood available.
- If building a fire, camp in areas where wood is abundant so that removing some wood for the campfire will not be noticeable. Choose not to have a fire in areas where there is little wood, like at higher elevations, in heavily used areas, or in desert settings.
- Consider the use of a light weight, efficient camp stove. They are fast, flexible, and eliminate firewood availability as a concern in campsite selection. Stoves operate in almost any weather condition, and they *Leave No Trace*.
- Use firewood efficiently! Don't have fires bigger than what you need. Standing trees, dead or alive, are home to birds and insects, so leave them intact. Fallen trees also provide bird and animal shelter, increase water holding capacity of the soil, and recycle nutrients back into the environment through decomposition. Use fallen and down wood sparingly. Do not cut wood from living trees; "green" wood has a lot of moisture in it and is hard to burn.
- Burn all wood to white ash, then grind cold, small coals to ash between your gloved hands, thoroughly soak with water, and scatter the remains over a large area away from camp. Ashes may have to be packed out in certain areas.
- Replace soil where you found it when cleaning up a mound, pit, or circle fire. A true *Leave No Trace* fire shows no evidence of having been constructed.
- Scatter unused wood to keep the area as natural looking as possible.
- Pack it in, Pack it out. Pack out any campfire litter. Plastic, glass, and foil items should never be burned in a camp fire. Pack out everything that you packed in.

### **Equipment & Supplies**

- Fire starters: flint, matches, lighter, etc.
- Tinder (small twigs, dry leaves or grass, dry needles)
- Kindling (sticks smaller than 1" around)
- Fuel (larger pieces of wood, no larger in diameter than your wrist to allow fuel to burn down completely to ash)
- Fire pan, as an alternative to a pit or fire ring
- Small trowel or shovel for mound fire
- Tools to help put out fires: shovel, bucket, etc.

### **Regulations**

Find out if the area in which you wish to camp has regulations regarding campfires. You should also find out if there are existing fire rings or fire pits available. Be aware of signs that prohibit building fires in certain places or digging fire pits. Also be aware that open fires may be

prohibited in times of high fire danger. Digging pits in some areas is not allowed because of archaeological or other concerns. Find out the rules before building your fire.

### **Skills & Strategies**

Where fires are permitted, use established fire rings or pits, fire pans, or build a mound fire. Keep fires small and only use sticks from the ground that can be broken by hand. Following “Leave No Trace” guidelines, burn all wood and coals to ash, put out campfires completely, and scatter cool ashes.

### **Preparing a Fire Ring or Pit**

If there is not an existing fire pit, and pits are allowed, look for a site that is at least fifteen feet away from tent walls, shrubs, trees, or other flammable objects. Beware of low-hanging branches overhead. If possible, choose a site that is either rock or bare ground.

- Choose a spot that is protected from wind gusts.
- Clear the area around the site of grass, twigs, leaves, and firewood. Make sure there aren't any tree limbs or flammable objects nearby or hanging overhead.
- Dig a fire pit about a foot deep and 3-5 feet in diameter, or clear the same size area for a fire circle. Be aware of not damaging any vegetation in the area, including their roots!
- Find large rocks that are somewhat flat. Create a circle with the rocks around the fire pit or circle.
- Gather the three types of firewood away from the camp site. There is a difference between dry wood and rotted wood. Rotted wood is often damp in its center, and should be avoided. Generally the driest wood will be up off of the ground. If it is down among the leaves it is likely to be rotting and soggy.
- Place your unused firewood upwind and away from the fire.
- Keep a bucket of water and a shovel nearby.

### **Fire Pans**

Using a fire pan is a good way to minimize the impacts of traditional fires. The fire pan keeps the heat off of the ground and reduces the effect on the dirt, vegetation, and rocks. A fire pan should have sides at least three inches high and be made of metal. It can be a purchased pan or made from a metal oil drainpan or backyard barbecue grillpan. When using the fire pan, elevate it on rocks or loose soil so the heat does not scorch the ground. Your fire can be built using one of the traditional fire styles but it will be smaller and more contained and will use less fuel. Using a fire pan also allows you to move your fire to a different spot if necessary.

### **Mound Fires**

You can also minimize environmental impact by building a mound fire. Collect soil, sand, or gravel from an already disturbed site. Mound the soil at least 3 to 5 inches high. This will insulate the ground below your fire. You can build your fire following one of the traditional styles, but again it will be smaller than a traditional campfire. Once the fire has burned to ash, has been doused with water, and is completely out, spread your mound soil back where you found it. If done correctly, there should not be any sign that there was a fire on the site.

## Getting a Fire Started

- Lay your initial wood in the design of the fire type desired (See Below)
- Light the tinder that is beneath the kindling with your fire starter (matches, lighter, etc). If using a match, discard it in the fire.
- Once you see flame, place your ear near the ground a little bit away from the fire and blow gently at the base of the tinder. The tinder and kindling should start to burn. If it goes out, light it again. Do not blow on the fire from above or with such force that it goes out.
- Add more kindling as the fire grows.

## Keeping a Fire Going

- Once your kindling is burning you should have a good-sized fire about 8-10 inches in diameter. Put larger twigs on top and around the sides of the fire. Do not add anything until the previous branches are starting to turn black or the fire may die.
- Continue to add logs as the initial logs break down.
- Remember, the key to a fire is not the flames; it is the coal bed you get from your kindling and small branches and, eventually, the larger logs. Coals give off the heat and are, in fact, the heart and soul of a campfire. They will keep you warm, provide light, and are great for cooking. Flames tend to scorch food before it is cooked.
- Keep the fire small and under control.

## Extinguishing Your Campfire

When you're ready to put out your fire, follow these guidelines:

- Allow the wood to burn completely to ash, if possible.
- Pour lots of water on the fire, drowning ALL embers, not just the red ones.
- Pour until hissing sound stops.
- Stir the campfire ashes and embers with a shovel.
- Scrape the sticks and logs to remove any embers, add more water if needed.
- Stir and make sure everything is wet and cold to the touch.
- If water is not available, dirt can be used but care must be taken that the fire and all smoldering ash is completely out before you leave the area. Mix enough dirt or sand with the embers to smother the fire. Continue adding and stirring until all material has cooled. Remember: **DO NOT BURY** the fire. The fire may continue to smolder and could catch roots on fire that could eventually get to the surface and start a wildfire.
- Spread out any unused wood to keep the site looking as natural as possible.

## Types of Fires

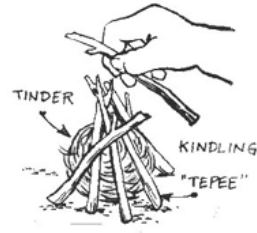
Fires are generally named after the manner in which the wood is stacked.

### **Teepee Fire (Good for cooking)**

A basic fire used to begin other fires is the teepee fire. Lay the A-frame and the tinder. Then gradually add wood, setting the kindling and then larger logs on end in the form of a teepee. The high flames of this fire are good for one-pot cooking and when using a reflector oven.



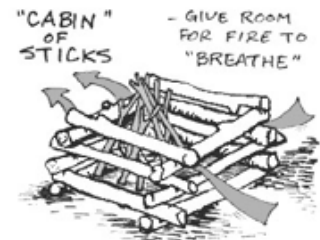
(A-frame Start)



Teepee

### **Log Cabin Fire (Longest-lasting campfire)**

To get a good bed of coals, build the log cabin fire by forming a basic teepee (see above) of tinder, then placing logs around the teepee as if you were building a miniature log cabin. Gradually lay the logs toward the center as you build the cabin higher. It will have the appearance of a pyramid, and coals will form quickly.



### **Crisscross Fire (Perfect for a long-lasting campfire)**

For a large, deep bed of coals for Dutch oven cooking or roasting, prepare a crisscross fire. After forming a basic A-frame and a teepee (see above) of tinder and kindling, place the logs on the fire in layers, one layer crossing the other. Leave a little space between each log for air to circulate.



### **Lean-to Fire (Good long-lasting fire)**

Find a dry log 2-4 inches in diameter for the support of your lean-to. Place the tinder next to the log. Now take a few of your kindling and lean them up against your log with the tinder underneath. Make sure there is plenty of room for air to flow through, and for you to fit your match in. Add smaller fuel pieces to the lean to and then light it. Once your small pieces of wood have caught on fire, put on progressively larger pieces.

## Safety

- Do not build a fire if the campground, area, or event rules prohibit campfires.
- Always remember that fire can ignite a multitude of materials, including tents, clothing, and picnic tables. Build your campfire at a safe distance from sleeping and eating quarters, and keep people at least 3 feet from flames.
- Remember that high winds can spread fire quickly. Always look for an area that is shielded from strong gusts.

- Every campfire that's started also needs to be put out. If it's too hot to touch, it's too hot to leave!
- Do not build a fire in hazardous, dry conditions.
- Keep your fire to a manageable size.
- Never leave your campfire unattended.
- Don't burn dangerous things! Never burn aerosol cans or pressurized containers. They may explode.
- Never put glass or plastic in the fire pit. Glass does not melt away, it only heats up and shatters. Broken slivers of glass are dangerous. Plastic may give off harmful fumes when burning.
- Aluminum cans and tin foil do not burn. In fact, the aluminum only breaks down into smaller pieces. Inhaling aluminum dust can be harmful to your lungs.

### **Extensions**

Science: heat, calories, BTU's, pressure/boiling points

Campfire cooking

### **Resources**

- Boy Scouts: How to build campfires, campfire ceremonies, etc.  
<http://www.scoutscan.com/campfire.html>
- Building campfires.  
[http://www.associatedcontent.com/article/19931/building\\_and\\_starting\\_campfires.html](http://www.associatedcontent.com/article/19931/building_and_starting_campfires.html)
- Building campfires. [http://www.ehow.com/how\\_4486982\\_make-a-campfire.html](http://www.ehow.com/how_4486982_make-a-campfire.html)
- History of Fire. <http://hearth.com/what/historyfire.html>
- Leave No Trace: Campfire Ethics. [http://www.lnt.org/programs/principles\\_5.php](http://www.lnt.org/programs/principles_5.php)
- Types of Campfires. <http://mysite.verizon.net>