

Trail to First Class Instructor Guide
Basic Fire Building

Requirements: Second Class:

- 2a. Explain when it is appropriate to use a fire for cooking or other purposes and when it would not be appropriate to do so.(pg 303-304, 387)
- 2b. Use the tools listed in Tenderfoot requirement 3d to prepare tinder, kindling, and fuel wood for a cooking fire.(pg 389)
- 2c. At an approved outdoor location and time, use tinder, kindling, and fuel wood from 2nd class 2b to demonstrate how to build a fire. Unless prohibited by local fire restrictions, light the fire. After allowing the flames to burn safely for at least two minutes, safely extinguish the flames with minimal impact to the fire site. (pg 388-391)

Steps

1. Right Spot – Practice Leave No Trace.
2. Right Material - The three types of natural fuel are tinder, kindling and firewood. Never use flammable liquids.
3. Build it with Right Shape – build the type required for your purpose (cooking, warmth, ceremony). Let it Breathe.
4. Light it. Be prepared with water and shovel.
5. Manage it
6. Put it Out – Leave No Trace

Firem’n Chit

To earn this certification, the Scout must show his Scout leader or designated adult that he understands his responsibility to do the following:

1. I have read, understand and use fire safety rules from the *Scout Handbook*.
2. I will build a campfire only when necessary and when I have the necessary permits (regulations vary by locality).
3. I will minimize campfire impacts or use existing fire lays consistent with the principles of Leave No Trace. I will check to see that all flammable material is cleared at least 5 feet in all directions from fire (total 10 feet).
4. I will safely use and store fire-starting materials.
5. I will see that fire is attended to at all times.
6. I will make sure that water and/or shovel is readily available. I will promptly report any wildfire to the proper authorities.
7. I will use the cold-out test to make sure the fire is cold out and will make sure the fire lay is cleaned before I leave it.
8. I follow the Outdoor Code and the principles of Leave No Trace and Tread Lightly!

Explain how it is done

Demonstrate the steps

Guide the learners as they practice

Enable learners to succeed on their own

DEMONSTRATE HOW TO CARE FOR FIRE (Instructor Outline)

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Enabling Learning Objectives:

1. Discuss importance of fire starting skills.
 - a. The ability to light a fire (and maintain it) is one skill that can truly make the difference between life and death. Humans do not perform very well when they are cold. You can freeze to death in the outdoors! Successfully building and maintaining a fire can make a big difference.
2. Using the EDGE method teach the principles of the Fireman's Chit.
3. Explain when it is appropriate to use a cooking fire and lightweight stove.
4. Using the EDGE method teach how to prepare tinder, kindling and fuel for a cooking fire.
5. Using the EDGE method teach how to build a fire

Equipment Needed to Teach:

Kindling
Paper
Matches
Shovel
Fire Bucket with Water
Fire wood

**DEMONSTRATE HOW TO
Firem'n Chit Requirements
(Instructor Outline)**

The following are the details for the Firem'n Chit requirements.

Requirement 1: I have read, understand and use fire safety rules from the *Scout Handbook*.

Requirement 2: I will build a campfire only when necessary and when I have the necessary permits (regulations vary by locality).

Requirement 3: I will minimize campfire impacts or use existing fire lays consistent with the principles of Leave No Trace. I will check to see that all flammable material is cleared at least 5 feet in all directions from fire (total 10 feet).

Requirement 4: I will safely use and store fire-starting materials.

Requirement 5: I will see that fire is attended to at all times.

Requirement 6: I will make sure that water and/or shovel is readily available. I will promptly report any wildfire to the proper authorities.

Requirement 7: I will use the cold-out test to make sure the fire is cold out and will make sure the fire lay is cleaned before I leave it.

Requirement 8: I follow the Outdoor Code and the principles of Leave No Trace and Treat Lightly!

"Read and understand woods tools use and safety rules from the Scout Handbook."

1. These requirements mean that you are always proving that you should have a Firem'n Chit by being serious.
2. When using fire that can cause serious injury or death when used improperly.
3. If leadership determines that you broke a safety rule, you will lose corner of your Firem'n Chit.
4. Lose four corners or do something really unsafe, and you must be retested before being allowed to use fire.
5. The only way to be safe is for the rules to become automatic.

Building and Using a Fire

General Information

1. It is better to use a propane cooking stove than building a cooking fire.
2. Campfires should only be built in locations where previous campfires have been built.
 - a. Fires leave scars with long lasting effects on the Earth. Fire destroys all of the minerals in the soil.
 - b. Making a new fire pit should be the option of last choice – and only used for heat. Using previously established fire pits is OK – the damage has been done.
3. Some localities or campgrounds require a permit to build an open fire. You need to know before you build the fire. Ignorance of the law is no excuse.
4. The three things needed for a fire (called a "Fire Triangle") are:
 - a. Oxygen
 - b. Fuel
 - c. Heat
5. Green or wet wood must be dry enough for the surface to catch fire.
6. Reasons for a fire
 - a. Warmth
 - b. Cooking
 - c. Ceremony

Fire Safety Rules

1. Do not build a fire when conditions are too dry. The Rangers in a park will usually post a "No Fire" sign.
2. Build a fire ring or dig a pit.
3. Try to use existing fire rings or pits.
4. Fire rings should be surrounded by dry rocks.
5. If you are removing sod to make a fire, take the sod out in squares. The squares should be dug out at 6" in depth. Save the sod to re-install later. No more than four square feet of sod should be removed. Place sod in a shady location with the grassy side up.
6. Always ensure 5 gallons of water (or plenty of sand or dirt) and a shovel are available by the fire.
7. Clear a 5' radius area encircling the fire. This includes removing any items that may be tripped over. Check above the fire ring to make sure there's no flammable vegetation (e.g. tree limbs).
8. Ensure that fires are a safe distance from tents, tarps, ropes, propane and other fuels, bushes, trees, and any other flammable materials.
9. NEVER have a flame in a tent, including lit matches.
10. Do not play with matches.
11. Do not wave or throw burning sticks. Once a stick is lit, it must stay in the fire. Get caught – loose a corner.
12. Do not put rocks from streams, lakes or ponds - these may explode and cause injuries
13. Do not put sealed cans in the fire - these may explode and cause injuries.
14. Do not put plastic in a fire - it releases dangerous fumes.
15. Do not jump over, wrestle around, or run near fires.

Steps for Building the right and safe fire.

Right Spot - Clear the area of debris, avoid overhanging branches and make sure your fire is a safe distance from tents and other flammable materials. Save any ground cover that was removed (Leave No Trace). Must have a fire bucket with water. A safe fire is one on which nothing will burn except the fuel you feed your fire. It's a spot from which flames cannot spread. Parks and Scout camps may have large metal rings, grills, or stone fireplaces. Use these existing sites whenever you can.

Otherwise, select a spot on gravel, sand, or bare soil well away from trees, brush, dry grasses, and anything else that might burn. Look overhead for branches that sparks could ignite. Stay clear of boulders that may be blackened by smoke, or large tree roots that might be harmed by too much heat. Clean the fire site down to bare soil, then remove all burnable material from the ground around it. Rake away pine needles, leaves, twigs and anything else that might burn. Save the ground cover so you can put it back when you are done with your fire. Keep a pot of water close by to douse the flames should they begin to spread.

Right Material - The three types of natural fuel are **tinder** (material that burns easily such as dry grass or shavings whittled from a stick), **kindling** (slightly larger material such as dry twigs that will burn with a little encouragement) and **firewood** (dry branches that will be the main fuel of the fire). Never use flammable liquids. Tinder catches fire easily and burns fast. Dry pine needles, grasses, shredded bark, and the fluff from some seed pods all make good tinder. So do wood shavings cut with a pocketknife from a dead stick. Gather enough tinder to fill your hat once.

Right Shape – There are multiple ways to build your fire depending on what you are using the fire for (cooking, warmth, ceremony). The basic shapes are

1. **Tepee**, in which you arrange the kindling in the shape of a tepee over the tinder
2. **Lean-To**, in which you push a small stick in the ground at a 45-degree angle with the upper end pointing into the wind. Place the tinder beneath the stick and lean the kindling against it.
3. **Log cabin**, in which kindling is arranged in a square log cabin shape over the tinder.

There are many ways to arrange tinder, kindling, and fuel so that the heat of a single match can grow into flames of a campfire. A tepee fire lay or log cabin is a good all-around method remember to:

1. Place a big, loose handful of tinder in the middle of your fire site.
2. Mound plenty of small kindling over the tinder
3. Arrange small and medium-sized sticks of fuel wood around the kindling so that air can reach the middle of the fire. Remember fire needs air.
4. When a burning match is under the tinder, the flame should rise through the tinder and crackle up into the kindling and the fuel wood above.

5. Remember, never leave a fire unattended.

Light it

Starting the fire with matches.

1. NEVER use flammable liquids (e.g. gasoline) to start a fire
2. It's OK to use fire starter sticks
3. It's OK to use a butane lighter, but store the lighter out of the sun
4. Start with small, easily burnable material (tinder), move up to larger sticks (kindling), then to larger pieces of wood (fuel)
5. Use of matches
 - i) Crouch down as close to the fire as possible. Shield the flame from the wind with your body.
 - ii) Strike the match and keep it lit in cupped hands. Most matches go out because people try to light something with a match before the match is properly lit.
- i) Put the match into your tender in the same direction as the wind

Wet-Weather Fire Tips

1. Before the rain begins, gather tinder and kindling for several fires and store it under your dining fly.
2. Keep a supply of dry tinder in a plastic bag.
3. Split your wet sticks and logs with an ax. The wood inside should be dry.
4. Keep matches safe from dampness by carrying them in a plastic container with a tight lid.
5. A butane lighter will give you flame in even the wettest weather. Store it away from heat.

Maintaining the Fire

1. Only ONE person in charge of the fire at a time
2. Fire must be attended at ALL times. If the fire is not going to be attended, it MUST be put out.
3. No playing with the fire – do not poke at the fire; stay out of the fire ring or lose a corner

Put it Out –

Do in order:

1. Spread the coals with a shovel or stick.
2. Sprinkle water on the fire to begin to cool it. A big steam of water could cause burns through steam or splattering water.
3. Continue to put out the fire with preferably water or dirt. Stir the ashes and coals to ensure that they are completely out. The fire is out when the ashes and remains may be touched with the bare hand. This is called a Cold Out Test.
4. If water is scarce, use sand or dirt to put out the fire

Leave No Trace -

After you are done (Reconstruct the area when the fire was lit.)

1. If an area was cleared for the fire, the ashes should be scattered and the area returned to its original state - i.e. cover the area with leaves, sticks, or whatever was there before.
2. Rocks that were used to form a fire circle should be turned over and put back.
3. Replace any sod if it was removed.

Camping Stoves

Many camping stoves burn kerosene or white gas. Store these fuels in special metal bottles with lids that screw on tightly. Choose bright red bottles or mark them with colorful tape so there is no chance of mixing them up with your water bottles.



Butane and propane stoves burn gases from small cans called cartridges. Cartridges and fuel bottles should be stowed in plastic bags and carried.

When you're ready to cook, place your stove on a flat surface. A patch of bare ground or a flat rock is all you need. In winter, put your stove on a 6-inch square of plywood. The wood will hold your stove on top of the snow and prevent the cold ground from chilling the stove.

Larger kerosene and white gas stoves are too heavy to carry in a pack, but they are fine for use in camps that can be reached by road. Two or three burners give you all the room you need to cook meals for an entire patrol. Different kinds of stoves operate in different ways. Read your stove's instructions carefully and do exactly what they say. In addition, always follow these safety rules:

1. Use camping stoves only where allowed and only with adult supervision.
2. Never use a stove inside a tent or cabin. There is a danger of fire and poisoning by odorless gas fumes. Refuel and light stoves outdoors where there is plenty of fresh air.
3. Before lighting the burner, tighten the caps on the stove and on any fuel containers. Do not loosen the fuel cap of a hot stove.
4. Stoves sometimes flare up. Keep your head and hands to one side of the stove as you light and adjust it.
5. Don't overload a stove with a heavy pot. Instead, set up a grill over the stove to bear the weight of the pot.
6. Never leave a lighted stove unattended.
7. Let hot stoves cool before refilling fuel tanks. Refill stoves and store extra fuel well away from open flames such as other stoves, candles, and lanterns.
8. Carry home all empty fuel containers. Do not place them in or near fires. If heated, they may explode.