

First Class First Year: Fire and Fire Safety



Fire and Fire Safety

Learning Objectives

As a result of this experience, each participant should be able to:

Complete advancement requirement S3e, S3f, and help with completion of T3, S3d & S3g

Earn the Firem'n Chit award.

Understand the outdoor code as it relates to fire safety.

Be safe with fire.

Gather tinder, kindling, and wood.

Light a fire.

Materials Required

Firem'n Chit Cards for each participant. Outdoor code cards for each participant. Fire starters, tinder, kindling, and wood. Fire wood usefulness chart (from appendix). Examples of Teepee, Lean-to, and criss cross fire lays. Examples of several different fire starters. Examples of several different types of wood. Outdoor Code Poster (A place to make a fire.)

Discovery

Display for the scouts several different types of fire starters, tinder, kindling, and fuel. Display the outdoor code poster behind. Ask scouts if they know the difference between them.

Fire and Fire Safety

Teaching-Learning

- I. What is the outdoor code and what does it mean? Hand out outdoor code cards to each participant.
- II. Fires
- III. Fire Safety
- IV. After the presentation sign and hand out Firem'n chit cards to each participant. Tell them that to keep the card they must live up to their responsibility to keep fires safe.

Application: Fire Building Contest

Hold a fire building contest. Divide the patrol up into teams of two or three scouts. Break down the example fire lays and assign each team a different one. Line the scouts up across from the materials and at the signal each team must build its fire lay. If you can, allow the scouts to actually light the fires as a part of the contest.

On the campout, assist in preparing and cooking one of your patrol's meals. Tell why it is important for each patrol member to share in meal preparation and cleanup, and explain the importance of eating together

On one campout, plan and cook over an open fire one hot breakfast or lunch for yourself, selecting foods from the food pyramid. Explain the importance of good nutrition. Tell how to transport, store, and prepare the foods you selected.

Firem'n Chit Requirements

FIREM'N CHIT

This is to certify that

_____ can carry matches and build a campfire.

He has read the fire use and safety section in the *Boy Scout Handbook*. He knows that handling matches and building fires means responsibility, and he accepts it. In consideration of the above, he is hereby granted "Firem'n Rights."

Signed _____ Smokey 

BOY SCOUTS  OF AMERICA



My Responsibility

I will take this card to my Scout leader, or other person designated by my leader, and show I know the following:

1. I have read and understand use and safety rules from the *Boy Scout Handbook*.
2. I will secure necessary permits (regulations vary by locality).
3. All flammable vegetation must be cleared at least 5 feet in all directions from fire (total 10 feet).
4. Fire must be attended to at all times.
5. Fire-fighting tools (water and/or shovel) must be readily available.
6. Fire must be cold out before it is left.
7. I subscribe to the Outdoor Code and Leave-No-Trace.

My signature _____

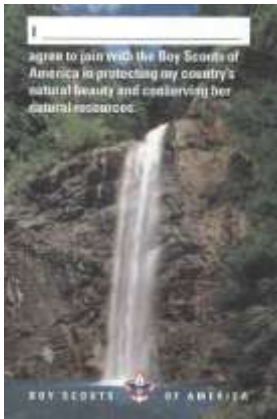
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Firem'n Chit Requirements

Outdoor Code

The Outdoor Code is a creed an oath to remind a Scout of the importance of caring for the environment.

*AS AN AMERICAN, I WILL DO MY BEST TO -
BE CLEAN IN MY OUTDOOR MANNERS,*

I will treat the outdoors as a heritage. I will take care of it for myself and others. I will keep my trash and garbage out of lakes, streams, fields, woods, and roadways.

BE CAREFUL WITH FIRE,

I will prevent wildfire. I will build my fires only where they are appropriate. When I have finished using a fire, I will make sure it is cold out. I will leave a clean fire ring, or remove all evidence of my fire.

BE CONSIDERATE IN THE OUTDOORS,

I will treat public and private property with respect. I will use low-impact methods of hiking and camping.

AND

BE CONSERVATION-MINDED.

I will learn to practice good conservation of soil, waters, forest, minerals, grasslands, wildfires, and energy. I will urge others to do the same.

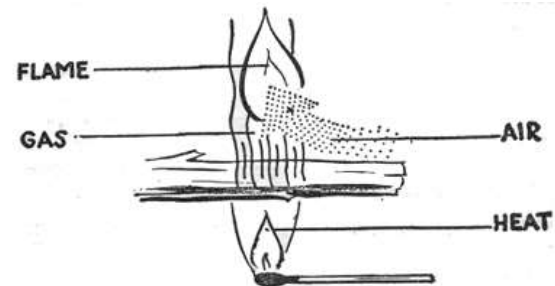
Firem'n Chit - Fire!



Big Brain Stuff!

Science of Fire:

Fire is a chemical reaction, between different chemical compounds or elements, each has stored energy. For a fire to occur these items have to come together: heat (ignition source); fuel (something to burn); and oxygen (air). Remove any of them and the fire will not happen.



2nd Class 3d & 3g – Starting Fires

Tinder

Tinder absorbs moisture easily and may be least effective when you need it most. The mountain men knew to keep their tinder dry.

Dry grass, dry leaves, and very fine fibers of dry bark, such as birch or cedar, are types of tinder you may be able to find outdoors. Usually, the finer the tinder the better.

Start with a base of fine tinder and form a teepee-shaped pile, about 2" high, with larger tinder over the finer.



TINDER

2nd Class 3d & 3g – Starting Fires

Tinder

Magnesium shaved off a magnesium block/flint and steel kit is highly flammable. Use a pocket knife to shave off the block a nickel-sized pile of magnesium slivers. Old web belts or compression straps also make great fire starters. Cut the belts/straps into 3" to 4" long strips, soak them in wax, and let dry.



Dryer lint from cotton or wool fabrics is a modern favorite. However, take care not to use lint from synthetic fabrics...it melts instead of burns. Pitch or waxed fire starters are easily made from paper dipped in wax, pitch, or tar.

2nd Class 3d & 3g – Starting Fires

Kindling

Fuel wood requires more heat than kindling to ignite. Therefore, it is essential that some form of kindling be used to feed a fire until it gets hot enough to ignite the larger pieces of wood.



Fuzz sticks are dry sticks shaved on the sides with a knife so that the shavings are still attached to the stick.



KINDLING

Dead twigs that snap in two when bent work well. Don't use green twigs that are still flexible, and obviously, the drier the twigs the better. Soft woods, particularly evergreen twigs, are best, and split twigs burn faster than whole ones.

2nd Class 3d & 3g – Starting Fires

Fuel

Wood Hardness:

Hard: good for slow burning fires that yield long lasting coals. Hardwood trees usually have broad leaves which most of them lose their leaves in the fall (deciduous)



Soft: make a hot and fast fire that is short-lived. These trees have needles (cedars, pine) and cones. Most are evergreen (ones that don't lose their needles) except larch, cypress, and tamarack.

2nd Class 3d & 3g – Starting Fires

Fuel

A good supply of fuel needs to be gathered BEFORE building the fire. Use what fuel is available, keeping in mind that the drier the fuel, the better.



Dead, dry wood is best. Generally, the denser the wood (in other words, the heavier it is), the hotter the fire, and the slower it burns. Wet wood, green wood, and wood with lots of pitch will burn, but tend to smoke. However, almost any wood will burn if the fire is hot enough. Also, splitting the wood helps. The finer it is split, the better it burns, and the less smoky the fire.

2nd Class 3d & 3g – Starting Fires

Fuel

Cow chips, as long as they are dry, will burn. Although they smell, burning cow chips helps keep the mosquitoes away. The greener the are they more they smell, and the less likely they are to burn!



2nd Class 3d & 3g – Types of Fire

Tepee



The traditional standing triangular fire base, with tinder underneath the standing twigs and logs. Allow enough room for air circulation in and between the logs. This type of fire is used in calm weather when you want a tall flame.

A basic fire that is quickly built and can be used for small campfires, or to start other fires. Push two crossed sticks into the ground next to tinder. Lay kindling on the crossed sticks and over the tinder in the form of a teepee, and add larger pieces of wood to the outside. The high flames of a tepee fire are good for one-pot cooking and reflector ovens.

2nd Class 3d & 3g – Types of Fire

Log Cabin



A rectangular layout of logs built on top of each other like a log cabin with ignition source in the middle and bottom. Will collapse on itself as fire consumes material. Method allows for adequate air circulation and ease of adding additional layers. This type of fire is better for harsh conditions, or when big fires are wanted.

This is a large fire that is built by criss-crossing logs and sticks in the shape of a pyramid with a hollow center. Place the largest logs at the base and build up to a top of kindling. Tinder can be placed at the top, and the fire will burn from the top down, or a tepee of tinder and kindling can be placed in the center of the log cabin if it is well ventilated with an open framework. Log Cabin fires are good for group campfires with lots of people. Although they make lots of coals, which can be good for cooking, log cabin fires tend to be large, making it hard to get close to them.

2nd Class 3d & 3g – Types of Fire

Lean To



Stick the end of a stick in the ground at an angle and lean other smaller sticks against it. Put tinder inside and light from the open end. This type of fire is used when the wind is coming from only one direction, it is also great for cooking as the flames are all on one side.

This type of fire is mainly a cooking fire that creates a nice bed of coals for Dutch Ovens or for roasting. Build the fire against a large log by placing tinder and kindling next to the main log and leaning wood against the log and over the tinder. As fuel is added, it is leaned against the main log, which acts as a reflector and allows coals to bank up against the reflector.

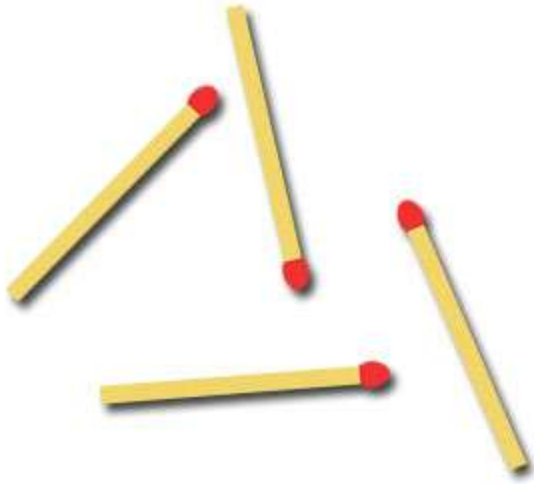
2nd Class 3d & 3g – Types of Fire Charcoal



To start charcoal fires, make and use fire starters or a starter can. Charcoal starts slowly. Allow at least 30 minutes before fire is ready to use. Charcoal will be grey-white in the daylight and red at night when ready. To start charcoal, use one of the following methods:

- Place small twigs or fire starters close together as a base. Leave an air space beneath starters. Place charcoal on top of this. Light the fire starters and gradually add a few more briquettes, one at a time.
- Use a Starter Can. . To use, place can inside grill or on a pan or tray, crumple three full size sheets of newspaper into balls. Place newspaper in bottom of starter can and fill with charcoal. Light the newspaper through the vent holes. When charcoal is glowing, carefully dump charcoal out. One charcoal briquette equals 35 degrees of temperature

2nd Class 3f– Sparks



All fires begin with a spark. But how do you create a spark?

Matches - These should be carried with you at all times in the outdoors (remember they are one of the ten essentials). Make sure your matches are "strike anywhere" type and waterproof them by dipping each match in nail polish or paraffin wax. After dipping, place the matches in corrugated cardboard to dry, and roll the matches up in cardboard. It is good idea to put a piece of sandpaper in your waterproof match container to use as a striker.

2nd Class 3f– Flint and Steel



One of the safest and most reliable ways of starting a fire is with flint and steel. Magnesium blocks with attached flints are readily available these days in most Sporting Goods stores, and magnesium scraped off the block with a pocket knife makes great tinder. Use a key chain to attach a broken hacksaw blade to the magnesium block, and you have a ready made steel striker that will prevent wear and tear of your pocket knife. Strike a file, hacksaw blade, or knife against the flint to shower sparks against your tinder (a char cloth works great here), and watch for a wisp of smoke or a glowing red spot when a spark catches on the tinder. Once a spark catches, blow on the tinder until it bursts into flame.

2nd Class 3f– Friction



This was how the California Indians did it. Most used a softwood drill, a bow, and lubricated hand socket, together with a hardwood fireboard to create heat that eventually lit tinder. It is important that one of the woods (either drill or fireboard) be soft and the other hard. Woods commonly used were Yucca for the softwood and Oak for the hardwood. A notch is cut in the side of the fireboard through which a drill will pass and rest on a flat, shallow grooved surface below. A socket (lubricated with grease) is held in the hand and allows the drill, which is rotated back and forth with the bow string, to turn freely without hurting the hand. As the drill rotates, a fine dust results that becomes hot from the friction of the drill. When the dust starts to smoke, it is placed on the tinder, and blown on until it bursts into flame. Starting fire by rubbing two sticks together is a difficult skill to master, but some experts can start a fire in literally just a few seconds using this technique.

2nd Class 3f– Starting a Fire



Things to remember:

- Choose the Location for your fire carefully.
- Spark, Tinder, Kindling, and Fuel are all required to build a fire. Keep them dry.
- Light your Fire by shielding your match from the wind, and light the fire on the downwind side.
- Fires need Oxygen, so don't smother yours with too much wood.
- Extinguish your Fire properly when done

2nd Class 3f– Starting a Fire



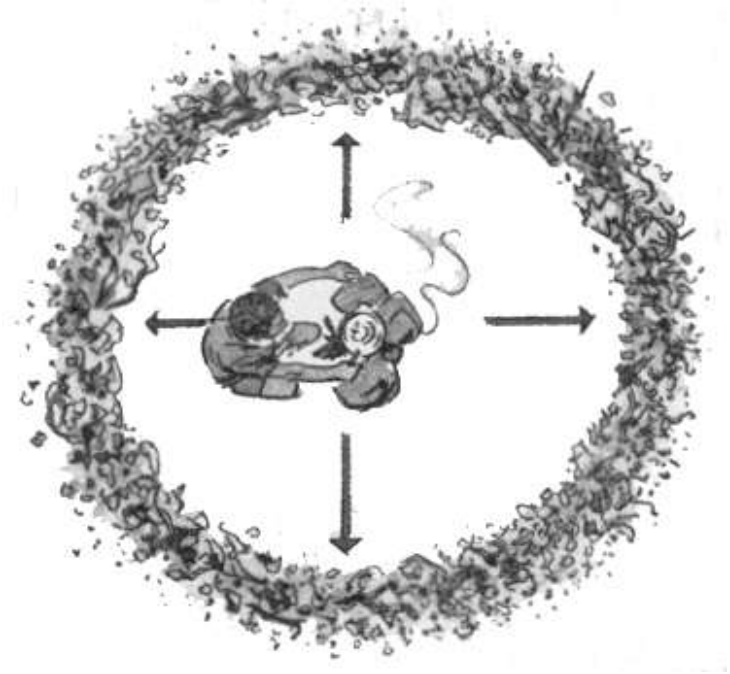
- Select a sheltered area that is out of the wind and located where the fire won't spread.
- Use dry tinder, or tinder which is highly flammable even when wet, such as birch bark or pitch.
- Have all the kindling and wood on hand before you strike the match.
- Use the match to light a fire starter, such as waxed paper or a sliver of pitch, then use the the fire starter to actually light the fire.
- Start with a small fire and add to it as the flame increases. Blowing lightly on the burning wood helps to increase the flame. Also, add kindling above the flame, and use dry dead, wood.
- Keep your firewood dry by placing it under a shelter, dry out damp wood near the fire, and save the best kindling for starting the next fire.
- Build as many fires as possible without using matches, and save your matches for emergency uses.
- It is easier to keep a fire going than to light one. To make a fire last overnight, place a layer of dry, green logs over the coals at bedtime, to keep the coals smoldering till morning.

2nd Class 3f– Lighting a Stove



- With gas off, strike a match close to burner
- Lay lit match on burner, with head of match over edge of burner
- Turn on gas

2nd Class 3f– Fire Safety



- Dig a pit from overhanging branches
- Circle the pit with rocks
- Circle a 10 foot area around the pit down to the soil
- Stack extra wood upwind and away from the fire
- After lighting, do not discard match until cold
- Never leave a campfire unattended
- Keep a bucket of water and shovel nearby

2nd Class 3f– Location



Fire is your friend but it also commands respect. Even a small fire, if located in the wrong place, can spread to become a forest fire burning out of control.

The best place to build a fire is on solid rock, mineral soil, or sand. Fires built on dry grass, leaves, evergreen needles, or dead roots are forest fire hazards..

If the ground is dry, scrape down to bare earth. In winter dig down to dirt, or stomp down the snow if it is deep. If the snow is very deep, a small fire can be lit on top of a layer of green logs.

Never build a fire against an old stump.

Build the fire next to water, or have a supply of sand nearby, in case the fire needs to be extinguished quickly.

Never build a fire under a tree, especially in winter. Hot air and smoke rising from a fire can cause melting snow to slump off the tree and fall in the fire. It can also ignite dry humus and leaves to set the tree on fire.

2nd Class 3f– Low Impact



- Build fire only where allowed
- Use existing fire rings and pits
- Collect wood only if it is plentiful and then sparingly, otherwise bring your own
- Make sure your fire is dead out
- Scatter ashes, cover black spot with dirt and ground cover to erase burn scars

2nd Class 3f– Fire Extinguisher



Knowing how to extinguish a fire properly is just as important as knowing how to start one.

- Break up the fire with a shovel spread out the coals evenly.
- If water is available, sprinkle it over the coals while stirring them with a shovel. Continue sprinkling water until the coals are cool enough to touch. Do not to pour large quantities of water on hot coals, lest a sudden rush of steam burn you or any bystanders.
- If water is not available, stir dirt thoroughly through the hot coals, and cover with dirt at least two inches deep. Buried embers can continue to smolder for quite awhile, so check them frequently, and don't leave until all the coals are cool enough to touch.

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