Off-grid Project: Easy DIY Fire Starters

There are so many other ways to start a fire than with matches, a lighter, charcoal lighter, or gasoline, so practice making fires using alternate methods before a major crisis strikes.

The following methods may take a little skill and practice, but if done correctly there will be a fire to cook on and to keep you warm.

Before starting your projects, keep in mind that there are some things to avoid in these projects:

- Do not use gasoline or other petroleum products to help start a fire.
- If you fail to start a fire, do not assume char cloth or other materials will not ignite if the right situation emerges after you walk away.
- Prepare the fire lay area to make sure you can control the fire and any sparks that may come from it.

Fire Enhancers

Tea Lights and Small Candle Pieces

Even though you cannot use tea lights or small candle pieces for starting a fire, they make an excellent short term enhancer.

If fuel sources are wet, or conditions are windy, tea lights can boost a new fire and increase the chance of it taking hold.

Char Cloth

This is a small piece of cloth such as linen, cotton, or jute

that has been charred into a slow burning fuel with a low ignition temperature. It only takes a spark on the material to ignite a tinder bundle to start a fire. Let's see how to make char cloth:

- Cut the cloth into 2"x2" squares.
- Put into a steel can (an empty and clean shoe polish or saddle soap tin works well) that has 3-4 small holes in the lid. Close it tight.
- Put the sealed can on top of campfire coals or on a gas camping stove burner.
- Leave it there 30 minutes or until the smoke stops coming out of the holes.
- The can must cool before opening it.
- When the can is cool to the touch, open the can, remove the char cloth, and store it in an air and water proof container (small plastic bags or in a small metal shoe polish tin).

Tinder Bundle

This is a small bundle of dry grass, an old dry bird's nest, or any fluffy easy to burn plant material. This material is used to fuel a spark. When the spark starts to burn the grassy materials there is a burning flame source to start a campfire burning. For added enhancement, try to include a pine cone, since it has creosote that will burn well.

Strike Anywhere Matches Sealed in Wax

You need strike anywhere matches, candle wax, and kindling and a small fire lay, then follow the steps below:

- Take 6 matches, with three match heads pointing up and three pointing down.
- Tie the matches together with string in the middle.
- Dip the bundle in warm wax, which will water proof the matches.
- To use the fire starter, wipe off the wax on one end of

the fire starter. Then strike the matches on a rough surface.
- When lit place the fire starter in the kindling and build the camp fire around it.
- Use tea lights or small candle pieces in the kindling to add an extra source of fuel and to make the fire build faster.

Keep in mind the rules for storing strike anywhere matches:

- Do not let the strike anywhere matches get wet.
- Do keep in air and water proof containers.
- Do keep in a cool area.
- Do not use gasoline or other petroleum products to help start a fire.
- Do use dry tinder and kindling to start a fire.

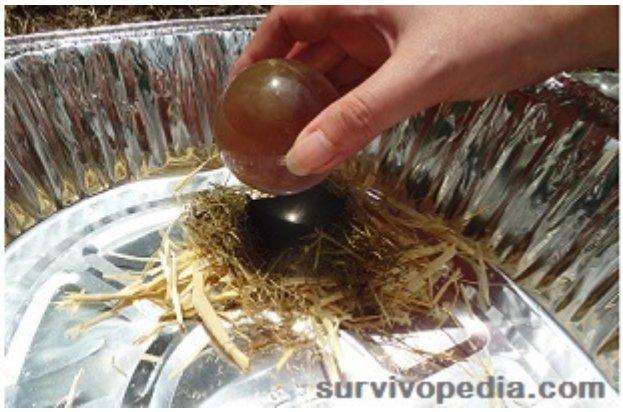
Making a Lens to Start a Fire

You need some materials for this project, so use any of the following, or anything else available in the area:

- Full, clear water bottles
- Balloons
- Clear light bulbs
- Magnifying glass
- Ice block 8”x8”x6”
- Condoms
- Clear quartz point, optical calcite cube, or other shape

- Tinder and char cloth.
- A small fire lay.

When using a lens to make a fire, you will need to determine the optimal distance from the char cloth and the best spot for sunlight to move through. For example, you might get the tightest beam of heat when holding a crystal ball near the char cloth, but a magnifying glass might create the best beam when held further away.



It is also important to realize that some lenses are more fragile than other. In particular, balloons or condoms must be filled with water and handled gently because they are made from relatively fragile materials. If handled too harshly they may break and drown out the tinder bundle.

To start a fire with the homemade lens, hold in your hands the homemade lens of choice, and focus sunlight into a small beam on the char cloth inside the tinder bundle. When smoke appears, remove the lens. Blow on the hot spark until the tinder bundle burns readily, and put the burning tinder in a pre-made fire lay.

You could start a fire also from an ice lens. Find a piece of ice with a clear area in it about 8”x8”and about 6 inches thick. Cut out the clear spot and make into a 6 inch diameter circle. Use a knife to chip it into a lens shaped piece of ice. Smooth the lens with your hands to remove small imperfections.

Focus sunlight into a small beam on the char cloth inside the tinder bundle, and when smoking remove the lens. Blow on the hot spark till the tinder bundle burns readily. Put the burning tinder bundle in a pre-made fire lay.

Please, be aware about a few things when using condoms or balloons to start a fire:

- Use clear or very pale colors with no textures on the surface
- Do not use condoms that have spermicide on them if you also plan to use them as temporary water bottles.
- Do empty out the balloons, condoms, and light bulbs, then store in a plastic bag.
- In the winter, put the ice lens in a plastic bag and store in a cold area.

Reflective Fire Starters

How to Use a Mirror or a Soda Can as a Fire Starter

You need a mirror, tinder and char cloth, and a small fire lay in order to start a fire. Or you could use one aluminum soda can, steel wool, a polishing compound (tooth paste, clay, or chocolate), tinder and char cloth, and a small fire lay. For the mirror wash and dry to remove dirt and finger prints. For a soda can, the bottom must be polished into a good reflective finish.

Aim the soda can or mirror directly at the sun. Find the hottest spot on the soda can or mirror, and hold the char cloth so the reflective heat hits it. When smoking put the char cloth in the tinder bundle and blow on it. When flaming put the tinder bundle in the fire lay.

Remember that there are some rules to follow and things to avoid in order to store these fire starters properly.

- Do keep the mirror in a protective box when not in use

to keep it from getting broken.
- Do keep the soda can with the fire starting supplies.
- Do not liter if you are finished with the soda can.

- Do use char cloth to help start fires when needed.

Battery and Steel Wool Fire Starter

Your need a 9 volt battery, very fine steel wool pads, and kindling and a fire lay in order to start a fire. Using very fine steel wool, rub a 9 volt battery across the steel wool pad until it glows red. Blow on the steel wool pad until it bursts into flames. Add tinder and kindling to make a fire. This method works by sending a current through the tiny steel wires that get super-heated and set the wool on fire.

Here are some rules on how to store them properly, and DOs and DONTs:

- Do keep the 9 volt battery safety cap on when not using.
- Do keep the steel wool and the battery in separate air and water tight containers when not in use.
- Do use dry tinder and kindling to start a fire.

Friction Based Fire Starters

Friction based fire starters use the heat generated by two pieces of wood rubbing against each other to form a hot coal.

<u>Hand Drill</u>

It takes a little more work than the bow drill method, but the hand drill is still an effective way to start a fire if you do not have any cord or missing other parts of the bow drill system. Here’s what you need for the project:

- Spindle: Horse weed, Primrose, Mullen, or Cattail
- Fireboards: White Cedar, Basswood, or Cottonwood
- Green leaves or tree bark to catch the hot coals.
- Tinder to put the hot coals in to flame up and start a

fire.
- Fire lay to put the burning tinder in.

Let’s see how to build a hand drill:

- Spindle length: Cut a piece of horse weed, primrose, mullein, or cattail stem the distance from your arm pit to the finger tips. The diameter is the size of your pinky.
- To make a fireboard: Cut a 4”x8”x1/4” board from the selected woods.
- To make the friction circle on the board use the tip of your knife. Cut in a semi-circle pattern till the spindle turns tightly in the circle.
- To char the friction circle, put the spindle between your hands and rub your hands forward and backward while applying downward pressure till smoke rises from the friction circle. Cut a notch in the fireboard that is about 1/8 the size of the friction circle. Test spin the spindle in the friction circle.

Put green leaves or bark under the fireboard to catch hot coals. The left foot holds down the fireboard. Hold the spindle at the top with both hands, and move the hands back and forth against the spindle while applying downward pressure.

Start off slowly until the spindle notch heats up and is full of dust, then go as fast as you can to heat up the notch until the dust heats up turning into hot coals. Carefully remove the spindle and remove the hot coals from under the fireboard.

Place the hot coals in the tinder bundle and blow on it till there is a good flame. Put flaming tinder bundle in the fire lay.

Of course, there are some rules about their storage and further use:

- Do let the spindle and fireboard cool down.
- Do store in an air and water proof container together as a fire starting system.
- Do use dry tinder and kindling to start a fire.
- Do not let your hand get blisters when using a hand drill to start a fire.
- Do not drop the hot coals when transferring them to the tinder bundle.
- Do cut away from yourself when making hand drill parts.

How to Make…

- Fireboards (medium hardness): you need cottonwood, willow, aspen, tamarck, cedar, sassafras, sycamore, or poplar. Use dead wood or very dry wood for the fireboards. Square off the wood of choice to about 4”x 12” long and about 1” thick. Cut small circles with a knife about the diameter of the spindle near the edge of the board. Cut a small notch opening from the outer edge of the board into the circle about 1/2” wide to catch the hot coals.
- Spindle: You need the same type of wood used for the fireboards or harder. Use very dry wood or dead wood for the spindle. Select a piece of wood that is semi round about 12” to 16” long. Remove all bark from the spindle. Round it off so it is as straight as possible and does not wobble when spinning. The top of the spindle needs to be carved to a point. The other end is just rounded off to fit the fireboard friction circle.
- Bearing block: Use a piece of hardwood such as oak, alder, ash, basswood, birch, or cherry. Use candle wax, grease, soap, or balled up and shredded green leaves to the bearing block to act as a lubricant. Find a small block of hardwood that fits your hand. With a small hole cut in the center of the block to hold the spindle upright as the spindle spins in the fireboard. The bearing block must be lubed with soap, grease, or

shredded leaves to make the spindle spin easier.

- Bow: Use the same wood as the fireboard or spindle. This wood should be flexible, slightly curved, as long as your arm, and as thick as your thumb. You also need Paracord or other cord for the bow string. To build the bow drill, take the flexible and slightly curved bow wood and tie the bow cord to it a both ends. Be sure the cord is tight, so the spindle will spin freely with enough pressure to generate the needed friction to heat the coals.

For starting a fire using the starters listed above you also need tinder to put the hot coals in to flame up and start a fire, and fire lay to put the burning tinder in.

How to Work the Bow Drill (Right Handed)

Put lubrication in the spindle hole of the bearing block. Put green leaves or bark under the fireboard by the notch to catch hot coals. The left foot holds down the fireboard while kneeling. Put the spindle into the bow by holding the spindle in your left hand with the point pointing toward yourself.

With the bow in right hand, lay bow string on top of spindle then twist to encircle bow string. Bow string must not be too loose or too tight. Spindle must be firm in the bow. Use a finger to control bow string tension.

While holding the lubed bearing block, insert the top of the spindle. Place the bottom of the spindle into the fireboard hole. Move the bow back and forth to create friction. Glowing coals will fall out through the notch in the fireboard landing on the transferring leaves or the piece of bark.

Transfer the burning coal to a tinder bundle and blow on it to flame up in the tinder bundle. Place the flaming tinder bundle into a fire lay.

To store it, keep in mind a few simple rules:

- Do let all of the parts of the bow drill cool down.
- Do use dry tinder and kindling to start a fire.
- Do store all parts together as a fire starting system in a single container.
- Do always cut away from yourself when making bow drill wooden parts.
- Do not drop the hot coals when transferring them to the tinder bundle.
- Do lubricate the bearing block when using the bow method of fire starting.

Magnesium Block and Steel Striker (can also be used with flint and steel)

Needed materials:

- Magnesium block and striker to make a hot spark.
- Char cloth to catch the hot spark.
- Tinder bundle of dry grass to fuel the hot spark.
- A small fire lay to receive the flaming tinder bundle.

To make a fire, place a piece of char cloth on a hard surface like a piece of wood, and put magnesium block on the char cloth. Push striker down the magnesium block causing sparks. Char cloth catches the hot sparks. Put lit char cloth into tinder bundle and blow on it until a flame is visible and burning. Put burning tinder into a fire lay and blow some more until the fire is burning good.

Let’s see how to store properly and what the things to do are and things not to do:

- Do store as a fire making kit in its own air and water proof container.
- Do not use gasoline or other petroleum products to help start a fire.
- Do use dry tinder and kindling to start a fire.
- Do use char cloth to help start fires when needed.

Using alternate fire starting methods could be a life saver in the times after a major crisis. The time to learn these methods is now before any crisis has occurred.

You may think it is easy to start a fire without matches or a lighter, but it is not. Do not become one of the many that could die without this special training.

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*This article has been written by **Fred Tyrell** for Survivopedia.*