

BUILD YOUR OWN ROCKET STOVE

Why? – Rocket Stoves are:

Fuel Efficient: Because they direct all the heat energy (from the flames) upward, most of the heat actually goes into heating the food, rather than being radiated outward (like most campfires).

Hot: Rocket Stoves have been measured at 1200° F (649° C). That is easily hot enough to melt some metals (lead, bismuth, tin, indium, antimony, and a few others [it's not quite hot enough to melt Aluminum at 1220° F]). It is also hot enough to ignite magnesium.

Safe: If you should abandon your Rocket Stove, or leave it unattended, it will go out within a minute or two.

Easy to Build: You can build your own Rocket Stove with materials that are just laying around at home, and inexpensive things that you can easily obtain from the hardware store. (see accompanying list of materials for your Rocket Stove).

Outdoor: Caution -- For outdoor use only!

STEP 1 -- To Start:

1) All you need is two standard “#10 cans” (commonly called “institutional sized” cans). They are about 6 inches wide at the top, and about 7 inches tall. You can get these for free by asking at restaurants, bakeries, school cafeterias, etc. They often throw many of these cans away every week.

2) Save the can lid when you open the can. You will need one of the can lids for your Rocket Stove.

3) **Watch the video on Google Video** that shows how to make a Rocket Stove. My demonstration here (in the photo) is an adapted version of the stove that is featured on Google Video. (**type in the search terms “rocket stove” and choose the video that is 20 minutes long** and has at least than 76 ratings).

List of Materials to build your

Rocket Stove

<u>Quantity</u>	<u>Item</u>
2	#10 cans
1	tin snips
1 or 2	regular tin cans (you'll cut part of the top off with the tin snips to make the pot rack)
1	straight 4-inch stove pipe (an 18-inch or 24-inch length is OK for this)
1	elbow section of 4-inch stove pipe
1	awl (for starting holes for the screws)
4	small pie tins (or small 2-inch by 2-inch pieces of THICK aluminum foil)
1	package of JB Weld (NOT the similar-looking "JB Kwik"). JB Weld is heat resistant to 500° F , but JB Kwik is only heat resistant to 200° F)
1	sharp ½-inch chisel (or ¾ inch chisel)
1	6 inches of aluminum foil, (only in case it is necessary) to fill in gaps around the the hole where the elbow joint protrudes from the side of the can. This will prevent insulation from falling out.
1	<u>piece of wood to work over.</u>
1	screwdriver (Robertson, Phillips or regular, depending on which screws you have)
10-20	metal screws (if you want to install a built-in pot rack)
10-20	nuts for screws (if you want to install a built-in pot rack)
1	small package of vermiculite. (You can also use crushed pumice or ashes)
1	pencil or pen (for marking things before cutting, etc)
1	pair of gloves. Be careful. If you don't wear gloves, the sharp metal edges can easily cut you.
1	metal file
1	<u>hammer</u>
several (6-8)	dry twigs to burn in the stove (small, 20-30 cm long, and only about ½ cm in diameter)
1	small diameter cooking pot (or 64 oz. can or 32 oz. can (2-litre can or 1-litre can) to use as a cooking pot.)

Watch the video on Google Video that shows how to make a Rocket Stove. My demonstration here (on display) is an altered version of the stove featured on Google Video. (Type in the search terms "rocket stove" and choose the video that is 20 minutes long and has at least than 56 ratings).

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STEP 2:

- 1) Cut a 4-inch hole in the side of one of the #10 cans, with tin snips, about 2.5 cm from the bottom of the can. Do this over some newspapers, so you don't accidentally drop sharp pieces of metal onto your carpet (you don't want to cut your foot later, right?)
- 2) If you cut the hole to the exact size, you will be able to barely fit the elbow-piece of 4-inch stovepipe through the hole (from the inside of the can). Be sure the 'corrugated' part of the elbow remains inside the can, pointed upwards.
- 3) With a can opener, cut the top and bottom off the other #10 can, so that you can see completely through it.
- 4) Using a sharp chisel and a hammer, cut a 4-inch hole out of the middle of one of the can lids. Do this against the piece of wood that you brought. That way you won't damage your floor (or the chisel).

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STEP 3:

1) Using the JB Weld, glue the two #10 cans together, making sure that the lid-less one is on the top. Leave this to dry. It takes 24 hours for JB Weld to set completely.

To reinforce this, you can later bolt the two cans together if you want.

2) Cut off a 6- to 6 1/2-inch section of the straight stove pipe (from the smooth end). Fit it to the top of the elbow piece of stove pipe in the Rocket Stove.

3) Fill the interior of the Rocket Stove (inside the stove, but NOT inside the stove pipe. This will be insulation that will keep most of the heat of the flame from radiating outward) with the vermiculite (or ashes or pumice). Fill it up to about 2-2.5 cm from the top of the stove pipe. Pack the vermiculite down tight.

4) place the donut-shaped can lid over the stove pipe and slide it down as far as it will go. This will prevent the vermiculite from 'leaking' or falling out.

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STEP 4:

1) Now you can cut strips of metal off the tops of tin cans to create the 'spacers' (pot rack) that you need to keep your cooking pot far enough from the top of the stove pipe so that it won't smother the flame (3-5 cm wide should be sufficient).

Using an awl, poke training holes in the #10 can, and in the metal strips, where you want to insert the machine screws, where you need them to be.

Then you insert the screws and tighten them.

2) Cut off a 6-inch section of the straight stove pipe (from the corrugated end). Insert the corrugated end of this stovepipe into the elbow end that protrudes from the side of the Rocket Stove.

3) Cut another piece of metal from another tin can. It needs to be 4-inches wide (10 cm)(except the very top ½ inch) and about 5 or 6 inches long (13-16 cm). Make sure the very top of this piece of metal forms a slight 't-shape', with the top being about 4 ½ inches wide. Clip the corners off to get rid of the points, and file all the edges with the file to minimize the danger of cutting yourself. **This is the tray where you will lay the sticks that you will burn.** Slide it into the horizontal stovepipe that protrudes from the side of the Rocket Stove.

4) Now you are READY TO BURN! Go outside and test your Rocket Stove. Boil some water and see how fast it boils.