

[Kathy Dahl-Bredine](#) developed the **Windshield Shade Solar Cooker** while experimenting with various designs of cookers to introduce in the indigenous communities where Kathy lives and works in southern Mexico. She hit upon an utterly simple way to make an instant portable solar oven. Taking a reflective accordion-folded car windshield shade, you can turn it into a version of the solar funnel simply by attaching little Velcro tabs along the long notched side.

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Materials needed

- Reflective accordion-folding car sunshade
- Cake rack (or wire frame or grill)
- 12 cm. (4 ½ in.) of Velcro
- Black pot
- Bucket or plastic wastebasket
- Plastic baking bag

Instructions

Making the funnel

1. Lay the sunshade out with the notched side toward you, as above.
2. Cut the Velcro into three pieces, each about 4 cm. or 1 ½ inches long.
3. Stick or sew one half of each piece, evenly spaced, onto the edge to the left of the notch. Attach the matching half of each piece onto the underneath side to the right of the notch, so that they fit together when the two sides are brought together to form a funnel. (I first tried sewing these on a sewing machine, but found it cut through the reflective material.) If using stick-on Velcro, you can align the two pieces easily like this: Stick down one side of the Velcro, then press the two pieces of Velcro together, fold the shade into the funnel shape and stick down the second side.
4. Press the Velcro pieces together, and set the funnel on top of a bucket or a round or rectangular plastic wastebasket.
5. Place a black pot on top of a square cake rack, placed inside a plastic baking bag. A standard size rack in the U.S. is 25 cm. (10 in.). This is placed inside the funnel, so that the rack rests on the top edges of the bucket or wastebasket. Since the sunshade material is soft and flexible, the rack is necessary to support the pot. It also allows the sun's rays to shine down under the pot and reflect on all sides. If such a rack is not available, a wire frame could be made to work as well. Note: The flexible material will squash down around the sides of the rack.



Tips

Cooker with stabilizing stick

- The funnel can be tilted in the direction of the sun.
- A stick placed across from one side of the funnel to the other helps to stabilize it in windy weather (see photo).
- After cooking, simply fold up your “oven” and slip the elastic bands in place for easy travel or storage.



I have found this totally simple solar oven extremely practical, as it is so lightweight and easy to carry along anywhere. But in addition, it has reached a higher temperature in a shorter time than all the other models I have experimented with so far (I haven't used a parabolic) - a little above 350 degrees F. I have cooked black beans in about the same amount of time as on a gas stove; I've used it to bake breads, granola, brownies, lasagna, all sorts of vegetables, and to purify water. The sunshade may not be available everywhere, but I suspect it can be found in most urban areas, since I found it here in southern Mexico. The Velcro was also available in fabric stores. Cost of the sunshade was about \$3.00 USD; the Velcro about \$.25.



Variations

"Super-size" variation



Size comparison between car windshield shade cooker and the super-size version.

[Sharon Cousins](#) has come up with a super-size version made from a windshield shade cover sized for a large pickup truck or SUV. The larger size requires something on the order of a tub instead of a bucket for support. The 19" round grate from a broken fan helps hold the windshield shade in the tub and helps maintain the shape. Pots rest on a flat grate laid across the edges of the round grate, which lets a lot of light get under the food. .



Close-up of Sharon Cousins's super-size windshield shade cooker showing details of double grate system. This cooker is vulnerable to wind, so put some weight (such as a large rock or two or three) in the tub, and if it is very windy you can also put a few foiled rocks on the grates to help hold it all down. This super-size version can handle up to two gallons of food or up to ten pounds of meat in decent sun. In really good sun, it has gotten a full two-gallon water boiler hot enough for dishwashing (too hot to put a bare hand in) in less than an hour. This cooker gets almost hot enough to saute, and will get smaller amounts of food very hot very quickly. In one soup stock cooking adventure at the height of summer '07, a 1 qt. cooking jar stuffed with the bones and skin of a roast chicken, some seasonings, and water with a little wine to fill, was set to cook on a glass plate under a

glass cover. The contents reached a good boil and fat from the top began boiling over and out of the jar, where it not only continued to boil and bubble on the glass plate under the cover but also bubbled on the plate *outside* of the glass cover where it was seeping under the edge! NOTE: The double-grate system will work with a smaller shade, too... usually around 13-14 inches in diameter is about right for the broken fan grate. At least in the developed world broken fans are not hard to come by. Double-grating probably gives more benefits to those suncooking in the north than it would closer to the equator.

Steel bowl variation



Inside this cooker is a Pyrex Pie Plate on a short candle stand. On top is a Pyrex Bowl. More info: http://arnies-solarcooking.blogspot.com/2008/06/steel-bowl-cooker_22.html

See also [Aluminum Roasting Pan Solar Cooker](#).

Two steel bowl variation

[Arnies-Solarcooking blog](#) also came up with this variation that sandwiches the windshield shade between two metal bowls.]



The picture above was my first attempt using an 18 gauge stainless steel mixing bowl and a windshield shade. I used the buckets (weighted with rocks inside) to hold the shade around the bowl. I could get water temperatures up to 150F, but not much higher. I bought the bowl at a restaurant supply house in my home town.

I struggled for a month to find some way to attach the shade to the bowl... eventually I thought I need something the same shape as the bowl to easily hold it in place, hence, the second mixing bowl.

I used silver 'pinch' style paper clips to hold the ends of the shade onto the bottom bowl, and at the back where the rear view mirror depression was to help the shade conform more to the bowls.

With this design, I have been able to get 2 cups of water to a boil within an hour. Larger amounts of soup- with broth, vegetables and meat- will get to 200F easily.

I have more photos of this cooker at [my blog](#).

I live in The Middle of Nowhere, Texas (San Angelo) Lat: 31.38 Lon: -100.5 Elev: 1916

UltraLightCooker variation



This variation using foam panels for support was designed by [Andrew Kotowski](#). We built this cooker specifically for this trip to [Poland](#). Our object was to build a simple cooker, dismount, light, cheap and easy to carry. It is good for a demonstration and to cook simple meals.

Materials used: Sunshades car and plate of polystyrene (1.5 cm thick).
Weight: 0.5 kg (no recipient).

Kettle Cooker variation



View of top of kettle cooker.

Converted kettle grill cooker meets the sun for the first time

[Sharon Cousins](#) built this powerful cooker from an old kettle grill. The addition of windshield shade reflector at the back makes it a very strong cooker. On its maiden flight, temperatures in the cast iron fry pan under the glass lid reached 225° F by 8:30am, 250° F by 8:45am, and by mid-afternoon it was running just shy of 325° F. The tilt angle of the reflector can be adjusted to keep the hot spot over the pan. This is a very good cooker for demos, as it can turn out a hot quesadilla or pan of nachos (slip black plates or shallow pans of nachos into the **pre-heated** cast-iron fry-pan—use an upside down Pyrex pie pan or bowl for a lid if your glass lid is too shallow for a pile of nachos) in under ten minutes.

A disposable aluminum pie pan is used to close the hole in the bottom of the kettle and the rest of the kettle is lined with heavy-duty aluminum foil. The fry pan rests on the grill that formerly held the charcoal and is covered with a glass lid from a thrift shop. The top of this kettle is covered with a [24"x30" oven bag](#), available from restaurant supply stores that carry specialty bags such as the [Webstaurant Store](#). It is laid flat, so it is actually a double cover, and held on with binder clips. As shown, the cast iron pan with glass lid gets very hot, but the ambient air temperature in the kettle is not tremendously hot, so any clear plastic might be worth a try if you do not have access to an extra-large oven bag, or you could cut open two turkey-size bags to get large flat pieces and cross them over the opening, which might work depending on the size of your kettle. Sturdy spring clamps are used to secure the windshield shade and adjust the angle. If you still have the metal cover to your kettle grill and you are in the time of year when you use your kettle cooker almost daily, you can cover your cooker (at least if you used small binder clips, which do not interfere) and leave it out without having to end up with dew residue and excess dust clouding your cooker top. In the morning just take off the cover, clip on the booster, and let your pan start heating. To perform well, the cast-iron must be pre-heated, so if you're going to use it, the sooner you start it heating the better.

Part of what makes this arrangement so hot is the thermal mass of the cast iron. One attempt to bake bread in it indicates that lighter pans would need to be oven-bagged or otherwise greenhouseed in addition to the clear cover on top of the kettle. Sharon believes that this cooker will cook in alternative pans, but only with an additional greenhouse around the pan. This is a case where cast iron gives vastly superior performance, but only if it is **well pre-heated**.

Armando Herculano variations



Other designs using windshield shades by [Armando Herculano](#) in Portugal

Wheelbarrow variation



Windshield shield cooker made mobile with a wheelbarrow



Food cooking in the mobile windshield wheelbarrow cooker