

DIY SOLAR COOKER

There are more ways to harness the sun's energy than installing solar panels and rewiring your home. The sun's rays, energetic streams of photons, carry heat and light. These rays power our forests, fields and oceans, and with some old boxes and aluminum foil you can use these rays too – to cook!



Diagram of a Solar Cooker (click image for source)

A solar cooker is a device that captures the sun's rays with reflective panels, holds the long heat wavelengths with a greenhouse-like clear barrier, and directs all of that energy towards a ray-absorbing black cooking vessel in the middle. These ovens have been used in different projects across India and Africa to replace the dirty and inconvenient use of biofuels for cooking and sanitizing water. But anyone can make the most of the sun's energy to make meals completely off the grid.

If you're interested in making a solar cooker yourself, follow the easy steps below:

1. Choose a Design

Before building your solar cooker, you must choose a design that best suits your needs and resources. Some of the more complicated projects require the use of power tools and construction experience, while others can be done with glue and scissors. Based on this author's review of construction designs on the web, the

following two models are good starting points for any beginner DIYer. A more complete list of models may be found [here](#).

i. The Funnel Cooker



The Funnel Cooker (click on image for source)

This is physicist's Steven Jones' take on a simple cone design with a bag insulator. All you need for this project is a big piece of cardboard, glue, aluminum foil, wire or string, a jar or pot with lid, black paint, a wooden block and a plastic bag. This isn't a complicated model so feel free to play around with the angles and materials. Full instructions [here](#).

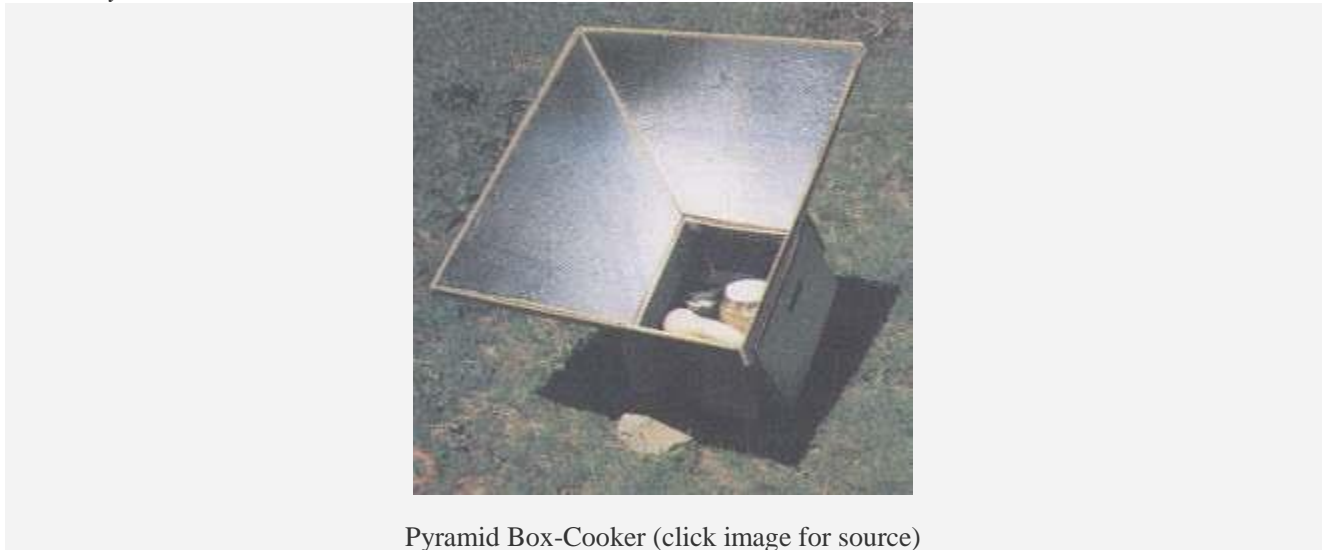


Plastic bag insulator (click on image for source)

One of the drawbacks to this design is the flimsiness of the material.

The cardboard will harden if left in the sun and protected from the rain, but the plastic will break down from the sun's rays. You will know that your plastic is bust when it starts to appear milky. This isn't harmful to you, as your food will be protected in its container, but you will have to replace the plastic if you want to keep using the cooker, making this greenhouse system a wasteful one. Using a more sturdy plastic can make it last longer, however.

ii. The Pyramid Box-Cooker



Pyramid Box-Cooker (click image for source)

This model, created by solar cooker hobbyist Joe Radabough, uses sturdier materials and a double-box oven for increased insulation. You will need the same materials listed above, but using wood instead of cardboard is an easy and worthwhile substitution for this model if you plan on keeping your cooker for a few years or are unable to protect it from the rain. Also, this design solves the problem of deteriorating plastic insulators by using a glass pane.



Side view (click image for source)

It is difficult to find used glass panes, and even more tricky to cut them yourself, however, so you may want to base the dimensions of your cooker on the glass you have, or invest in having a pane cut for your purpose at a hardware or picture framing store. Full instructions [here](#).

For more models check out [“Build it Solar”’s webpage](#).

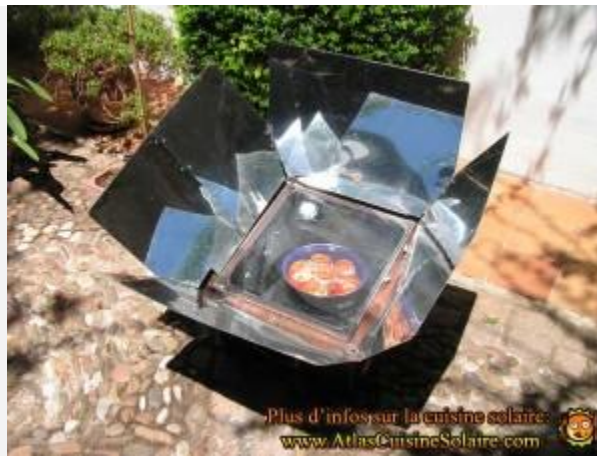
2. Gather the Materials and Build

Before following the instructions of your chosen design, gather everything your project needs. Try using used materials as much as possible to reduce the price and energy-impact of your cooker. Used cardboard can usually be found at grocery stores, or furniture depots for the bigger pieces. You can wash and keep your own tin-foil for the reflective parts. And if you choose to build using wood (like in design ii), good pieces can be salvaged from old furniture at garage sales or on the sidewalk on garbage pick-up days. Same goes for the glass, though it’s typically more difficult to find.

3. Wait for a Sunny Day and Cook

Depending on your latitude and the season, your solar cooker could be more or less effective. Cooking in the early afternoon in the summer of a tropic region is twice or three-times as effective as solar cooking in Canada. But a solar cooker works anywhere there is sunshine!

Since you built your cooker, it is a unique device and will need a lot of trial and error before you master how to use it. My suggestion is, start with simple recipes like baked potatoes and steamed vegetables, set your cooker out as early as eleven a.m. (or earlier if you live in a warmer climate), and check it as often as you can. Don't be discouraged! You will be baking bread and simmering spaghetti sauce before you know it! Here are some recipes to get you started:



Solar Cooker Stew (click on image for source)

- Recipes for beans, mac 'n' cheese, bread, veggies and more.

- A full recipe wiki from salsa and broccoli casserole to solar brownies.

When using your cooker remember to protect your eyes with sunglasses at all times, wear oven mitts when handling the cooker and food containers after they have been in the sun, and have fun with your very own solar-powered project!



1981 Solar Energy Fair (click image for source)

Source : <http://www.sassweb.ca/3bb3/solar/diy-solar-cooker>