



## Build a Solar Cooker

A solar cooker uses the energy of the Sun to cook food. An essential part of all solar cookers is a reflector. This is a shiny surface that reflects and concentrates the Sun's energy. There are many possible shapes, but most use a bowl shape.

This solar cooker, designed by a student at SMK King George V in Seremban, Malaysia, uses 12 trapezoid-shaped panels. The panels are made from polycarbonate board and covered with aluminized plastic sheet. The sections are held together with flexible tape hinges. The bottom is a round piece of polycarbonate covered with aluminum foil.



In the center of the solar cooker is a pot with the food to be cooked. The pot is inside a glass enclosure. This traps heat and keeps the food at a higher temperature than would be the case without the enclosure.

The metal cooking pot is black so as to absorb more of the Sun's energy. The enclosure is made from five square pieces of glass joined together with silicone glue.

Hafiz built a version of this solar cooker at a workshop in Malaysia in May 2008. It had 10 panels instead of 12 and used a plastic bag rather than a glass box to enclose the cooking pot. The temperature in the pot reached 86°C (187°F).

For detailed instructions on how to build the award-winning KGV solar cooker, as well as some great recipes, visit the school's Maxis web site:

[maxis.comunities.com.my/sites/cygeorgev2006/index.cfm?h=page&a=parabolic](http://maxis.comunities.com.my/sites/cygeorgev2006/index.cfm?h=page&a=parabolic)



## Design and Build Your Own Solar Cooker

Here are some things to consider when making your own solar cooker:

1. You need a shiny surface to reflect and concentrate the Sun's energy on the food.
2. It is good to have an enclosure around the food to contain the heat. This prevents hot air from escaping. This will raise the temperature and speed up cooking time. The enclosure needs to be transparent so sunlight gets in. Glass or clear plastic will work.
3. Notice that the pot in the KGV solar cooker is black. A black surface absorbs more heat than a lighter-colored surface does. If you are using a pot to contain your food, it is best to get a black one, or to paint the exterior of the pot black. Use a nontoxic paint and make sure it is only on the outside of the pot.

### Web sites with information about solar cookers

The Solar Cooking Archive (<http://solarcooking.org/plans/default.htm> )

Here's a web site with plans for many different types of solar cookers.

ZOOM by kids for kids (<http://pbskids.org/zoom/activities/sci/solarcookers.html> )

More solar-cooker designs with instructions.

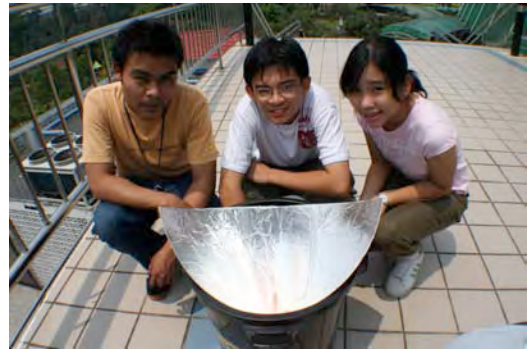
Build It Solar (<http://www.builditsolar.com/Projects/Cooking/cooking.htm> )

More plans and links to other Web sites.

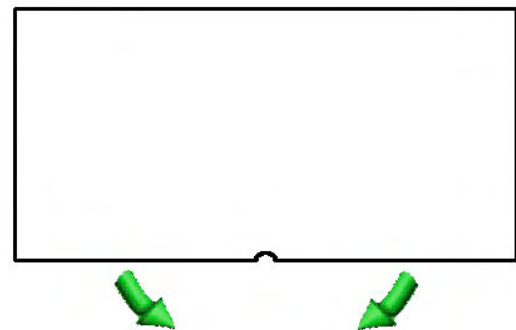
## SEED Students' Solar Cooker Project Examples

### The Funnel Solar Cooker

Here's another solar-cooker design. It was developed by SEED students working with Roger Sipitakiat, a SEED workshop facilitator, during a SEED exhibition at the Malaysia National Science Center in August 2006. This one is made by covering a piece of flexible cardboard with aluminum foil and then folding it into a funnel shape.



The cardboard should look like the picture at left. Cut a small half circle out of the center of one edge. Cover the cardboard with aluminum foil. Then bring together the two halves of the edge with the half circle cut to make the funnel. Join the two halves with a wide strip of tape.



Push a skewer up through the bottom of the cone and place the food on the skewer. This cooker is especially good for hot dogs. Place the cooker in a bucket so it can easily be aimed toward the Sun.

In the picture (far right) you can see that there is a plastic bag over the hot dog. This works like the glass enclosure in the KGV solar cooker to contain heat.



### **The Sunflower Solar Cooker**

Students at SMK Puncak Alam in Malaysia designed and built this “sunflower” solar cooker using cardboard panels covered with aluminum foil.

This cooker can be folded up so it becomes portable and thus suitable for hiking and camping.



For more information on the sunflower cooker, including detailed instructions on how to build it, read the students’ report

[http://www.seed.slb.com/en/things\\_to\\_do/projects/energy\\_efficiency/SolarCooker\\_SMKPA.pdf](http://www.seed.slb.com/en/things_to_do/projects/energy_efficiency/SolarCooker_SMKPA.pdf)