

SOLAR FURNACE

PARTS AND MATERIALS

NUMBER REQUIRED	PART	SIZE	MATERIAL
1	Fresnel Lens	Varies	Plastic Fresnel Lenses may be purchased from Edmund Scientific Company. All other parts and sizes dependent on lens size.

PROCEDURE

You can make a simple solar furnace with a Fresnel lens (pronounced "Freh-nel") mounted in a wooden frame as shown in drawing. The frame can be made from 3/4" x 1 1/2" (20mm x 37mm) lumber. Since these lenses come in many sizes and focal lengths, no dimensions are given for this project. The builder can add his or her own dimensions after a lens has been purchased.

It is recommended that the lens be placed between two pieces of glass since the lens can be easily damaged. Be sure to drill holes and install 1/4" (6mm) bolts before assembling lens frame. The L-shaped bracket that holds the lens should be cut to the proper length to match the focal length of the lens. Take into consideration the height of the crucible in making your calculations. The crucible can be ordinary firebrick bolted to the arm.

A 11" x 11" (280mm x 280mm) Fresnel lens will develop a temperature of 2000° F so be very careful. Do not ever look directly at the projected image of the sun. You could severely damage your eyes. Remember that the lens is concentrating all the light from lens into one tiny spot. Wear dark glasses whenever you are working with your lens.

To use your solar furnace, adjust the furnace until the light is concentrated on the crucible. Remember to wear dark glasses. Periodically you will have to adjust the furnace as the sun moves across the sky.

A solar furnace cooker could also be made with a Fresnel lens by a simple variation in design. The cooker, in effect, will be a double boiler with the can of food to be cooked being placed inside a slightly larger can filled with water. See the insert drawing for this variation.

NOTE:

Never let the focused light touch you or the wooden frame. If it does, you will be burned severely and the wood will burst into flames.

**SOLAR FURNACE or
COOKER**

