

Solar Cooker

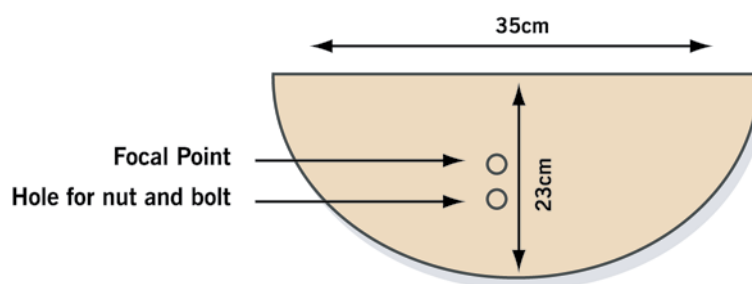
A parabolic collector is made up of a U shaped reflective trough and a tube running down the centre of the trough. The reflector trough or mirror is tilted toward the sun to focus the sunlight on the tube. The tube carries the fluid to be heated. In commercial systems a tracking device keeps the mirrors pointed toward the sun as it moves across the sky. Parabolic collectors are used mostly to provide hot water for use in industry and sometimes in homes. They are also used to produce electricity. In this activity you can make a model of a parabolic solar collector that will cook a sausage.

What you need:

- 30 x 35 cm sheet of aluminium foil
- One 30 cm square and one 28 x 35 cm piece of cardboard
- 1 unpainted wire coat hanger
- Sticky or masking tape
- 1 box similar to a shoe box without a lid for the frame.
- 2 nuts and bolts

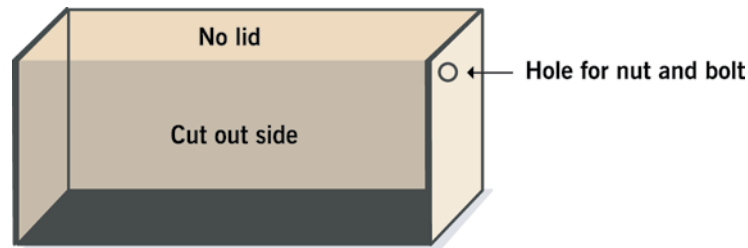
What you need to do:

1. Make the two ends of the parabolic trough out of 30 cm square cardboard using these measurements.



2. Tape the aluminium foil to the piece of 28 x 35 cm cardboard.
3. Curve the aluminium foil covered cardboard and tape it to the two trough ends.
4. Carefully remove one long side out of the box frame. Punch holes in the ends of the box in the free corner i.e. the top corner adjacent to the side, which has been removed.

5. Attach the trough to the box frame using nuts and bolts through a hole in the end of the trough and through the end of the box frame.



6. Make sure the trough can swing backwards and forward but will stay in one place.
7. Put holes at either end of the trough focal point.
8. Straighten the wire coat hanger and bend one end to make a handle.
9. Push the straightened coat hanger wire through the hole on one side of the trough, thread the sausage lengthwise on the wire and push the wire through the hole on the other side of the trough.
10. Place the solar cooker so the mirrored trough faces the sun.
11. Adjust the trough up and down until the mirrored surface focuses the sun on the sausage.

Consider these questions:

1. How long did it take to cook the sausage?
2. Did you have to move the cooker to keep the sun focused on the sausage?