

## Physics

### Activity 6 – Working of a Solar Cooker

#### Chapter – Sources of Energy

**Class:** X

**Duration:** 60 minutes

**Nature of activity:** Group

#### **Learning Outcome:**

Students will be able to

1. design their own solar cooker.
2. enlist the uses of harnessing solar energy.
3. compare solar energy with the other conventional sources of energy.

#### **What we have to do?**

To design a solar cooker and demonstrate its working.

#### **What do we require?**

Cardboard box, pencil, ruler, scissors/cutter, Aluminium foil, clear tape, newspaper, black chart paper, plastic wrap, bowl, food item to be cooked (rice or potatoes).

#### **What do we need to know?**

Energy demands of the progressive world have resulted in the depletion of conventional natural resources. The global concern is to use the existing non renewable resources judiciously and discover the renewable and non-conventional sources of energy. If it is not done then a day will come when we will have to live a life similar to early man i.e. no electricity, no vehicles, no luxury!!!! Solar energy is one such renewable source of energy which is globally available to us.

#### **How will you proceed?**

##### ➤ **Teacher's Activity**

Teacher will discuss the basic components of a solar cooker and also guide students on how to perform the activity.

##### ➤ **Student's Activity**



1. Using the ruler and pencil, draw a square one inch in from the edges of the top of the box.
2. Use the box cutter or knife to cut out three of the four sides of the square.
3. Make a crease along the uncut side of the square to create a flap that stands up.
4. Cut a piece of aluminum foil large enough to cover the inner side of the cardboard flap.
5. Wrap the foil tightly, and secure with tape.
6. Line the bottom of the pizza box with black construction paper.
7. Cut two pieces of plastic wrap that are the same size as the top of the pizza box.
8. Use tape to secure the plastic wrap to the inside edges of the square window you cut into the box to create an airtight window.
9. Roll up some newspaper pages into tubes to stuff into the sides of the box. Make sure you are still able to close the lid of the pizza box.
10. Now it is time to cook something! The best time to use your solar cooker is between 11 AM and 2 PM.

#### **What have you observed?**

| S. No. | Food Item to be cooked | Time taken to cook the food item |
|--------|------------------------|----------------------------------|
| 1      |                        |                                  |
|        |                        |                                  |

#### **What have you learned?**

The harnessing of \_\_\_\_\_ is envisioned as energy saving and clean technology.

#### **What more can we do?**

1. Use a thermometer to note down the temperature achieved in the solar cooker.
2. Identify the problem(s) with the existing solar cooker and suggest the modifications so as to solve the problems(s). Design your own solar cooker based on the suggested modifications.

#### **Extended Worksheet**

1. Why is the outer surface of solar cooker covered with black paper?
2. What is the need of creating an air tight window using a plastic wrap?
3. Now-a-days Solar Energy can also be harnessed using solar cells/panels. Discuss the advantages as well disadvantages of solar cells/panels.
4. Rajasthan is one of hottest state of our country where sunlight incidents directly and intensely. Explain how people in Rajasthan harness the solar energy.
5. Find out the initiatives taken by the authorities in Delhi to encourage the use of solar energy.

