

SOLAR WATER FILTER

- Grade Level: 4-6
- Subjects: Science
- Suggested Time: 1 hour, plus waiting time until water has distilled

Make a solar distiller.

Materials

Two large plastic containers, plastic wrap, masking tape, two small rocks, two small glasses, two tablespoons of dirt, two tablespoons of sand, water.

National Standards

Science:

- Science as inquiry.
- Transfer of energy.
- Properties and changes of properties in matter.
- Earth in the solar system.
- Abilities of technological design.

Ohio 2010 Standards

Science:

- Scientific inquiry and applications. (4-6)
- The total amount of matter is conserved when it undergoes a change. (4)
- The sun is one of many stars that exist in the universe. (5)
- Changes of state are explained by a model of matter composed of atoms and/or molecules that are in motion. (6)

Objectives

The student will be able to:

- Use the scientific method to test a hypothesis.
- Create a solar water distiller.
- Explain how the distiller system works.



Teacher Preparation

- Read how to make a solar water distiller here:
<http://www.need.org/Files/curriculum/sciencefair/SolarDistillation.pdf>
- Watch how to make a solar water distiller here:
http://www.metacafe.com/watch/723941/solar_water_distiller/

Introduction

- Ask students if they have ever watched a movie or television show about survival. How did the people in the movie or show purify water for drinking?
- Explain that water purification takes a large amount of energy, but can be done using solar energy (the sun). Ask students to form a hypothesis of whether they can remove dirt and sand from water using solar energy. Tally responses on the board.

Activities

- Use the instructions from the teacher preparation to help the class build a solar distiller.
- While waiting for the water to distill, review the scientific method and how it applies to the activity. (This will not take the whole waiting period).
- After the water has collected in the cups, allow students to look for dirt and taste whether it is still salty. Write the conclusion under the board under the hypothesis.
- Ask students how they think the distiller works. Help them describe the role of part of the distiller.

Extensions

Students may create a different type of water purifier, a sand filtration system. For instructions see http://www.ehow.com/how_5507017_make-water-filter-science-experiment.htm.

Closing

Ask students to imagine a situation when they might need to purify water. Do they remember how to create a distiller, given the necessary supplies?