

Water-makers

Objectives

Students will:

- Understand the Hydrologic cycle
- Build a plastic water condenser
- Observe condensation and water collection from evaporation

Background

Did you know there is no new water? The water we use today may be the same water a dinosaur drank or bathed in. The water we drink may have traveled through the hydrologic cycle thousands of times. It is the same water that agriculturalists have been using for centuries. Following the Hydrologic cycle, water falls to the earth in the form of rain or snow. Then it runs into lakes and streams or soaks into the ground to become part of the underground water supply. Eventually, water evaporates back into the clouds to make more rain or snow.

Evaporation takes place because of the sun's heat. This experiment works best if it is done over a period of time when the temperature changes considerably (overnight is best). The water found in the can at the end of the experiment was formerly in the soil.

The dark plastic heats the soil during the day. At night, the temperature of the plastic drops faster than the soil temperature, causing moisture to condense on the plastic. The slope of the plastic causes the droplets to flow into the can. Hint: Black plastic and moist soil work best.

Experiments can be simulated indoors using heat lamps for sunshine if the air gets cool enough at night to contrast with the heat. The soil you use must be damp to the touch. Generally, indoor experiments are not as reliable as outdoor experiments.

Procedure

- In the ground, dig a small pit wider and deeper than the can. Slope the surrounding dirt toward the pit so the plastic does not sit directly on the ground.
- Place the can in the bottom of the pit.
- Cover the pit with plastic, securing the ends to suspend the plastic over the slope of the pit.
- Place a rock directly in the center of the plastic over the can to form a slope.

Materials

- Several sheets of plastic in various sizes - some light colored and some dark colored (one sheet for each experiment)
- One marble or weight for each plastic sheet
- One can for each plastic sheet
- Rocks or weighty materials to raise ends of plastic and hold plastic in place
- Shovel

Note: Use different materials or conditions to provide some interesting comparisons.

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert Whitson, Vice President, Dean and Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is issued by Oklahoma State University as authorized by the Dean of the Division of Agricultural Sciences and Natural Resources and has been prepared for both internal and external distribution through print and electronic media.

