Resources For Science Fair Projects

Hamilton Co. SWCD -
772-7645
Hamilton Co. General Health District-
325-4570
Hamilton Co. Environmental Services-
FERMCO
648-4026
Keep Cincinnati Beautiful
352-3711
ORSANCO (Ohio River Valley Water Sanitation Commission)
231-7719
Rumpke Waste Removal & Recycling Systems
851-0122
EPA-Public Affairs Office
569-7772
Butler Co. SWCD
887-3720

Nuts and Bolts: A Matter of Fact Guide to Science Fair Projects. **Barry A. Van Deman and Ed McDonald. The Science Man Press. Harwood Heights, IL 1988.**

Popcorn Possibilities. **Barbara C. Rosenzweig. Science Scope. Jan. 1996.**

Science Fairs and Projects. **National Science Teachers Association, 1988. Washington, D.C.**

Science Fairs: A Guide for Parents and Students. **A booklet prepared by Licking County Office of Education. Newark Litter Prevention and Recycling Program. Cherry Valley Elementary. Hebron Elementary and the Ohio State University at Newark.**

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Protection

Purpose: To demonstrate how water protects plants from freezing temperatures.

Materials: **2 thermometers**
aluminum foil
paper towels
2 saucers
refrigerator

Procedure:

- **Fold pieces of aluminum foil to make a holder for the thermometers. Loosely cover each thermometer with foil, leaving an opening at one end so it can be easily removed.**
- **Wrap two dry paper towels around each of the aluminum pouches.**
- **Wet the paper around one of the thermometers with water. Do not get water down inside the aluminum holder.**
- **Lay each covered thermometer on a saucer and place them in the freezer of a refrigerator.**
- **Read and record the temperature on each thermometer after 2 minutes.**
- **Continue reading and recording the temperature on each thermometer ever 2 minutes for a total of 10 minutes.**

Results: The readings on the thermometer inside the holder covered with wet paper are higher.

Why: Changing the water in the paper towel from a liquid to a solid is called a *phase* change. A phase change requires a change in heat energy. When water freezes, it gives off energy to change from its liquid phase to its solid phase. As indicated by the difference in the thermometer readings, this lost energy heats up the area surrounding the changing water. Plants can be protected from freezing weather by spraying them with water. This method of protecting plants is not successful during prolonged drops below the freezing temperature of water.