

E. T. - A LOCAL WAY OF LEARNING

**Title:** WATER DESALINATION

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**Grade Level:** 4-6

<b>Concepts:</b>	<b>Disciplines:</b>
1. The Sun	1. Social Studies
4. Clean Water	2. Science
6. Natural Resource	
9. Man Changes World	

**Objective:**

Student shall, through sense of taste, demonstrate that the sun's energy changes only the water molecules into vapor and leaves the salt behind. There is not enough heat to effect the change of phase of the salt molecules.

**Rationale:**

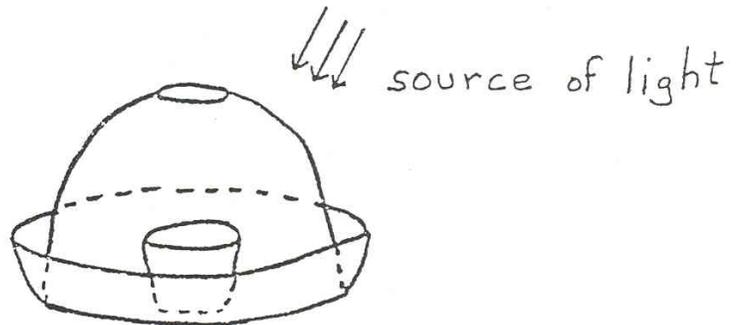
Like the Ancient Mariner of Colridge, we live surrounded by water but are frequently in dire need of fresh water. Small islands lacking sufficient ground water for wells are dependent upon the rain catchment method, barging of fresh water from another place or desalination of sea water for their supply of fresh water. The desalination of salt water can be achieved at the elementary level without the side-arm flask and condensation tube of a conventional distillation set-up.

**Materials Needed:**

A set of glass or plastic bowls: one large pie-plate shape, one small and one dome shaped but with a smaller diameter than the pie plate. See diagram below.

**Directions/Activity:**

Out-of-doors on a sunny day set up the still, after all students are assured that the small bowl contains sea water. The bowls must be in direct sunlight or under the desk lamp of sufficient heat indoors. In a short time the domed bowl will show the mist of condensation followed by the evidence of water trickles running down the inside of the dome into the catchment vessel. A breeze blowing on the dome serves to cool it.



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While the processes of evaporation and condensation are taking place in the bowls, teach or review the water cycle, stressing the fact that only the pure water will be vaporized by the sun's heat. Late in the day enough water will have accumulated in the bottom dish to sample for freshness by tasting it.

**Discussion and Suggested Projects:**

How does your demonstration unit compare with a commercial desalination plant?

Do research in the library.

You might visit a large water desalinator and have a plant employee explain the procedure for providing fresh water to your town.

Discuss the feasibility and problems of laying a pipe line from Puerto Rico to St. Thomas to bring in fresh water instead of the barge which now brings it on an emergency basis.

Invite a person from Public Works to give you more information about the water catchments built on the mountainsides. What are the problems and limitations of these long-standing facilities?