California Science Center

CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)
Joshua R. Kendrick

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)
Solar Distillation

Science Fair Use Only

J0515

Division
X **Junior (6-8)** _ **Senior (9-12)**

Preferred Category (See page 5 for descriptions.)
5 - Earth Sciences/ Planetary Sciences/ Physical Environments

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)
Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

OBJECTIVE: My objective is to find out which method of distilling saltwater produces more fresh water in the least time. I predict that solar evaporation will produce less water than electric evaporation but more than natural evaporation.

MATERIALS AND METHODS: A solar box was constructed to measure 3 cups of saltwater to be distilled and produce freshwater. Plexiglass with a black bottom was used to conduct the suns heat and collect distilled freshwater. The solar distillation box was placed outdoors to distill the water and measure data. Next I compared the solar to an electric evaporation process using an electric stove. I also compared the solar rate to natural evaporation using a jar in the sun.

RESULTS: The results proved that solar distillation was in between the electric and natural methods. Electric distillation went faster and natural took longer. The solar was in between for producing fresh water. The solar distilled about 1/4 cup of water on average for 4 hours with full sun. Natural evaporation was about 1 cup a month. Electric is very constant producing 1 cup an hour at a medium temperature.

CONCLUSION/DISCUSSION: My hypothesis was exactly what I figured it to be. My solar box worded correctly except for a few leaks in the first try. I liked to see how much freshwater the solar box produced each day. I even tasted the distilled water. One of the interesting things of this experiment was the collection of the salt from the three different methods. If a company were to build a distillation plant it should be a solar because it produces closely to electric speed and is cheaper in the long run. A model such as the one I built could be made into a kit for survival on the ocean.

Summary Statement (In one sentence, state what your project is about.)
My project is about distilling saltwater and collecting the freshwater.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.
Father cut plexiglass. Mother bought materials, gave support.