CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J0724

Project Title
Deduct Your Electricity Bill

Abstract

Objectives/Goals
The goal of my project is to see if I can generate electricity by evaporating water. The main reason I did this project is that the world is currently having problems with electricity. I thought that with this method I could help the world#s electricity problem a little.

Methods/Materials
A Meter; 5 1/2 powerful magnets; A glass cup; A coil of wire; A Classic Drinking Bird; Water.

For this experiment I used a Classic Drinking Bird to show how electricity can be generated by evaporation. By wetting the bird#s head, and tapping it to start the motion, you can create an endless bobbing motion. By attaching a magnet to its beak, and letting the bird dip into a glass of water wrapped in a metal coil, you can generate an electric current.
The Classic Drinking Bird works by a liquid moving up a tube connected to the bird's head. If you wet the head with water, it becomes colder than the bottom of the bird due to evaporation. Because it is colder, the vapor pressure in the head is lower and this is what causes the water to move up the tube. The liquid starts rising, making the bird bob deeper and deeper, until the beak dips down and meets the water surface. When the bird dips into a glass of cold water, the liquid in the head goes back down to the bottom of the bird.

Results
Because I was interested in getting the most electricity that I could, I tried to make the bird bob as fast as it could go. I found that the bird#s bobbing rate depended on how fast the water on its head evaporates. By using a small, hand-held electric fan, I could make the bird bob faster. With the fan, the evaporation process is faster. I tried using salt water to see if the bobbing rate would change, and it did. This is because salt water evaporates more slowly than fresh water.

Conclusions/Discussion
I have discovered from the data I have collected, that my hypothesis is correct. Evaporation can produce electricity. The experiment I have done could be taken up another level. The design I have conducted can only produce enough electricity to move a needle, but with a bigger design, and more powerful magnets, it could be enough electricity to light up a light bulb, a lamp, or a small town. I think this could help solve our energy problems.

Summary Statement
My project is to see if evaporation can produce electricity.

Help Received
Dad helped measure electricity; Mom helped explain evaporation