CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
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Project Number
31970

Project Title
Green Powered Cars

Abstract

Objectives/Goals
To construct and operate a solar and wind power vehicle.

Methods/Materials
The material used for the first vehicle body was aluminum with caster wheels, a solar panel and small electric motor. The material used for the second vehicle was a lightweight wooden body with plastic pinewood derby wheels, a small solar panel, battery housing,two rechargeable batteries, toggle switches, and a small electric engine connected to one wheel. A mock windmill was attached to the car for display purposes only.

Results
The first vehicle was too large and heavy to be powered by the small electric motor and the caster wheels had too much friction. The second vehicle functioned well using the electric motor powered by rechargeable batteries. The first toggle switch turned on and off the solar panel connected to the batteries and the second turned on and off the electric motor on the circuit to the batteries. When the vehicle was not moving the toggle switch was turned on to recharge the batteries with the solar panel. A mock windmill was installed that was designed to be functional at night when no solar charging was available.

Conclusions/Discussion
Due to the size of the sample vehicle, a windmill for night charging was not practical because of the weight of a small generator. The electric motor functioned well and demonstrated good use of green solar power using solar rechargeable batteries and a solar panel to keep the batteries charged.
I feel that the use of solar is functional in ultra lightweight vehicles and I feel a larger vehicle with the same design could allow for a night functioning windmill for an extremely green vehicle.

Summary Statement
My project determines the practicality of using both wind and solar to operate a vehicle.

Help Received
My dad taught me how to use a soldering gun to wire the connections and toggles on the vehicle together.