CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

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Project Number

31636

Project Title

Cars of the Future: Powered by Water?

Abstract

Objectives/Goals

Question: How will a Hydrogen PEM Fuel Cell-powered car compare to a battery powered car and a solar car, in terms of energy and efficiency?

Hypothesis: The Solar Car will be the most powerful, then the Hydrogen car, then the Battery. This still proves Hydrogen as an efficient and moderately powerful option.

The scientist wanted to find a way to eliminate the excessive emmisions of co2 from entering our atmosphere, and discovered that Hydrogen fuel cells, might just be a way to do so.

Methods/Materials

Materials
Fuel Cell Car Science Kit By Horizon Solar/ Battery Car Kit Stopwatch Ruler or Tape Measure Calculator (If Needed)
Pen/ Paper 2 Duracell AA Lithium Batteries Platinum Wire 9 Volt Battery Clip 9 Volt Battery
Distilled Water Glass of Water Volt Meter Popsicle Stick Transparent Sticky Tape
How to Test the Hydrogen, Battery and Solar Cars
1. Assemble the Cars as Directed in the Instructions placed in the kits.
2. Allow electrolysis for 15 minutes for the Hydrogen Car using the battery pack, testing the car immediately after.
3. Layout a track for the cars, testing how long it takes each car to complete that track using a stopwatch, then find out the cm/second of the cars, using a proportion.
4. To test the decrease of energy, place the Volt meter#s ends on the silver electrodes of the solar car, and the battery car, but for the Hydrogen car connect the red (positive) end of the volt meter to the Oxygen side and the black (negative) end to the Hydrogen side and turn the Volt meter setting to DC Volts.
5. This will show you the exact amount of Volts that a certain car is generating at any given time.

Results

The Solar car was the fastest, going an average of 40.763 cm/second. The Battery car was the second fastest, going an average of 35.883 cm/second. The Hydrogen Car was the third fastest, achieving an an average of 35.883 cm/second.

Conclusions/Discussion

In conclusion, the scientist learned a lot of very valuable information about Hy-drogen Fuel Cells,

Summary Statement

This Project was created to eliminate the excessive and harmful emmisions of CO2 entering the atmosphere due to cars.

Help Received

Johnny Li, Mentor, assisted in the development of the methods used to test.

Preliminary