



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> Kevin M. Stanley	<b>Project Number</b> <b>J0832</b>
<b>Project Title</b> <b>Head Up on the Highway: Solar Power vs. Hydrogen Power: The Final Showdown</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of the project is to determine what type of car goes faster: a solar powered car or a hydrogen powered car. My hypothesis is that that the solar powered car will go faster than the hydrogen powered car because the solar powered car will have a lot more current than the hydrogen powered car.</p> <p><b>Methods/Materials</b> Materials: Stopwatch, Chalk, Water, Distilled Water, 500 Watt Light Bulb, Ruler, Protractor, Goggles, Hydrogen/Oxygen Stickers, Solar Panel, Hydrogen Fuel Cell, Gas Tank, Volt Meter, Red Wire, Black Wire, Gear Motor, Car Chassis, Gas Collector, Axle, 4 Wheels With Tires, Support for Solar Panel, Syringe, Piece of Hose, Test Tube, 2 Hose Clamps, 2 Hose Connectors, 2 Plugs, 8 Banana Plugs, Spool, String, Syringe Tip, Screw FZ, Bushing For Attachment Method: A. Build hydrogen fuel cell car. B. Weigh hydrogen fuel cell car. C. Build solar cell car. Add water so that weight of solar cell car equals weight of hydrogen fuel cell car. D. Test time elapsed for hydrogen fuel cell car to travel distance of 5 feet. (20 trials) E. Test amperage with voltmeter every 5 trials. F. Test time elapsed for solar cell car to travel distance of 5 feet. (20 trials) G. Test amperage with voltmeter every 5 trials. H. Shine the 500 watt bulb from decreasing distances on the solar cell car and measure the amperage with voltmeter to find maximum current. I. Fill the fuel tanks for the hydrogen fuel cell car and measure the amperage with voltmeter every 30 seconds to find maximum current.</p> <p><b>Results</b> The solar cell car went faster than the hydrogen powered car. The average speed of the solar powered car was 2.269 seconds with an average current of 186.4 milliamps. The average speed of the hydrogen powered car was 5.4475 seconds with an average current of 53.58 milliamps.</p> <p><b>Conclusions/Discussion</b> This experiment proves that the solar powered car has more current than the hydrogen powered car, because the hydrogen fuel tank can only contain a certain amount of fuel. If the fuel was to be increased the hydrogen powered car might provide more current causing it to go faster. This might also happen with the solar powered car if the solar panel was larger as it might provide more current.</p>	
<b>Summary Statement</b> This project compares solar power and hydrogen power to see which moves cars faster.	
<b>Help Received</b> My dad helped me with the project by him holding the car and letting it down to roll when the stop watch was ready to time the car. He also helped me by telling corrections I should make on my research. My mom helped me glue the documents onto my science fair board.	