



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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Project Title Solar Powered Hydrogen Electrolizer	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our objective was to construct a device which, using only solar energy, could produce hydrogen gas at a rate that we could measure.</p> <p>Methods/Materials M A T E R I A L S: 2 32cm X 128cm Siemens solar cell panels; 2 138cm X 5cm X 5cm steel supports; 1 wooden base unit; 3 10cmX 62cm clear acrylic tubes; 1 11.5cm X 1m ABS sewer pipe; 1 10.5cm ABS caps; 1 ABS tee; 2 ABS elbow tees; 2 meters of 1.25cm plastic tubing; 3 1.25cm hose connectors; 2 wire hookups; 2 socm X 30cm stainless steel mesh; 6 stainless steel rings; 2 stainless steel bolts; 1 ABS cement; 1 black silicone sealant; 1 500g bottle of sodium hydroxide; 40 liters of distilled water; 1 brass drain valve; 1 multi-function meter; 1 metric tape measure.</p> <p>M E T H O D S: 1. Build the electrolizer power source; 2. Build the electrolizer device; 3. Add 500 grams of sodium hydroxide and forty liters of distilled water into the device; 4. Test and measure the results.</p> <p>Results The result of our project was that hydrogen gas was produced at rates correlating to solor panel efficiency.</p> <p>Conclusions/Discussion We found that we could produce measurable ammounts of hydrogen gas in an electrolizer powered by the sun. We found that the peak hours of hydrogen production corresponded to the peak hours of current production. During peak hours of production, we could produce 1100 cubic cm of hydrogen gas. The ammount of power produced by the solar cells corresponds directly with the ammount of gas produced.</p>	
Summary Statement We constructed a self-contained hydrogen electrolizer, which is powered by solar cells.	
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