



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Daniel A. Crowley	Project Number S0504
Project Title Maximizing Hydrogen Production through Electrolysis	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective for this project is to maximize hydrogen production using a high output hydrogen production unit.</p> <p>Methods/Materials Methods include testing the electrodes, and different factors on a small scale, and then incorporating the results into a final product. The materials include stainless steel electrodes, different levels of salinity, and different levels of electricity.</p> <p>Results Hydrogen production is maximized, using the highest possible levels of salinity, electricity, and surface area.</p> <p>Conclusions/Discussion In conclusion, small factors make a big difference in the amount of hydrogen that is produced. There were obvious differences when outside factors were placed on the project. For example a solution with no salt, produced almost no hydrogen gas, while a solution with just one tablespoon of salt produced 3 ml/s a minute. Electricity levels are also imperative to fast production. The amount of hydrogen produced with 2 amps was almost half the amount produced with 6 amps. The biggest factor that was developed into the final product was surface area. Hydrogen production rose at almost the same rate the surface area did. The final conclusion was to build a hydrogen output unit with largest amount of surface area, to ensure maximum production. Then the solution that is used contained a maximum amount of salt. Another design that was incorporated into the unit was the separation of gases. These gases were separated, because of the need to have separated gases in a fuel cell. In order to keep the gases separate, plastic plates were placed in between the plates and a flow space was placed underneath these plates the idea behind the flow space, is the gases can flow up, and the electricity can flow down. Overall, the maximum hydrogen unit was a success, and the design could be used in future models, and eventually in cars.</p>	
Summary Statement Finding a way to produce the highest levels of hydrogen possible, using electrolysis.	
Help Received Neighbor helped set up display	