



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

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| Name(s) Dhiren Suryadevara | Project Number J0621 |
| Project Title The Power of Water | |
| Abstract Objectives/Goals My project was to determine if the electrolysis of water is affected by the type of electrolyte used, and the voltage of the energy source (battery). My hypothesis was that out of the different batteries and electrolytes used, the MN21 battery and sulfuric acid would be the best for producing the most hydrogen. Methods/Materials Three different batteries (AA, 9V, and MN21) were tested along with three different electrolytes (table salt, sodium sulfate, and sulfuric acid). A homemade Brownlee Apparatus was constructed to measure the reaction using a beaker, 2 test tubes, wire, and steel electrodes. The apparatus was hooked up to a battery, and after 15 minutes the reaction was stopped and the data (showing the amount of hydrogen and oxygen) was collected and later analyzed. Results Table salt proved to be the best electrolyte 2/3 times, and the 9V battery was the best energy source in terms of hydrogen production. Sulfuric acid was the next best electrolyte followed by sodium sulfate. The MN21 battery was the second best energy source, and the AA battery was the worst. Conclusions/Discussion My conclusion is that my hypothesis was not proven, though I still was able to show that the energy source and type of electrolyte affect the electrolysis of water. The data from this project can be used in future applications of alternative energy and hydrogen fuel cells. | |
| Summary Statement My project is about whether the electrolysis of water can be improved for future widespread use in alternative energy and hydrogen fuel cells. | |
| Help Received I received some of my materials from my teacher Ms. Skiles, and our family friend Mrs. Rickard helped throughout the experiment. | |