



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Timothy W. Whitaker	Project Number J1037
Project Title Finding the Optimal Wave Height for Maximizing Voltage Generation of the OWC Method for Capturing Ocean Wave Energy	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my experiment is to find the optimal wave height for maximizing voltage generation of the oscillating water column (OWC) method for capturing ocean wave energy.</p> <p>Methods/Materials In my experiment, I simulated the OWC by using a marked-off water bottle and plunger to turn a pinwheel connected to a small motor, and measuring the voltage generated using a multimeter.</p> <p>Results The resulting data shows that the average voltage generated increased as the plunger depth increased. I concluded that the higher wave heights resulted in higher voltage generation and the shorter wave heights resulted in lower voltage generation.</p> <p>Conclusions/Discussion I learned that the ocean is a great source of power and that environmentalists and scientists are developing new and efficient ways of producing clean energy. My investigation demonstrates in a simulated format that ocean wave energy generation is a practical way to create power. Ocean wave energy generation is pollution-free, is relatively inexpensive, and does not harm the environment the way other modern forms of energy generation do, such as nuclear power plants and the use of coal.</p>	
Summary Statement My project measures the voltage generation of a model of an ocean wave energy capturing device.	
Help Received Father helped put together board; father's friend, a doctoral candidate in electrical engineering from UCLA, helped with the design of my experiment.	