



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Melissa A. Gore	Project Number J1412
Project Title Algae vs. Acid Rain	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this project was to test the effects of acid rain on algal cellular structures. I tested this by adjusting the pH levels of pond water and algae, then observed over a ten-day period. I then rated the algae cellular structure and rated the deterioration by observing the algae under a 10x power microscope. I believed that if I changed the pH levels of the pond water and algae samples I should see the cellular structure of the algae begin changing within the pH levels of 5-6 because those are the levels considered to be that of acid rain. I believed that my sample with 11ml Muriatic acid would die first because it is the most acidic. According to my research acid rain has a negative affect on the earth#s ecosystems including our large and small bodies of water.</p> <p>Methods/Materials My test methods included filling seven bowls with 100ml of pond water and 5ml of algae each, then I poured six different amounts of Muriatic acid 1.25ml, 2.5ml, 5ml, 7ml, 9ml, and 11ml in six of the bowls (independent variables) and one bowl without any acid to be my control variable. I tested the pH levels of the samples and placed them all on a heating pad at 20 degrees Celsius, in a box that was placed near a window. I observed the samples for 10 days at the same time of day and rated the cellular structure using a six point system.</p> <p>Results The results of my project showed that my hypothesis was correct. The bowl with the most acid, 11ml died faster than any other samples in my bowls.</p> <p>Conclusions/Discussion I discovered the higher the acid level, the more toxic the pond water. Since my research shows that acid rain, or more correctly acid precipitation is created by the burning fossil fuel, I believe that it is very important for the world that we find alternate sources of energy & cleaner ways to power our factories, automobiles, and different ways to heat our homes. During the course of my research I found that algae is being used to absorb CO2 around factories in turn cleaning the air and reducing pollution. There are also companies exploring the possibility of using algae to produce bio-fuel and reduce our need for fossil fuel. In future experiments I would use a higher power microscope with photographic ability. I would use sulfuric and nitric acids because they are the types of acids created from the burning of fossil fuels. I would test different types of algae instead of just one type of algae.</p>	
Summary Statement This project was conducted to test the effects of acid rain on algal cellular structure over a period of time.	
Help Received Mrs. Bloom let me borrow her microscope. My mom supervised me during my experiment	