



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Leslie T. Gobel	<b>Project Number</b>  31298
<b>Project Title</b> How Does Acid Rain Affect Aquatic Plants?	
<b>Abstract</b> <b>Objectives/Goals</b> My objective was to determine the survival rate of aquatic plants after an acidic rain. My hypothesis was that the greater amount of acid in the tanks, the lower the survival rate of the organisms. <b>Methods/Materials</b> I added 10 duckweed and 10 elodea to 4 tanks with 2 liters of water in each of them. I added .5M nitric acid to each tank until tank #2 had a pH of 6.0, tank #3 had a pH of 5.0, and tank #4 had a pH of 4.0. Tank #1 remained as a control with a pH of 7.0. While I added the acid, I monitored the pH with a pH meter. I added the organisms to the tanks after all of the acid had dissolved into the water. I observed and recorded the survival rates every hour for 10 days. I analyzed the data to determine how acid rain affects the survival rate of aquatic plants and animals. <b>Results</b> My graph shows that when the pH dropped, the survival rate of the plants dropped, too. The duckweed graph shows that after 98 hours, only 4 duckweed were left in the pH 4 water, 6 in the pH 5 water, and 7 in both the pH 6 and 7 water. Also, the elodea graph shows that only 4 elodea were left in the pH 4 and 5 water, 6 were left in the pH 6, and 7 were left in the pH 7. My data seems to indicate that my hypothesis is correct. As the acidity increased and the pH dropped, more of the plants died. My experiment indicates that when acid rain occurs, it affects many of the plants that live in the area it rains on. I think I got the results I got because when the plants use the oxygen in the water they get the acid too, which causes them to die. Duckweed and elodea can generally survive in pH levels as low as 5. This experiment is important because it helps people understand what the effect of these natural and manmade gases are. When people are aware of the effect they have on plants and animals, it gives them a chance to try to come up with a way to decrease the release of nitrogen compounds into the air. They can come up with ways to keep the gas levels low, so acid rain does not occur as much. Not many people know what acid rain is and how it affects our environment, and my experiment will make others aware of what happens when acid rain comes.	
<b>Summary Statement</b> I experimented to determine how acid rain affects aquatic plants.	
<b>Help Received</b> teacher helped me with the acid	