



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Louis Primeau	Project Number J1510
Project Title The Effect of Elevated CO(2) on the Growth of Freshwater Algae	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To find the effect of elevated CO₂ on the growth of freshwater algae.</p> <p>Methods/Materials Procedures: 1. I collected pond water with algae 2. I made a CO₂ source using yeast to ferment sugar in a bottle 3. I grew algae with plenty of light, nutrients and water, in 4 bottles. In two bottles I bubbled extra CO₂ by connecting them using the soft tubing to the CO₂ source. The other two bottles were used as controls. 4. I counted the number of cells in a fixed volume of water using the microscope for each bottle each day for a period of 15 days. Materials: 1. 6 one-gallon clear-plastic bottles 2. 1 aquarium pump and light 3. 4 packets of yeast and 8 cups of sugar 4. 1 bottle of pond water 5. 25 ft soft tubing, 6 ft hard tubing 6. Miracle-Gro fertilizer 7. 1 microscope, 1 hemocytometer, and 1 digital microscope camera</p> <p>Results The average growth rates of the algae read as follows: The control bottles had an average growth rate of 0.14 new cells per cell per day, while the elevated CO₂ bottles had an average growth rate of 0.23 new cells per cell per day.</p> <p>Conclusions/Discussion Elevated CO₂ does affect the growth of freshwater algae. My results are in accord with my hypothesis. The doubling time for the population of algae cells in the control bottles was 5 days, while the doubling time for the bottles with elevated CO₂ was only 3.6 days.</p>	
Summary Statement My project focused on the growth of algae with elevated CO ₂	
Help Received My dad helped write the Matlab script and got me my microscope.	