



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> Melissa V. Maffei	<b>Project Number</b> <b>S1720</b>
<b>Project Title</b> <b>The Effect of Carbon Dioxide on Elodea</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to find out how increasing carbon dioxide levels affect the freshwater plant, Elodea.</p> <p><b>Methods/Materials</b> I set up three tanks. Each tank had a layer of soil, then gravel on top and 10 liters of purified water. Six elodea stalks were nestled in each tank and given a period of time to adjust to the environment before the introduction of carbon dioxide. Tank #2 and tank #3 each had one carbon dioxide pump, which were on for 12 hours per day and 24 hours per day, respectively. From the point of carbon dioxide introduction, the experiment was 2 weeks long, and this was the period where I collected the data. The height of each stalk was measured daily with a ruler and the pH of the water in each tank was tested daily with pH test strips.</p> <p><b>Results</b> The Elodea in tank #1 experienced small growth throughout the experiment. The pH of the water remained constant until near the end of the experiment when it rose to 8 (day 13). The Elodea in Tank #2 experienced continued growth throughout the whole experiment. The pH of the water dropped slightly to 6 (day 5). The Elodea in tank #3 experienced growth at first but then gradually declined in health. The pH of the water dropped to 6 near the beginning of the experiment (day 2), then dropped to 5 near the end (day 12). This indicates that increasing carbon dioxide levels affect the growth and health of the elodea plant by affecting photosynthesis and water pH.</p> <p><b>Conclusions/Discussion</b> My results support my hypothesis. The carbon dioxide lowered the pH of the water and affected the height of the elodea. The Elodea in tank #2 were the most healthy and experienced the most growth. Carbon dioxide levels in tank #3 made the water pH too low for the Elodea to survive. This data suggests that too much carbon dioxide may negatively affect freshwater ecosystems.</p>	
<b>Summary Statement</b> My project is about the effect of different levels of carbon dioxide on Elodea, a freshwater plant.	
<b>Help Received</b> Father helped waterproof glass tanks	