



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

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Project Title Plant Function in a CO(2) Enriched Environment	
Objectives/Goals The objective of my experiment is to determine what affect increased atmospheric carbon dioxide levels have on plant growth.	
Abstract	
Methods/Materials Controlled environments were designed by preparing terrariums within three large, 80 ounce, glass pickle jars. A small hole was made in each pickle jar lid, 1/8 inch tubing fed down the hole and the area around the hole sealed with silicon caulking. After plants were added to the terrariums, a simple oxygen measuring device (steel wool/water measurement)was added and the lid was placed on the jars. A second large, empty 80 ounce pickle jar was connected to each of the terrarium pickle jars by the tubing in the lids. To the first empty jar 0.8g of CO(2) in the form of dry ice was added and the lid placed on it. Twice as much, or 1.6g, of dry ice was added to the second jar and the lid placed on it. The third jar was used as a control so nothing was added and the lid was placed on it. All jars were placed in front of the same window and received the same amount of indirect sunlight during the experiment. The jars were observed and the CO(2) was allowed to sublimate for 48 hours then the jars were opened to measure oxygen and plants. This process was repeated for 2 weeks.	
Results Evidence of increased transpiration was witnessed with those plants exposed to higher levels of carbon dioxide. Visible signs of brilliant green leaves and white stems were also observed with the plants in the CO(2) enriched environments. The oxygen percentages were higher in the CO(2) enriched terrariums than in the control terrarium. Plant height and mass also increased. However, towards the end of the 2 week period, the plants in the CO(2) enriched environment began to wilt first then the control plant and eventually all the plants died.	
Conclusions/Discussion A carbon dioxide enriched environment did increase plant activity and growth but at some point the carbon dioxide became a hazard, at least for the type of plant I chose.	
Summary Statement With the global concern of increased CO(2) in our environment, my project investigates whether plants will have a greater production of plant biomass and CO(2) - O(2) homeostasis within the Earth's atmosphere.	
Help Received My mom explained and showed me how to handle dry ice safely.	