



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Andrew L. Thompson	Project Number J1730
Project Title Growing Lettuce without Soil?	
Objectives/Goals Which method of hydroponics best supports plant growth?	
Abstract	
Methods/Materials Styrofoam cooler, x-acto knife, 4 Tupperware, perlite, 1 aerating tube, plastic tubing, aquarium pump, nutrient solution, outlet, extension cord, 72 lettuce seeds, 2 metal tins, 1 metal frame, 1 plastic tub, 4 plastic cups, Wicking felt, scissor Procedure: Bubbler (Method 1) Use an inexpensive Styrofoam cooler. 1. Cut 4 holes to fit the Ziploc plastic Tupperware containers into the lid. 2. Cut holes into the bottom of the containers and fill the containers with perlite. 3. Put the aerating tube in the bottom of the cooler. Attach the clear plastic tube to the aerating tube and the aquarium pump. 4. Place the cups in the lid and fill the cooler with nutrient solution so that only the bottom couple centimeters of cup are submerged. 6. Put the lid on the cooler. Ebb and Flow (Method 2) 1. Plants are grown in a metal tin. 2. Poke holes. 3. Use a metal frame that will hold up the top tray, but allow the nutrient solution to drain into a bottom tray. Wicking (Method 3) 1. Use a large plastic tub with a lid. 2. Use 4 red plastic cups. 3. Cut 4 holes in the lid (using a sharp utility knife). Each hole should be the size of the cup. Cut a hole in the bottom of each cup. 4. Put a piece of felt the size of the hole and long enough to touch the bottom of the box inside each of the 4 red cups. 5. Fill the tub with nutrient solution. 6. Put the lid on the tub and put one cup in each of the 4 holes. *All of the methods use nutrient solution and 24 seeds are planted in the perlite.	
Results The bubbler system had the best results out of the three hydroponic methods.	
Conclusions/Discussion the bubbler system produced the greatest results. I believe the bubbler system had the best growth because air was always circulating through the system.	
Summary Statement Which form of hydroponics supports the best lettuce growth	
Help Received Mother helped type edit report; father helped assemble the project; Jack at SC hydroponics provided the materials	