



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Ahmed Owainat	Project Number J1918
Project Title Growing Plants in Volcanic Pumice to Mimic Soil on Mars	
Abstract Objectives/Goals The objective of this study is to grow plants in simulated Mars conditions. Methods/Materials Take 6 planting pots with 6 holes in each. Fill twelve of them up with soil. In the other twelve, fill it up with volcanic pumice. In the last twelve, fill it up with half soil half volcanic pumice. Dig up a 5.08 cm hole in every cup, and place one Tasmanian Radish Seed in 6 pots for the soil, 6 pots for the volcanic pumice, and 6 pots for half-half. Repeat the procedure for the other 18 but with American Radish seeds. After that label 6 of the pots filled with Volcanic Pumice, AU radish seeds Volcanic Pumice. For the other 6 name it, U.S. radish seeds Volcanic Pumice. Do this for the last 4 pots except instead of Volcanic Pumice for two write down Soil, and the other two 50% Soil, 50% VP. Label the seeds by marking the positions in the planting holes. Once done with this step, place all the planting trays in the terrarium. Also, get two small cups and put 2/3 cups of vinegar and 1/4 tablespoon of baking soda in both cups. This is done to produce carbon dioxide, which is ninety-five percent of Mars atmosphere. After starting the project, water the plants with 3 teaspoons of water a day. Replenish the baking soda and vinegar every day to ensure a continued supply of CO2. Place the terrarium in a brightly lit part of the room to ensure enough light. Record observations for 2-3 weeks and figure out whether or not plants can grow in simulated Martian conditions. Results When I grew the plants in all soils, most plants grew large. At the end, my results proved my hypothesis correct. Conclusions/Discussion The goal of the experiment was to test the effect of volcanic pumice, soil, and a 50-50 combination of both on the growth of Australian and U.S. radish seeds. My hypothesis was that if AU and U.S. radish seeds were grown in volcanic pumice, soil, and a combination of both, the AU would grow better in a combination of both, because it has more nutrients and the AU seeds come from a volcanic region in Tasmania.	
Summary Statement I am comparing the germination and growth of Australian and U.S. radish seeds in volcanic pumice, soil, and a 50-50 combination of both.	
Help Received I would like to thank my mom and my science teacher, Mrs. Satya. Both of them helped me throughout my experiment and encouraged me to do good.	