



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

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Project Title Phytoremediation of Lead through Arabidopsis thaliana	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to discover a plant, either naturally or through genetic engineering, that can effectively uptake lead from contaminated soils. The goal is to see whether or not the Arabidopsis strains, Columbia and Landsberg, have the ability to withstand 0.8 milli-molar or higher lead solutions.</p> <p>Methods/Materials Fume hoods, .008M Lead II Nitrate Solution, Laptops with Temperature Recording Software, Arabidopsis Columbia and Landsberg seeds, Lab-Grade Potting Soil, Distilled Water, Grow Lights regulated by Day-Night Timers.</p> <p>Results After two weeks of growth, the treated groups under both strains were introduced to the lead solution for a one-week period and observations were recorded. The treated groups for both strains evidently withstood the .008M Lead solution, as there were no observed changes or alternations in growth rate and structural development.</p> <p>Conclusions/Discussion The two treated groups successfully survived the treatment phase of our project and continued to grow past the extent of our experiment. This leads us to believe that the Arabidopsis species has a strong chance to potentially endure even higher concentrations of lead to where they can tolerate real-world levels of contamination.</p>	
Summary Statement We tested the phytoremediative abilities of the Arabidopsis species, in regards to lead contamination, to extract the abundance of lead in contaminated sites and reuse it as recyclable material in industry.	
Help Received My partner and I devised the experiment. Professor Dr. Springer and her PhD Candidates, Mr. Schwartz and Ms. Toth from the Botany Department at UCR provided professional assistance to determine and obtain the selected plant of study. Ms. Schweiger and Mr. Mazzulli mentored and provided the necessary	