



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Lydia K. Zdeb</b>	<b>Project Number</b> <b>J0924</b>
<b>Project Title</b> <b>A Comparison of Two Potential Lead Bioremediating Plants</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The problem I tested in my experiment was whether morning glory or Indian Mustard Greens were the most effective bioremediator of lead. <b>Methods/Materials</b> To test this problem, I planted both morning glory and Indian Mustard Greens seeds in two test beds of soils containing lead at concentrations of 990ppm and 330ppm. Each week I took measurements of height and counted the number of sprouts in each section. After 3 weeks, there was finally enough plant mass to do an XRF test, and from weeks four to six I harvested a portion of the plants and conducted weekly XRF tests to check the lead content. At the end of week six, all of the plants were uprooted, the roots were cut off, all of the excess dirt washed off, and they were dried and tested. <b>Results</b> The results showed that, of plants raised in the soil with 990ppm of lead, Indian Mustard Greens (with 7.28ppm) had almost double the amount of lead as in the morning glory (4.23ppm). In the soil with 330ppm morning glory had 4.93ppm of lead to the Indian Mustard Greens 3.19ppm of lead. <b>Conclusions/Discussion</b> Overall I concluded Indian Mustard Greens were the more effective bioremediator of lead. It is notable that while the Indian Mustard Greens showed more ill effects of the lead (including distressed leaves), they grew more robustly and generated more plant mass than the morning glory.	
<b>Summary Statement</b> My project is a comparison of Indian Mustard Greens and Morning Glory to see which one is most effective at bioremediation.	
<b>Help Received</b> My father (Thomas Zdeb) operated the XRF, analyzed the samples (he is a certified XRF analyst) and helped to ensure that all safety regulations were properly followed in this experiment; PCR Mobile Laboratories allowed me to use the XRF	