



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Jessica W. Luo	Project Number J2215
Project Title Metal Candy: Detection of Lead in Domestic and Imported Candies	
Abstract Objectives/Goals My science project's goal was to use colorimetric detection methods to determine if there was any significant difference between the lead levels in domestic and imported candies. After learning about America's strict policy regarding acceptable amounts of lead in candies, and histories of lead contamination in foreign candies, I formed the hypothesis: If you compare the amounts of lead in domestic and imported candies, the amount of lead in imported candies will be higher than the amount of lead in domestic candies. Methods/Materials I created a special indicator (thioacetamide-glycerin base TS) to make 5 different lead standard solutions. Each standard solution had a different controlled amount of lead, ranging from blank, to 15 ppm (increasing in increments of 5ppm). I used white vinegar to leach out the lead from solid candies, and collected the leached vinegar solution to create a sample solution. I then added the indicator into each individual sample solutions. If the sample had lead, the solution would change to a light brown color. Depending on the intensity of the color, I used my own judgment to match its color with one from the standard samples to find an approximate concentration of lead in that candy. Results The results of my experiment were that the average amount of lead in imported candies were <25 ppm, and the amount in domestic were <32 ppm. Conclusions/Discussion Though my hypothesis was proved wrong because the average amount of lead in domestic candies was higher, I concluded that there was not a significant difference in the amount of lead in domestic and imported candies. The average lead contents in the different types of candies are not greatly different, so I believe that there is no huge difference in lead contents. Limitations of my project included background color interferences with the indicator's effect. My research will mostly benefit children, aiding them in the choices they make in choosing which candies to consume.	
Summary Statement I used colorimetric detection methods to determine if there was a significant difference between the lead levels in domestic and imported candies.	
Help Received Chemicals were provided by VWR Science Education Division and EMS Laboratories Inc. Parents gave guidance and suggestions for my project.	