



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Brendon D. Telliard	Project Number S0517
Project Title Your Metallic Food	
Abstract Objectives/Goals I was determined to find out how much aluminum in cookware was absorbed into our acidic foods, which in turn, we ingest and may cause harm to our bodies. My hypothesis is that the most likely combination of cookware and acids to have the highest absorbency of aluminum in the water and acid solution will be aluminum foil and vinegar. Methods/Materials For the experiment I used aluminum cookware and an assortment of acidic edibles such as, tomatoes, lemons, and vinegar to conduct 32 trials. I also used chemicals, Aluver 3, Ascorbic Acid, and Bleaching 3 for the spectrophotometer. To conduct the experiment I put several acidic foods combined with water into the aluminum cookware and cooked it. Afterwards, I used a collection of chemicals and a spectrophotometer to analyze the absorbency of aluminum. Results The test results showed vinegar and foil as the most potent of all the acids (total average of both trials) and lemon juice as the most reactive with all wares (found by averaging the results per aluminum ware). The two highest results were aluminum foil cooked with vinegar resulted in a 73.9% increase in aluminum compared to the control. The second highest was a cake pan with lemon which had a 34.8% increase. Also, my research proved that there are side effects to ingesting too much aluminum. Conclusions/Discussion In conclusion, the trials proved my hypothesis to be true that aluminum foil and vinegar would have the largest aluminum absorbance and I was very satisfied with the results. The process as a whole was very enlightening after conducting this experiment it appears conclusive that the process of cooking acidic foods in aluminum is causing us as a culture to collectively ingest potentially harmful amounts of aluminum into our bodies unknowingly.	
Summary Statement The mix of aluminum and acids causes aluminum to seep into our food and the project proves this and shows how much is absorbed by the acid.	
Help Received Mr. Schiller (Poly High School Chemistry teacher) taught how to use spectrophotometer	