



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> Sameer Ahmed	<b>Project Number</b>  34901
<b>Project Title</b> Guess What's Cooking?	
<b>Objectives/Goals</b> <b>Objective:</b> My objective was to test different types of metal cooking pots to determine which one would leach the most amounts of metal in a 25% citric acid solution boiled for 30 minutes. <b>Goal:</b> To be able to determine which cooking pot leached the most amount of metals into the citric acid solution. <b>Tested:</b> Cast iron, aluminum, stainless steel, and nonstick pots.	
<b>Abstract</b> <b>Methods/Materials</b> <b>Methods:</b> 1.) Make citric acid solution; 2.) Boil 200 mL of the solution in each pot for 30 minutes; 3.) Place boiled solution samples into test tubes and add chemical indicators; 4.) Place test tubes with chemical indicators into the spectrophotometer; 5.) Compare results <b>Materials:</b> 2-4 quart aluminum cooking pots; 2-4 quart stainless steel cooking pots; 2-4 quart cast iron cooking pots; 2-4 quart nonstick pots; Spectronic 20 Spectrophotometer; Spectrophotometer vials; Test tubes; 4- Test tube racks; 2 lbs- Citric acid; 3 liters- Deionized water; Lab coat; Paper towels; 8 Hotplates; 1-Magnetic mixer; 2- 4000 mL glass flasks; 1 1/2 liter glass beaker; 1- 250 mL glass beaker. 1- Scale; 1- Scale tray; 1- Spoon; 8 Timer; 1- Safety goggles; 1- Face splatter shield; Latex gloves; 2- Heat resistant gloves; 4 drops of 6 molar of HNO3; 5 mL of 1 molar of KSCN; 2 ml of Na2CO3; 5 mL of a 0.1 molar solution of Na2S. <b>Results</b> All of the cooking pots showed traces of leaching. Cast iron leached the most Aluminum leached the second most Nonstick leached the third most Stainless Steel leached the least <b>Conclusions/Discussion</b> Through using chemical indicators and a spectrophotometer, I was able to conclude that cast iron leached the most.	
<b>Summary Statement</b> I tested different types of metal cooking pots to determine which one would leach the most amounts of metal in a 25% citric acid solution boiled for 30 minutes using chemical indicators and a spectrophotometer.	
<b>Help Received</b> Used lab equipment at Cochise College, Arizona under the supervision of Mrs. Tasneem Ashraf; My Science and English teachers helped proofread my board. My parents helped me build support systems and attaching all needed items to my board.	