



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Matalie T. Church-Nyberg	<b>Project Number</b> <b>J0506</b>
<b>Project Title</b> <b>Electrographic Metal Detection</b>	
<b>Objectives/Goals</b> To determine whether diferent samples of metals and minerals have iron, copper or lead in them.	
<b>Abstract</b>	
<b>Methods/Materials</b> There were eleven samples used in my project, each tested several times with an acidic solution. My three solutions were potassium ferricyanide, potassium ferrocyanide and potassium chromate. I first consulted a chemistry teacher at College of the Redwoods, then obtained a research approval certificate. Iron, copper and lead were my three main samples, my other samples consisted of metals which I tested for iron, copper and lead.	
<b>Results</b> Iron pyrite and galena showed signs of iron. Glacial formed copper and magnetite showed signs of copper. The nickel I tested showed signs of both iron and copper, it also showed signs of an unknown substance. Magnetite was the only sample that showed any signs of lead.	
<b>Conclusions/Discussion</b> Overall I think this was a successful project. I feel that I learned a lot throughout this experiment. It was very interesting to see that after testing the nickel I could see the shape of the building on the filter paper. However not very many of the statements that I made in my hypothesis turned out to be true. For example, I though lead would be green whereas, it turned out to be yellow. I also learned about how electrographic metal detection is used in forensic science. A classic example of the forensic use of electrography was the investigation of a crime during which a cooper wire had been severed. Electrographic analysis revealed traces of copper on a hatchet in a suspect's possession.	
<b>Summary Statement</b> My project is about testing metals and minerals for iron , copper and lead.	
<b>Help Received</b> Obtained chemicals from chemistry teacher at College of the Redwoods. My Grandpa helped set up wires. Experiment done under the supervision of my Grandmother.	