



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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Project Title Good Conductors: The Comparison of Thermal Conductivity for Different Metals	
Abstract Objectives/Goals Our objective was to compare the thermal conductivity of different common metals. We thought that aluminum would be the best conductor. Methods/Materials Rods made of aluminum, brass, copper, and steel were bent into the shape of a U. Then the ends of the U were placed in two Styrofoam cups of ice and room temperature water. We measured the decrease in temperature over a thirty-minute time period of the room temperature water. Results The results were that the copper rod conducted 3.7 degrees Celsius out of the room temperature cup and it was the best conductor of heat. The worst conductor was the steel rod and it only conducted 0.1 degrees Celsius. Conclusions/Discussion In conclusion, we found out that pure metals, such as copper and aluminum were the best conductors. The alloys (materials made of several elements) such as steel and brass did not conduct heat nearly as well. This is helpful when engineering and buying cookware because pots and pans with pure metal bottoms can conduct heat fastest. It is also important for building other metal appliances or equipment for which thermal conductivity is a concern.	
Summary Statement Our project is about the comparison of different metals and how well they conduct heat.	
Help Received Dr. James Eisenstein helped bend the rods and set up the plans for taking data. We used his lab at Caltech for bending the rods.	