



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Adam A.J. Whipple	Project Number J1539
Project Title Which Material Operates Most Efficiently as a CPU Heatsink?	
Abstract Objectives/Goals The purpose of this experiment is to determine which of the four materials, aluminum, copper, bronze, and galvanized steel, conducts heat from a CPU most effectively. Methods/Materials Four metal heatsinks (aluminum, brass, copper, and galvanized steel) simulating a CPU were attached to a thermal plate that provided a constant heat source. A thermocouple was used to measure the maximum temperature reached by the thermal plate during a 13-minute period for each metal heatsink. The results for each metal were compared and graphed. Results The copper heatsink was the most thermally conductive and therefore transferred heat most efficiently. Aluminum was the second most thermally conductive. Conclusions/Discussion Copper was the most thermally conductive of all the metals, but was most expensive. Aluminum was the second most thermally conductive, but was the cheapest. I believe aluminum is the most commonly used metal because of its low cost and high thermal conductivity.	
Summary Statement The project was testing four different metals' thermal conductivity to be used as potential CPU heatsinks.	
Help Received Dad helped me cut & shape the metals and provided thermocouple. Mom helped with presentation board and editing report. Resistor idea from http://www.anandtech.com/showdoc.html?i=1136 . Friend provided powering advice.	