



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Mason B. Harris	Project Number J1810
Project Title Thermal Conductivity	
Objectives/Goals I wanted to determine what type of metal would be the best thermal conductor, distributing heat the furthest and fastest from a heat source.	
Abstract	
Methods/Materials I tested three types of metal: copper, aluminum, and steel. One end was bent and placed boiling water and the other end was bent and placed in an empty beaker. Each wire was marked every 200mm. After 20 minutes I measured the temperature at each mark with an infrared thermometer. I recorded the temperature at each mark for every wire type.	
Results Copper was the best thermal conductor with the highest temperatures along the length of the wire. Aluminum was the second best conductor. The steel wire was the worst thermal conductor, with not much difference along the length of the wire.	
Conclusions/Discussion My hypothesis that copper wire would be the best thermal conductor was proven to be true. Knowledge of thermal conductivity can be used to make better cookware for cooking food and boiling water. When a pot is placed on the stove, thermal energy is transferred from the heat source to the metal pot and eventually to the food or water. Good thermal conductors will do this more efficiently. Materials with poor thermal conductivity could be useful as thermal insulators.	
Summary Statement What wire conducts heat the fastest and the longest.	
Help Received My mother helped design board.	