



CALIFORNIA STATE SCIENCE FAIR 2012 PROJECT SUMMARY

Name(s) Jessie M. Houg	Project Number J1312
Project Title An Equal Degree	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project is to determine which of the four metals tested in the experiment, (Copper, Aluminum, Stainless Steel, or Carbon Steel) would conduct heat best. As you can see, these metals are inexpensive, as</p> <p>Methods/Materials The four metals used were Copper, Aluminum, Carbon Steel, and Stainless Steel bars of equal dimensions. A bottomless water-bottle cap was sealed with silicon glue onto the end of each metal. Small slits were made into all four cups using a utility knife. Each metal bar was able to fit perfectly through the slits horizontally. When a support was placed under the bars and leveled with each of the slits, water was poured into the cap. The disposable cups were filled to the top with ice and the timer began. Over a ten minute span at one minute intervals, change in temperature of the water was measured and recorded with a surface thermometer. The average and direct change in temperature per metal was recorded and compared.</p> <p>Results Copper's performance in the three trials tested astounded me. It (averaged) decreased the water's temperature by 23°F over the 10 minute span. Aluminum's performance also greatly surprised me. Instead of doing poorly like I had expected, it had an average decrement of 20.1°F. Carbon Steel proved well also. It had an average decrement of 8.3°F, not bad compared to Stainless Steel. Speaking of Stainless Steel, it came up last with an average decrement of only a 2.5°F change over the 10 minute interval.</p> <p>Conclusions/Discussion Copper was, overall, the best conductor of the four metals. That proved that at least one of my hypotheses is correct. On the other hand, Aluminum's performance proved my second hypothesis incorrect. It's performance was just a tad worse than Copper's. I had expected its performance to turn out poorly because of its porous structure and that people bought Aluminum foil because it was indeed cheap. Finally, Stainless Steel and Carbon Steels' performance also proved my hypothesis wrong. I had expected the results to be too close to make out. However, the Carbon Steel's temperature decrements were much greater and much steadier than that of the Stainless Steel.</p>	
Summary Statement This project was conducted to find out which common metal would conduct/dissipate heat most efficiently.	
Help Received Uncle helped cut metals to equal dimensions; Mother helped lay out board; Father helped word report by giving fragments on what is expected of the project; teacher assigned project in the first place.	