



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Kes Rushing	Project Number J1233
Project Title Effects of Temperature on Magnets	
Abstract Objectives/Goals The purpose of this project is to learn more about the properties of magnets when they are subjected to different temperatures. Does the temperature of a magnet have any effect on its strength? Methods/Materials Hypothesis: 1. The strength of a magnet is affected by temperature. 2. As the temperature of a magnet increases, it becomes stronger. As the temperature of a magnet decreases, it becomes weaker. Experimental Method: My experiment was run with experimental and control variables. Experimental Variables: 1. Temperature: Each magnet was exposed to three different temperatures (-78 deg. C, 0 deg. C, 100 deg. C). 2. Two types of magnets were used: neodymium (rare earth) magnet, and ceramic magnet. Control Variables: 1. Size of paperclips: 1.25" standard #1 paperclips. 2. Length of time magnet was exposed to each temperature: 15 minutes. Results The experiment was repeated 5 times for each temperature and then the average was calculated. The reason for doing multiple trials was because the process of picking up the paperclips was not very accurate. The experiment proved that magnet strength is affected by temperature, but it did not produce the expected results. For both magnets, more paperclips were picked up when the paperclip was colder than when it was hotter. Conclusions/Discussion Based on the results of the experiment and the comparison of the observed data to the theoretical data, the following is concluded: 1. Part 1 of the hypothesis (magnet strength is affected by temperature) is True. 2. Part 2 of the hypothesis (magnets are stronger at higher temperatures) is False. Magnets are stronger when they are colder.	
Summary Statement I showed that the strength of a magnet can be significantly increased by making the magnet colder.	
Help Received My Father helped me create graphs of my data.	