



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Andrew D. Gudmundsen	Project Number J0917
Project Title The Draw of Electromagnets	
Objectives/Goals My objective was to determine how the length of wire or coils affect how much weight an electromagnet can lift. I believe that if I change the amount of wire wrapped around an iron core, then the electromagnet that will pick up the most paper clips will be the one with the most wire wrappings.	
Abstract	
Methods/Materials First I built a box using wood, staples, paint, and screws to house the electromagnets. Then I used 6 inch long bolts, solid strand wire, wire cutters, solder and soldering iron to connect the wire to the bolt and finally electrical tape to make the electromagnets. A doorbell button was installed to access the battery power. A rotary switch was installed to select one of the electromagnets. Finally, the electromagnets were then hung with ropes and pulleys.	
Results The data collected from the trials showed that the electromagnet with the most coils of wire did indeed pick up the most paper clips.	
Conclusions/Discussion Through my experiment I learned that my hypothesis was correct. The more wire that is wrapped around the iron core increased the strength of the electromagnet. This is because as more coils are added to the electromagnet a stronger and stronger magnetic field is created. If I were to add to my project, I would add an extra battery to study the change that electrical current has on the power of electromagnets as well. I would like to study more about electromagnets and their everyday use!	
Summary Statement My project is about how the strength of electromagnets is affected by the amount of wire wrapped around a core.	
Help Received My dad supervised me when I used the power tools and also to help install the power button and switch. My mom helped me organize the data for my display board.	