



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Matthew A. Lessig	Project Number J0716
Project Title Are Electromagnetic Guns Practical?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My project objective/goal was to learn more about electromagnetism and the practicality of electromagnetic guns. My hypothesis is that electromagnetic guns are practical.</p> <p>Methods/Materials Several different prototype guns were built. All of the results are based on the latest prototype. All of the prototypes had the same basic structure. There is a barrel, a solenoid, a micro switch, a fire switch, and a battery. There are also other mounting parts but they do not affect the gun. The results were determined by doing two trials of the same procedure. In each trial I fired the gun and then my father would measure the distance the projectile flew. I recorded this then I checked the voltage of the battery. I recorded the voltage, reconnected the wires, fired the gun again and repeated the procedure. There were ten fires in each trial. The battery was recharged between trials. Based on the distance the projectile flew, the velocity was calculated.</p> <p>Results The final prototype worked reasonably well but not as well as I had thought it would at the beginning of the project. The projectile flew between 27 and 36.50 inches. The velocity of the projectile was between 3.5531 and 4.8032 miles per hour. Those figures are between both trials. I was expecting better results but this are pretty good.</p> <p>Conclusions/Discussion As I stated in my results I was expecting better results but they are still good. Based on my research, experimentation and the results of the project I believe that there is a bright future for electromagnetic guns. Right now I do not think that they are practical but I do think that someday electromagnetic guns will be practical.</p>	
Summary Statement The goal of my project is to study the practicality of electromagnetic guns, and learn about electromagnetism	
Help Received My mother helped me with my presentation board, and report. My father helped me with the presentation board, report, building the device, and experimentation.	