



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Adam J. Stanford	Project Number J1317
Project Title Does the Length of, or the Character Type of, a Password Increase the Security for a Computer User?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I designed this experiment to test password security. I believe that this is an issue in our current time because every thing is going computerized and that means that we need passwords to protect our confidential content on the computer. The reason I chose this experiment is because I have had experience with my passwords getting hacked. I am very interested in finding a much more secure way to use passwords.</p> <p>Methods/Materials I will be using encrypted .zip files to test the password security. Also, I will be using a password recovery tool to "hack" the files' passwords to determine how strong the passwords are.</p> <p>Results According to my experiments, the length of the password makes a huge impact on how secure the password is. The character type was also a factor on how long it took to crack the passwords. It looks like the passwords with more letters or numbers were stronger. The mixed letters and numbers were the strongest in this experiment. The password with one to four characters were cracked in 170 seconds or less. The passwords with five to eight characters were cracked in 1,000 seconds or less. The nine to twelve plus were cracked in 10,000 seconds or less.</p> <p>Conclusions/Discussion My hypothesis is if a file is programmed with a password and a hacker tries to gain access, then a password containing a combination of three letters and three numbers will be more difficult to hack than a password with less. My results do support my hypothesis. It is more difficult to hack a password with a combination of 3 letters and 3 numbers than a password with fewer characters. I think the test I did went fine and I had no problems, except for the fact that some of the bigger passwords took very long to crack. An interesting future study might involve testing more passwords and maybe testing the passwords on different file types.</p>	
Summary Statement My project tests encrypted computer files to determine if character type or length of passwords affect security.	
Help Received Science teacher assisted with wording of project components. Family assisted by providing time and support for me to complete my project.	