



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Ari T. Colton	Project Number J1307
Project Title Is Your i-Pod as Good as a CD?	
Objectives/Goals My project is to determine if people can hear a difference in sound quality between compressed music, and the original uncompressed file. My hypothesis is that professional musicians will rate the Uncompressed WAV file as higher quality than kids and adults; in addition I think that everyone will rate the WAV file as higher quality when compared to the highly compressed 16KBS MP3 file.	
Abstract Methods/Materials First I will take a 30 second clip from 4 different songs. Next I will convert 3 of these sections to MP3 files utilizing 3 different levels of compression quality. (320KBS, 128KBS, and 16KBS) As a control I will have one song that is only in WAV format. After this, I will create 4 pairs of recordings with each reformatted song next to its original file. Finally, I will play these pairs of songs to 62 participants, and have these participants rate each clip's sound quality on a scale of 1 to 4.	
Results Based on my data, 91% of the children, 75% of the adults, and 100% of the professional musicians rate the WAV file as higher sound quality than the 16KBS MP3 file. 14% of the children, 32% of the adults, and 9% of the professional musicians rated the WAV file as higher sound quality than the 320KBS. On the third track 41% of the children, 41% of the adults, and 32% of the professional musicians, rated the WAV file as higher sound quality than the 128KBS song. Finally, 86% of the children, 89% of the adults, and 67% of the professional musicians rated the two identical WAV files differently.	
Conclusions/Discussion From my data I can conclude that my hypothesis is half correct. The professional musicians did not rate the WAV files significantly higher than everyone else, but nearly everyone rates the 16KBS lower than the WAV.	
Summary Statement My Project is to Test if People can hear a difference between compressed and uncompressed music files	
Help Received Parents and Teachers proofread everything	