



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Amanda J. Wong</b>	<b>Project Number</b> <b>J1938</b>
<b>Project Title</b> <b>Can You Hear Me? A Comparative Study of Headphones/Earphones for MP3 Players</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this project is to compare different types of headphones. Such as active noise-canceling; non noise-canceling and in-the-ear earphone for their effectiveness in blocking out ambient noise and to find out the risk of hearing loss associated with their uses. <b>Methods/Materials</b> Two noise-canceling headphones, one non noise-canceling headphone, and earphone (earbud), were used with a musical device (my Compaq laptop or the Rio). The experiments were performed in the audiologist's sound field laboratory and results were recorded. <b>Results</b> The Sony headphone and the earbud block the noise the best. Another noise-canceling headphone, Koss QZ50, was less effective because of poor fitting. The Radio Shack over-the-ear non noise-canceling phone provided the poorest blockage and therefore resulting in high listening volume. <b>Conclusions/Discussion</b> The results agree with my hypothesis that noise-canceling headphones and earbuds block ambient noises well. Though, as point out in my discussion section, it actually increases the risk by using the earbud. From this experiment, it is clear that to reduce risk of hearing loss from listening to MP3 players, one must listen to the music at a comfortable level, use appropriate headphones and take frequent breaks.	
<b>Summary Statement</b> My project is a comparative study of headphones/earphones for MP3 players.	
<b>Help Received</b> An audiologist, Mr. Anderson, worked with me in his sound field laboratory for the actual testing. Dr. Gary Zerlin, an ENT specialist was consulted regarding the tests to be used. My dad provided transportation and purchased the materials for this project.	