



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> Celia Willner; David Willner	<b>Project Number</b> <b>J1824</b>
<b>Project Title</b> <b>The Potential Effect of Decibel Levels in Certain Settings on Permanent Hearing Damage</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This project was to determine if places frequented by children and adults had decibel levels that exceeded 85 dB, the decibel level that can cause permanent hearing damage according to the American Academy of Audiology.</p> <p><b>Methods/Materials</b> We used the iphone app Decibel Tenth to record decibel levels of Jamba Juice, Starbuck#s, Abercrombie. a high school musical and getting ready for school. For each location three ten minute measurements were taken and then sent by the app in an email to an Excel spreadsheet which was then transferred to a graph. Average decibel levels were then calculated</p> <p><b>Results</b> The decibel levels exceeded 85 in each of the everyday locations. The levels in Abercrombie exceeded 85 dB with a high level of 101 dB and an average of 84 dB. The levels in Jamba Juice also exceeded 85 dB with a peak of 97 dB and an average of 81 dB. In Starbuck#s, or data shows that there is a peak of 97 dB and an overall average of 77 dB. The average level of getting ready for school is 80 dB with a peak of 102 dB while the average for the high school musical was 83 dB with a peak of 101 dB. Each location had decibel levels that could be called dangerous at times but the place with the most frequent sustained high dB levels was Abercrombie.</p> <p><b>Conclusions/Discussion</b> Our grandfather has been having a lot trouble hearing over the years. We know that, as a police officer, he often went to the firing range where the decibel levels were very high. We are both musicians and our father teaches high school band so we also are not strangers to loud environments. When we were thinking about a science project, we tried to think of a problem in our world. We then found that many of the stores that we go to are too loud. We wanted to check to see if the decibel levels in these places exceeded 85 dB and found that the places did, in fact, have dangerous dB levels. We feel that people should know the long-term risks of exposure to high decibel levels. With all of the measuring devices available, hopefully people can make smarter decisions about where they spend their time or at least take precautions when they are in loud places.</p>	
<b>Summary Statement</b> Our project tests the decibel levels of certain public and private settings to see if they exceed 85dB, the level stated by the American Academy of Audiology to cause permanent hearing loss.	
<b>Help Received</b> Mother bought office supplies with us for the board. All else done by us.	