



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kana Yamamoto</b>	<b>Project Number</b> <b>J1327</b>
<b>Project Title</b> <b>How Does the Eardrum Affect Our Hearing?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> To see how holes in the eardrum affect our hearing. <b>Methods/Materials</b> I built a model of the ear and made holes in the "eardrum". The vibrations of each sound were picked up by the mic element. The mic element was connected to the computer and the vibrations were recorded on to the computer. I tested 8 different frequencies and the holes were made bigger each time. <b>Results</b> There was no specific relationship between the hole's size in the eardrum and the amplitude. But it seemed that specific frequencies were better heard with varying hole sizes. <b>Conclusions/Discussion</b> There was actually suppose to be a constant result of hearing loss of some degree because one of the side effects of perforated eardrums, which is a disorder of having a hole in the eardrum, is hearing loss. Since i used a mic, there is a possibility that the sound itself was picked up instead of just the vibrations which made the results inaccurate.	
<b>Summary Statement</b> To see how holes in the eardrum affect the amplitude and frequency of audible sound.	
<b>Help Received</b> Father helped make model and use computer softwares	