



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Emily J. Boone</b>	<b>Project Number</b> <b>J1104</b>
<b>Project Title</b> <b>Is the "Mosquito Tone" an Example of Selective Teenage Hearing?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> In 2006, the 'Mosquito Ring Tone' became the buzz. Invented in Britain, this 'uniquely created tone' was claimed to be heard only by teenagers. Believing they could possess a cell phone that neither parents nor teachers could hear, thousands paid to download 'The Mosquito' ring tone. In my study, I investigated whether the rumors regarding the 'Mosquito' were true: that this tone could only be heard by teenagers. Also, I was curious whether this Mosquito Tone was truly a scientific break-through, or merely a sound which takes advantage of other phenomenon.</p> <p><b>Methods/Materials</b> 46 subjects were recruited: 12 teenagers, 10 adults ages 20 to 29, 8 adults ages 30 to 39, 8 adults ages 40 to 49, and 8 adults ages 50 +. Using the internet, the 'Mosquito Tone' was loaded onto a computer. Frequency tone generating software was also obtained over the internet. Each subject was tested to see if they could hear the 'Mosquito Tone'. The volunteers were then examined to determine whether they could hear sounds of various pitches at the same volume.</p> <p><b>Results</b> While 100% of teenagers could hear the Mosquito sound, older subjects did poorly. 40% of those persons in their 20s could detect the tone, while a very small minority of persons in their 30s and 40s (12%) could do so. No one in their 50s and beyond could hear this tone. To determine whether this 'Mosquito Tone' was truly unique, the same 46 subjects were tested to determine the highest frequency sound they could detect at the same volume as the 'Mosquito'. As my data reveals, the ability to detect high frequency sounds decreased significantly with increasing age. Being able to detect sound frequencies higher than 17,000 Hz, and their ability to hear the 'Mosquito Tone' were essentially identical.</p> <p><b>Conclusions/Discussion</b> As claimed by its inventors, The 'Mosquito Tone' is easily heard by teenagers, and poorly by older individuals. Although advertised as being unique in its design, my study showed that the 'Adult-Proof Mosquito Tone' appears to be little more than a very high pitched sound at approximately 17,000 Hz. My data showed that the decline in the ability to detect this ring tone was associated with the inability to detect similar high pitched noises in persons of increasing age. This unique technology seems to take advantage of nothing more than the normal physiologic decrease in the ability to detect very high frequency sounds as we age.</p>	
<b>Summary Statement</b> Is the 'Mosquito Tone' unique in its ability to be selectively heard by teenagers?	
<b>Help Received</b> Father helped find sound generating software on the internet.	