



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Brandon K. Lim	Project Number J2120
Project Title Which Children's Toys Can Damage a Child's Hearing?	
Abstract Objectives/Goals The objective of this project was to determine if certain children's toys would produce a high decibel level loud enough to damage a child's ears when the toys are played at different lengths of the arm. Methods/Materials The problem is, "Which children's toys can damage a child's hearing?" It was hypothesized that toy sound level would be determined by distance from the toy to the child's ear. The decibel levels of four different toys and no toy as a control were measured 50 times. Variables were controlled by using a room without ambient noise, using fresh batteries in each toy, and by using the same method of measuring distances and the same sound meter. Results The toys were tested at six different distances- 0 centimeters, 5 centimeters, 10 centimeters, 15 centimeters, 20 centimeters, and 25 centimeters. At each distance, the toy's decibel level was at least borderline potentially harmful. The lowest mean decibel (dB) level was from the Buzz Lightyear toy, and that was 84 dB at 25 centimeters, the highest distance used in this experiment. The limit for possible hearing loss is 85 dB, and the decibel levels of the other toys were higher than that, even at 25 centimeters. Conclusions/Discussion The experiment indicates that all of the toys should be considered as potentially dangerous because they are all close to the limit for possible hearing loss. Children are diagnosed with hearing disorders caused by loud noises. When children play with toys, they usually put them near the ear, and if the toy is loud, it could damage hearing and, in the worst case, lead to problematic hearing disorders. (267 words, 1,572 characters)	
Summary Statement For my project, I tested the decibel level of children's toys on the market to determine if any of them could potentially harm a child's ears, resulting in complicated hearing disorders that would be costly to alleviate.	
Help Received My teacher gave guidance in the organization of my project; my parents helped me get materials and take photos, etc.	