



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Dana S. Saeteurn	Project Number 38058
Project Title How Sound Cues Affect a Visually-Impaired Person's Ability to Play Video Games	
Abstract Objectives/Goals The objective of my project is to design a video game with sound cues so that a visually impaired person can have the ability to play it. Methods/Materials Developed "Help Cat Find His Clarinet" game on https://scratch.mit.edu/projects/43658317/ by incorporating clarinet music notes to guide players in achieving the game's objective, tested visually impaired players and players with no visual impairments of the same ages by timing how long it took to complete the objective of the game with and without blindfolds and with and without sound, interviewed/surveyed participants' experiences playing the game, and calculated score averages and analyzed data to see if hypotheses were correct. Results The test subjects strongly agreed that the sound cues were helpful when you are blind because Statement #3 (The sound cues were helpful in the game.) on my survey sheet got the highest average rating of 4.6 out of 5.0. Also, the survey revealed that the test subjects strongly disagreed with Statement #2 (It was possible to meet the objective of the game with no sound cues.) with a rating of 2.6 out of 5.0. In addition, only 3/10 kids were able to complete my game without sound cues within a 1:30 min. time limit. Lastly, the visually impaired kids finished my game faster at an average speed of 55 seconds while it took the seeing kids an average of 59.07 seconds to finish. Conclusions/Discussion My experimental results support my hypotheses that sound cues are helpful to the visually impaired and that the visually impaired test subjects can complete the video game faster than the test subjects can with no impairments. This shows that visually impaired kids rely heavily on hearing to learn. Since a visually impaired person can play video games like a regular person can, then we should understand that all people will benefit from having sound to assist them in their daily activities. Most importantly, having a disability shouldn't prevent someone from doing what an able body can do.	
Summary Statement My project is a video game enhanced by sound cues that I coded to allow the visually impaired to be able to play it.	
Help Received I designed and created the video game by myself, but I learned the basics of coding at the UC Merced Mother and Daughter Science Camp. The Merced County Office of Education helped me get in contact with visually impaired students throughout the county so I can be able to perform my experiment.	