



# CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

<b>Name(s)</b> <b>Patrick Casebolt; Charley Huang</b>	<b>Project Number</b> <b>S0405</b>
<b>Project Title</b> <b>Music and Memory: Is There a Connection?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> All high school and college students study for exams. Some students, whether musically talented or not, study with ambience around them. Many use classical music as a pathway to better memorization. Our experiment tested whether music can actually help the study and memorization process. We chose classical music for our experiment because most people with musical ability have played classical music more than any other genre of music. Classical music is also the genre of music that is least likely to be distracting to the listener like Metal or Rap music, and the lack of lyrics in the music we selected also produced less of a distraction for the test subjects.</p> <p><b>Methods/Materials</b> We created two nearly identical PowerPoint presentations, both with three different tests, one with classical music playing and one without. The first test was based on algorithm and analyzed basic memory. For this test, we showed a string of randomly generated letters. The test subjects with musical or non-musical backgrounds then tried to memorize and write the letters down. The second test was a visual test in which we showed fifteen carefully selected clip art pictures of clearly recognizable, everyday objects. Our test subjects wrote down the names of the objects after having twenty seconds to memorize them. The third and final test checked reading comprehension memory. A paragraph of reading material was shown and our subjects answered a series of questions regarding the paragraph.</p> <p><b>Results</b> Through our research and experimentation we found results that conclusively showed the effect of music on short term memorization. We concluded that listening to music did not measurably change the scores of either musical or non-musical students. However, it appeared that the scores were significantly better for all students with respect to reading comprehension, while being less favorable in the algorithm and visual portions when music was being played in the background.</p> <p><b>Conclusions/Discussion</b> It appeared that listening to music did not improve concentration in memorizing pictures or other random objects. It in fact slightly weakened the ability to memorize. This means that music did not help in visual learning such as flashcards with pictures on them. It also did not help raw memorization of things like variables and formulas. However it did improve the reading comprehension and memorization of students when music is played.</p>	
<b>Summary Statement</b> The intent of this project was to find out whether listening to classical music changed the effectiveness of short term memory.	
<b>Help Received</b> Volunteer helpers watching over test subjects. Parents bought materials for the poster. Parent's laptop computer was used for testing.	