



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title Shh... I'm Driving!: What Is the Effect of External Stimulus on Driver Reaction Time?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals For my project, I was trying to see which activity would slow down a driver's reaction time the most; listening to music, talking on a handheld cell phone, or talking on a hands-free cell phone, compared to no distractions (the control group).</p> <p>Methods/Materials First, I had two cars parked forty-five feet away from each other, one in front of the other, using two measuring tapes lined up on the ground. Then I set up a video camcorder on a tripod so both cars' taillights were visible through the lens. I had a helper go into Car #1 (the front car) and press down on their brakes at random times. I had nine test subjects go into Car #2 (the back car) one at a time. They were told to press down on their brakes (causing the taillights to go on) every time they saw the taillights of Car #1 turn on. Each test subject did ten trials for each test condition. For the trials that used the cell phone, I asked them different questions (from a list that I made) from another cell phone. After all of the test subjects finished, I plugged the camcorder into a television and reviewed the tapes. I wrote down the exact time that Car #1 and 2's taillights went on in my notebook and subtracted the times to find the reaction time. The times were very accurate because the camcorder has a digital timer inside the machine that can record down to a thirtieth of a second.</p> <p>Results I found that the trials with music playing had the fastest reaction times, second fastest was with no distractions, third fastest was with the handheld cell phones, and the slowest reaction time with the hands-free cell phones.</p> <p>Conclusions/Discussion I think that the trials with music had the fastest reaction times because they were immediately after the trials with no distractions and the test subjects may have gotten more used to the task and improved over the period of time. I think the trials talking on a handheld cell phone had faster reaction times than the ones talking on the hands-free cell phone because the volume of the speaker on the hands-free phone wouldn't go loud enough for all of the test subjects to hear, making them concentrate more on what they were being asked. Some other things that may have affected the results were the changing sunlight and that some of the test subjects didn't perform all ten trials.</p>	
Summary Statement The purpose of this experiment was to see which activity would slow down a driver's reaction time the most; listening to music, talking on a handheld cell phone, or talking on a hands-free cell phone, compared to no distractions.	
Help Received I would like to thank my grandparents for letting me use their driveway, my mom for being my helper, and my parents for letting me to use their cars and cell phones.	