



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

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Project Title React to the Fact	
Abstract Objectives/Goals Reaction rate of human subjects will be tested to observe if talking on a cell phone and texting will increase their reaction time. Methods/Materials Important materials include a meter stick, coin, chair, calculator, notebook, writing utensil, and at least two cell phones with messaging and texting enabled. Each subject will go through three different trials where he/she will try to catch the meter stick with their dominant hand while the tester drops it. For each trial, they will be tested three times. The length of the meter stick which their index finger is at will be recorded for every test. First, he/she will be tested for his/her baseline reaction while concentrating on the task. The other two trials will include texting and talking on a cell phone. One hand will hold the cell phone and the dominant hand will attempt to catch the meter stick which will be in his/her peripheral vision. A coin will be tossed to determine if texting or talking on the cell phone will be tested next. Using the formula, $d=1/2at^2$, where acceleration is 9.8 m/s, the averaged length collected over each trial will be input into d to get the reaction time(t) in seconds. Results Based on the data collected, the first treatment where the subject concentrated on catching on the meter stick had the fastest reaction time at 1.316 seconds. Texting and talking varied on which had the slowest reaction time, but on average talking caused a slower reaction. Average texting rate was 2.124 and the average talking reaction rate was 1.822 seconds. Conclusions/Discussion On average, the subjects were strongly influenced by the use of cellular devices because the experiment showed an decreased reaction rate. The information gathered explains talking and texting are exclusive because the same part of the brain is used to focus on the phone conversation and the meter stick. When talking or texting, subjects withdraw their attention from the meter stick in order to formulate responses. Because the brain cannot focus on two sources of input at once, usage of a cellular device distracts the brain and delays an immediate response. Based upon the collected data, the reaction times of subjects increased by at least half of a second. Therefore, the usage of a cellular device certainly influences both human reaction rate and time.	
Summary Statement Human reaction rate is affected by many outside factors and cell phone usage, texting and talking, may cause a delayed reaction.	
Help Received Other subjects besides the one being tested helped interact to the tested subject on a separate cell phone.	