



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

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Project Title Ring! Ring! Phones and Reaction Time	
Abstract Objectives/Goals The objective of this project is to identify any difference in reaction time while talking on the phone hands-on and hands-free. Methods/Materials We received consent from 15 people (ten 8th grade students and five adults) to test their reaction times. To test reaction time, we had the test subjects catch a meter-stick when we dropped it between his/her fingers. We measured the reaction time by the distance, in centimeters, the meter stick dropped before being caught. We first measured the subjects' reaction time with no distractions (control). For the hands-on test, we then repeated this while the test subject was answering the questions one of us was asking them over the phone. For the hands-free test, we repeated the reaction test while playing on speaker phone a recording of twenty questions that we had made on the cell phone earlier. Results Overall combined average reaction time was fastest for the controls, hands-on was next fastest, and hands-free was slowest. For the eighth grade, we found that the control was much better reaction time than the other tests, but, unexpectedly, the hands-free was slightly worse than the hands-on. For the adults, we found that not only was the hands-on much better than the hands-free but it was even about the same as the control. Finally, we found that the adults overall had superior reaction times to the eighth graders. Conclusions/Discussion From our results, we found that talking on the cell phone hands-free affects people's reaction time even more than hands-on. In either case, reaction time was worse than control, so we think talking on the cell phone either way is unsafe while driving.	
Summary Statement Our project is about how reaction time is affected by talking on the phone both hands-free and hands-on.	
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