



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Dalia S. Rahmon</b>	<b>Project Number</b> <b>S0912</b>
<b>Project Title</b> <b>Cell Phones: Friend or Foe?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my project was to determine how and if levels of radiation emitted by cellphones varied when the phone was receiving a call and a text message. I also tested how the levels of radiation detected varied using different brands and ages of the cellphones, while the phones were placed at different distances from the microwave leakage meter. <b>Methods/Materials</b> (1) Microwave Leakage Meter (Measured in mw/cm <sup>2</sup> ) (2) Metric Ruler (3) 10 Cell Phones (Varying in age, brand and carrier) <b>Results</b> The average amount of radiation emitted from receiving a call was about double the amount detected when the test phone received a text message. The average amount of radiation emitting (mw/cm <sup>2</sup> ) from sending a text message to the test phone at 0cm was .126, at 5cm was .0476, and at 10cm was .015. The average amount of radiation emitting (mw/cm <sup>2</sup> ) from receiving a call at 0cm was .358, at 5cm was .086, and at 10cm was .0293. <b>Conclusions/Discussion</b> The purpose of this experiment was to test the amount of radiation emitted by cell phones, and if this number was influenced when either calling or sending a text message to the cell phone being examined. The control for this project was the distance between the cell phone and the microwave leakage meter (0cm, 5cm, 10cm). The dependent variable was the amount of radiation detected from the cell phone. My hypothesis was that more radiation would be emitted when a phone received a call rather than a text message. This was proven true through several trials. More radiation was detected when a cell phone received a call, and a significant difference in radiation was detected as the phone was placed closer to the microwave leakage meter. I found that the brand and age of the test phones did influence the results. However, there were no trends in the outcomes of various carriers of the cell phones tested. A possible error may have been testing this radiation in an open room, where the radiation could have easily dispersed. Also, by performing my experiment in a room containing other electronics, the leakage meter may have detected radiation from surrounding devices along with the phones being tested.	
<b>Summary Statement</b> To test the amount of radiation emitted by various cell phones at different distances between the phone and microwave leakage meter when both sending a call and a text message to the phone being tested.	
<b>Help Received</b> Friends and family members supplied cell phones to test for the experiment.	