



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Tatum J. Mahoney</b>	<b>Project Number</b> <b>J1016</b>
<b>Project Title</b> <b>Danger! Radiation Box</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The goal of my experiment was to discover if a microwave seal is not working properly which means it may be leaking radiation. I used a cell phone inside different microwaves and used another cell phone to call and text the first cell phone. I predicted that seventy-five percent of the microwaves tested would allow the calls and texts to occur. This would mean that the microwave seal is not working properly and could be leaking radiation. <b>Methods/Materials</b> The materials needed to conduct my experiment were two cell phones, a variety of microwaves, Wi-Fi, sticky notes and color coding stickers, and a scientific journal to keep track of data. My method of testing was I went to a variety of stores and tested all the microwaves by putting one cell phone in the microwave and using the other cell phone to call and text the other phone. If a call or text went through, then I put a green sticker on a sticky note with the microwave specifics. If the call or text did not go through, I used a red sticker which indicated the microwave stopped the call. <b>Results</b> I tested 44 microwaves, 15 different microwave brands, and out of the 176 trials of cell phone calls and text messages, a total of 137 calls and text messages went through. This is 78% of calls and texts were getting through the microwave seals and this would suggest that the microwave seal was not working properly and could be leaking radiation. <b>Conclusions/Discussion</b> My hypothesis was correct and at least 75 % of the microwaves tested allowed calls and text messages to go through. This experiment is significant because many people may be unaware of the dangers and radiation exposure from their microwaves. This can be harmful to a person's health, especially if a person wears a pacemaker. I want to invent a color-detecting device with possible use of Manganese that would be on all microwaves and shows consumers by turning a certain color if there is any radiation leaking. I want to also invent a phone app designed to scan if a microwave is leaking radiation.	
<b>Summary Statement</b> My project is about using cell phones to test different microwaves to see if microwave's seals are working improperly and leaking radiation which can cause health issues, especially amongst people with pacemakers.	
<b>Help Received</b> Carly Mahoney, my science fair mentor, helped drive me around to the stores to conduct my experiment.	