



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>David P. Hamilton</b>	<b>Project Number</b> <b>J0812</b>
<b>Project Title</b> <b>Wave Blockers</b>	
<b>Abstract</b> <b>Objectives/Goals</b> I wanted to find out what materials block radio waves more than others. I believed that material covering an antenna would affect the transmission of radio waves and block the transmission. <b>Methods/Materials</b> Test the distance a 49MHz remote controlled car will travel on a flat surface three times with no covering on its antenna. Next cover the antenna with aluminum foil, wax paper, plastic wrap, paper, cotton cast padding, and nylon synthetic wrap, and test the distance the car will travel. Repeat each test three times. Recharge the battery for fifteen minutes prior to each new test material. <b>Results</b> The control car went 39.60 meters. Aluminum foil did not seem to affect the transmission of the radio waves, at 39.80 meters. Wax paper seemed to help the radio waves travel farther. It traveled 47.26 meters. Several materials seemed to block some, but not all, of the radio waves. Synthetic wrap blocked the most radio waves. The car only traveled 19.31 meters while the transmitter was wrapped in the synthetic wrap. <b>Conclusions/Discussion</b> It turns out that my hypothesis was almost completely incorrect. I originally thought that the plastic wrap and the wax paper would block the radio waves. It turns out the wax paper went farther than any other test condition. I thought that the unwrapped antenna would go the farthest. The wax paper and the aluminum foil went further than my control group. Apparently one of my variables was not controlled as well as I thought. It is certain that none of the materials that I used was thicker than the radio wave transmitted from my controller, since the radio waves were not blocked.	
<b>Summary Statement</b> Using a remote controlled car, I tested to see how far the car could travel with different materials blocking the antenna's radio waves.	
<b>Help Received</b> Parents helped measure; Dad provided some materials and helped design my tests; County mentor helped edit my project abstract.	