



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> Sarah Y. Root	<b>Project Number</b> <b>J1723</b>
<b>Project Title</b> <b>Contaminated Carts: What Else Did You Pick Up at the Grocery Store?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my experiment was to see how effective the antibacterial wipes, provided for customers at some grocery stores, were at reducing the amount of bacteria on shopping cart handles.</p> <p><b>Methods/Materials</b> 30 customers were timed for how long they used the antibacterial wipes to clean their cart handle. An average time was determined - 3.79s. 15 shopping carts were randomly chosen. Each cart handle was sampled using sterile swab with water and one side of a Petri dish was inoculated for the Before condition. A antibacterial wipe was applied to each handle for 3.79s then a second sample was taken from the handle and the other side of the Petri dish was inoculated for the After condition. Dishes were incubated for 24hrs and the bacterial colonies in each condition were counted and compared.</p> <p><b>Results</b> The average number of colonies in the Before condition was 26.7 versus .33 in the After condition. Of the Petri dishes, 11 had no growth in the After condition, 4 out of the remaining dishes had only 1 to 2 bacterial colonies in the After condition and one dish had no bacteria growth in either condition after 24 hours of incubation possibly because of poor inoculation technique on my part.</p> <p><b>Conclusions/Discussion</b> My hypothesis was supported with there being an average of 98.7% decrease in bacteria from the Before and After conditions. However, since on person wiped for 15.53s and another for only .88s, additional studies could determine the optimal amount of time necessary to destroy or reduce bacteria on the handles. Also, only 30 out of 391 customers elected to use the wipes and 83% were women and only 17% were men. Future research could study ways to educate the public about the effectiveness of the antibacterial wipes in reducing or destroying pathogenic bacteria and thereby reducing illnesses and diseases.</p>	
<b>Summary Statement</b> My project tested the effectiveness of bactericidal properties in wipes provided by grocery stores to clean shopping cart handles.	
<b>Help Received</b> Used lab equipment at Moorpark College under supervision of Ms. Lan Nguyen & Ms. Mary Swensen. My dad aka research assistant, timed me as I wiped cart handles. My mom helped me type some of my project, taught me how to find images online and nagged me to stay on schedule.	