



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Savannah A. Wittman</b>	<b>Project Number</b> <b>J2020</b>
<b>Project Title</b> <b>What Hand Cleaners Kill Bacteria the Best?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project was to determine which of the various household hand cleaners was the most effective in killing bacteria.</p> <p><b>Methods/Materials</b> The project was divided into two phases. In phase one I would wash my dirty hands in various commercially available hand cleaners/gels and then place them on a large agar plate and count bacterial colonies after 24 hours of incubation at 37 degrees celcius. In the second phase of the experiment, a bacterial colony was isolated and diluted into sterile saline and then plated onto numerous agar plates with a sterile cotton swab. The aforementioned hand cleaners/gels were then saturated onto filter paper discs and placed onto the agar plates and incubated for 24 hours at 37 degrees celcius. Zones with no bacterial growth (rings of inhibition) were measured to determine antimicrobial effectiveness.</p> <p><b>Results</b> The the first phase of the experiment Germ-X and Dial Complete had the lowest colony counts. In the second phase of the experiment Dial Complete (triclosan) had the absolute larges ring of inhibition measured at 16 mm, followed by the positive control Avagard (chlorhexidine) and dawn dish soap.</p> <p><b>Conclusions/Discussion</b> It was determined that products that contain antimicrobial compounds in addition to soap were the most effective in killing bacteria. Dial complete (with triclosan) was the overall most effective product tested in killing bacteria. Germ-x hand gel was very effective in the first phase of the experiment and less effective in the second phase.</p>	
<b>Summary Statement</b> I tested various hand cleaners to see which ones were the most effective at killing bacteria I would commonly have on my hands.	
<b>Help Received</b> My dad helped me to take the data and graph it using the computer word processor.	