



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Alyssa C. Medeiros	Project Number J1123
Project Title Is It Really Clean?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project is to determine which cleaning agent is the most effective at removing germs and bacteria from a cutting board surface. I predict that a solution of Clorox bleach and water, and Clorox disinfecting wipes will be more effective than a solution of hot water and antibacterial soap</p> <p>Methods/Materials Four non-porous cutting boards were washed and a raw chicken thigh was placed on each one, cut, and then removed. The appropriate cleaning agent was used on three of the boards and one was left alone to be used as the control. The agents were bleach and water, hot water and soap, and Clorox disinfecting wipes. Each board was sterilized with its corresponding solution. Then, each was swabbed, and a petri dish containing an agar growing medium was swabbed with the matching cotton swab. The bacteria (if any) were allowed to grow on the medium for 48 hours. I repeated this method three times.</p> <p>Results In the first experiment, visible bacteria grew on the soap and water medium and the control, and no bacteria grew on the Clorox wipe or bleach and water mediums. In experiment #2, bacteria grew on the soap and water, Clorox wipe, and control mediums. No bacteria grew on the bleach and water medium. The third experiment showed that bacteria had grown on the control and the soap and water medium, and only a small amount of visible bacteria was on the Clorox wipe medium. Again, there was no growth on the bleach and water medium.</p> <p>Conclusions/Discussion I conclude that the bleach and water did the best job of removing the germs from the cutting board surface that had been infected by a piece of raw chicken. I believe this is because the sodium hypochlorite in the bleach poisoned the bacteria, killing them. The Clorox wipes removed most of the germs, but not all of them, and the soap and water removed only a minimal amount of bacteria from the cutting boards. These results tell me that I was correct in my hypothesis and show that commercial cleaning agents, such as Clorox wipes, are not the most effective in bacteria removal and control.</p>	
Summary Statement I tested three cleaning agents to see which would effectively remove bacteria from a cutting surface.	
Help Received My mother and father helped in the procedure of my experiment by assisting me with infecting the boards with the raw chicken bacteria and preparing the cleaning agents.	