



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jennifer B. Smith</b>	<b>Project Number</b> <b>J1330</b>
<b>Project Title</b> <b>Clean Hands?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my project was to determine how long an antibacterial soap prohibits bacterial growth on human hands. An outbreak of illness at my school made everyone extra careful about washing hands. I wondered how long I would be protected. I think the soap will prohibit growth for approximately thirty minutes because it is probably difficult to produce a long-lasting soap. <b>Methods/Materials</b> Two controls and five different treatments were set up. The Agar Control verified the agar plates were not contaminated and the Inoculate Control verified the agar plates were capable of supporting bacterial growth. The five different treatments were Zero, Ten, Twenty, Thirty, and Forty minutes. I washed my hands for ten seconds, waited the allowed treatment time with my treatment finger isolated from everything surrounding it, and then collected bacteria by swabbing the mouth of my dog. An agar plate print of my finger was taken and the plates were stored in a dark cabinet. I checked the plates for growth every twelve hours for 36 hours. During these checks, the temperature was recorded and the number of colonies was counted. This procedure was repeated four times in sequential days. <b>Results</b> The results did not show an immediately clear picture. However, when I averaged the data, patterns were easier to see. The highest bacterial colony count occurred after the twenty minute treatment time. The least growth occurred after the ten minute treatment time. At zero minutes an unexpected high count emerged. My hypothesis was not supported by the data, but several interesting patterns appeared. Recorded temperatures in the cabinet never ranged farther apart than three degrees Celsius. <b>Conclusions/Discussion</b> My conclusion is that Dial anti-bacterial soap prohibits bacterial growth most significantly after allowing the soap to sit on tissue after twenty minutes. Between zero and ten minutes, I think the soap took a few minutes before becoming most effective. This accounts for the unexpected count at zero minutes, and the lowest count at ten minutes. Finally, between ten and twenty minutes, I believe the effectiveness of the soap ended and produced the high growth count at twenty minutes, and subsequent counts at thirty and forty minutes (as compared to the ten minute count). I recommend people continue to use anti-bacterial soap, but not assume it will prohibit bacterial growth for a long time.	
<b>Summary Statement</b> The purpose of my experiment was to determine how long antibacterial soap prohibits bacterial growth on human hands.	
<b>Help Received</b> Humboldt State University Department of Biology provided the agar plates; my dog, OB, provided the bacteria; my dad advised me on my procedure; my mom reviewed my grammar.	