



# CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

<b>Name(s)</b> <b>Phoebe G. Ng</b>	<b>Project Number</b> <b>S1714</b>
<b>Project Title</b> <b>Hand Washing? I'd Rather Touch a Toilet</b>	
<b>Abstract</b> <b>Objectives/Goals</b> This project's objective is to determine if hand washing is really necessary; and if it is, if the time spent on washing one's hands would decrease the amount of bacteria colonies grown. <b>Methods/Materials</b> Design a questionnaire to determine hand washing habits after bathroom use. Recruit additional interviewers and train them to conduct interviews and collect samples in a uniform manner. Study was conducted around the same school bathroom area during lunch. Every 5th student exiting the school bathroom will be debriefed on the purpose of the study and invited to participate for this research. Upon consent to participate, subjects will be asked to swipe their fingers across the surface of the agar. Subjects will be asked to fill out the questionnaire. Place all dishes in the home-made incubator. Count and record the number of bacteria colonies and the temperature over the 5- day period. <b>Results</b> There were a total of 118 who completed the questionnaire. 62 of the subjects were female (53%) and 56 were male (47%). Of all subjects, 51 (43%) did not wash their hands after using bathroom, 49 (42%) of the subjects rinsed, 15 (13%) subjects washed for 5 seconds, 2 (2%) subjects washed for 10 seconds, and 1 (> 1%) subject washed for 20 seconds. 34 (29%) used soap; 27 (79%) females and 7 (21%) males out of the 34 used soap. The non-wash subjects have the highest number of colonies grown; however, the rinse subjects have a similar number of colonies, while the subjects that washed their hands for 20 seconds have the least number of colonies. However, some rinse subjects in the category have almost the same number of colonies as the non-wash group. <b>Conclusions/Discussion</b> The results support the hypothesis that the more time spent on washing hands produces less bacteria colonies. The categories of No Wash and Rinse produced almost the same amount of bacteria. With gender, males were more dominant in Rinse and No Wash. Females, while still present in the Rinse and No Wash categories, tended to have better hand washing habits. Subjects who washed their hands/used soap had cleaner hands than the subjects that only washed their hands. This experimentation proved that not washing and rinsing your hands is ineffective at killing bacteria colonies that are possibly pathogenic.	
<b>Summary Statement</b> This project seeks to research after bathroom usage hand washing habits, along with the effects of time spent on washing hands and additional variables, such as gender and soap usage.	
<b>Help Received</b> Father helped dispose colonized petri dish; mother assisted with cutting the board	