



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Ryan De Guzman	Project Number J1504
Project Title School Makes Me Sick! Which School Areas Grow the Most Bacteria?	
<p style="text-align: center;">Abstract</p> <p>Objectives My experiment asks which commonly touched areas in my school have the most bacteria. I hypothesized that the water fountain would have the largest number of bacteria grown out of all of the places tested because the water fountain is not likely to be cleaned as much as other common areas & comes in contact with mouths, which is host to hundreds of types of bacteria. The bacteria could potentially transfer to the water fountain if the person using the water fountain is mouth to mouth with the spigot & is a moist area in which bacteria could thrive. I hypothesized that the teacher s podium would have the least amount of bacteria colonies due to the lack of moisture. My objective was to determine which school areas could potentially cause harm by exposing people to bacteria. Results would be determined by which areas grew the most bacteria or molds.</p> <p>Methods I first created a homemade incubator to store the petri dishes.The incubator was made out of an LED lightbulb and plug, foam cooler, battery thermometer, and duct tape.I tested several light bulbs to generate heat between 85-95 degrees F to incubate the dishes. With a sterile swab, I tested the water fountain, teacher podium & desk, student desk, lunch tables, bathroom door handle, computer keyboard, my hands, & stair railing. Then I smeared the contaminated swab across labeled petri dishes, placed the petri dishes inside the incubator & took notes every day for 4 days. After 4 days, we disposed of the dishes by spraying them with bleach and then sealed them in a biohazard bag.</p> <p>Results The lunch table petri dish had about 57 colonies of mold/bacteria of different shapes, sizes, and colors.The area with the least amount of mold/bacteria colonies was the hand railing. The computer keyboard grew 4 bacteria/mold colonies, the teacher's desk 4, the student desk 4, the teacher podium 3, my hands 2, & bathroom door handle 1.The data did not support my hypothesis that the water fountain would be the area that would grow the most bacteria.</p> <p>Conclusions My experiment asks which common areas in my school have the most bacteria.The results from my experiment show the lunch tables to have the most bacteria & mold colonies.This experiment could be useful for both students and staff at schools, especially for educational purposes and for encouraging hygiene habits. This experiment could be used to teach students about the importance of washing their hands.The staff could use this information to encourage students to thoroughly clean their most used areas.</p>	
Summary Statement I swab tested the most commonly touched areas of my school and used a homemade incubator to see which areas grew the most bacteria	
Help Received My parents, Michael and Barbra De Guzman, both assisted me in designing and creating my homemade incubator, as well as made sure we were careful not to expose the incubator to too much heat to cause a fire.	