



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Kate E. Graham	Project Number S1310
Project Title Are the Water Fountains at Mater Dei Safe?	
Abstract Objectives/Goals Hypothesis: The samples taken from the cleaned drinking fountain spouts will not grow as many colonies of bacteria as opposed to the unclean water fountain spouts; and the samples taken during the day when the temperature is hotter will grow more colonies than the samples taken at 7. PROBLEM: Is there any difference in the bacterial levels of water at different fountains throughout the M.D. campus and at different times during the day as temperature rises? Methods/Materials 1. Collect water and swab samples at 7 and 3. Collect water in sterile collection bags and streak swabs directly onto plate immediately. (controls: one entire cleaned site; pond water; boiled water) 2. Label each sample with the site of collection and time of day collected and take photos of each site. 3. Store samples at 4 degrees Celsius. 4. Pipette 10 mL of water from each bag onto petri dish. Label each plate according to which bag it came from. 5. Spread water onto surface of agar and seal dish. 6. Incubate for 7 days at room temp. After each day, record results. Photo plates after last day of incubation. MATERIALS: nutrient agar petri dishes; sterile pipette tips; sterile pipettor; sterile collection bags; sterile swabs; film Results There is a difference in the number of colonies that grow at different sites. The time of day had a dramatic effect on growth. There was more growth in the morning samples. Conclusions/Discussion 1. There is more growth in water and swabs from fountain 2. This could indicate potential health problems. 2. There is less growth at 3 than at 7. This is contrary to my hypothesis and might indicate that the fountains are cleaned sometime between 7 and 3 or the bacteria is flushed out as more students use the fountains during the day.	
Summary Statement There is a difference in the concentration of bacteria in the water at different fountains and at different time of the day throughout the Mater Dei campus.	
Help Received My father was my mentor and obtained all the supplies that I needed in my report and my mom helped me with my board.	