



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Jonathan T. Blanton	Project Number J1404
Project Title Household Surfaces and Bacteria	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The goal of my project is to determine which common household surface material is best at denying the cultivation of bacteria in a normal environment.</p> <p>Methods/Materials The method used to achieve my objective was to sterilize eight common household surface materials and then contaminate them with bacteria. Then each surface was swabbed with sterile cotton swabs for a bacterial sample once a day for five days and applied to sterilized Petri dishes. The samples were then incubated in an incubator. Measurements were taken on the eight surfaces (porcelain, tile, glass, stainless steel, varnished wood, solid surface material, marble, and plastic) with a magnifying glass and the naked eye as to amount of bacterial growth. Chicken juices and sugar water were used as the source for bacteria.</p> <p>Results Stainless steel was the best material at resisting bacterial growth followed by porcelain, solid surface material and then plastic. Following this group was tile, varnished wood, and marble. Glass was the worst at resisting the growth of the bacterial colonies. A significant gap as to onset of bacterial growth occurred between the top four materials and the bottom four materials. It took a significantly longer period of time for bacteria to begin growing on the top four materials.</p> <p>Conclusions/Discussion I found that stainless steel worked the best, followed closely by porcelain and then solid surface material. I concluded that the less porous the material the better that material is at denying the cultivation of bacteria. My manipulated variable did lead to a productive dependant variable, as I came up with a large amount of bacterial growth, but the bacterial growth varied from material to material. The less porous the material the longer it took for that material to obtain bacterial growth. I was correct in stating that for non-porous material, bacterial growth would not take place instantly, but it did happen somewhat faster than I anticipated. The materials that I believed would take the longest in contrast to the ones that would take the shortest amount of time were generally correct.</p>	
Summary Statement My project was to see which common household surface materials best resisted the growth of bacteria and to find what common elements these materials shared.	
Help Received My parents helped assemble the presentation board, Mr. Dan Cullinane and Dr. Mark Pio helped with protocols, Mrs. Williams gave instructional advice, and Dr. Bruce Holland helped decipher the results.	