



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Anahita M. Amalsad</b>	<b>Project Number</b> <b>S1301</b>
---	---------------------------------------

**Project Title**  
**Which One: Shopping Cart Handles, Doorknobs, or Drinking Fountain Handles Contains the Most Bacteria?**

**Abstract**

**Objectives/Goals**  
To see whether shopping cart handles, doorknobs or drinking fountain handles contains the most bacteria.

**Methods/Materials**  
PROCEDURE:  
1. Take a sample from a shopping cart handle with a sterile swab, while wearing sterile gloves.  
2. Take a sample from a doorknob with a sterile swab, while wearing sterile gloves.  
3. Take a sample from a drinking fountain handle with a sterile swab, while wearing sterile gloves.  
4. Put each specimen in individual Petri dishes and immediately cover them.  
5. Observe each Petri dish daily for 10 consecutive days and record the colonies of bacteria (spots on the soy agar).  
6. Make sure that the control Petri dish contains no bacteria, to prove my results accurate.  
7. At the end of the tenth day, draw a conclusion by averaging the totals of Day 10 to find out which one contains the most bacteria.  
8. Repeat the same procedure 2 more times to check for the accuracy of the results.

MATERIALS:  
Three shopping carts, three doorknobs, three drinking fountains, twelve 100 x 15 mm style Petri dishes with soy agar, nine sterile swabs, and sterile gloves.

**Results**  
After 10-days of experimentation the following results were observed:  
1. Shopping cart handles: 4 Spots on the Soy Agar of the Petri Dish  
2. Doorknobs: 159 Spots on the Soy Agar of the Petri Dish  
3. Drinking fountain handles: 316 Spots on the Soy Agar of the Petri Dish  
4. Control: 0 Spots on the Soy Agar of the Petri Dish

**Conclusions/Discussion**  
After checking the Petri dishes for ten consecutive days and logging the bacterial growth on three sets of samples it was concluded that drinking fountain handles contained the most bacteria.

**Summary Statement**  
I tested the bacterial growth on shopping cart handles, doorknobs and drinking fountain handles to see which one contained the most bacteria.

**Help Received**  
Parents helped me to purchase all the necessary materials; Mother helped me edit the final draft of my report; Father helped in preparing printouts that included color photocopying and enlargements; Dr. Troung inspired me to choose this topic; Dr. DeJovine gave me valuble guidance.