



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Haley F. Washburn	Project Number J1438
Project Title Do Different Environmental Conditions Affect the Effectiveness of Antibiotics?	
Abstract Objectives/Goals The purpose of my science project is to determine how effective penicillin and amoxicillin are at creating an area of bacterial inhibition after being exposed to different environments. Methods/Materials My first series of tests for this project included 8 test substances. I had an exposure to freezing temperatures test, a sunlight exposure in a brown bottle test and in a clear bottle test, and a control test for both antibiotics. After 24 hours exposure I swabbed a petri dish with the bacillus subtilus bacteria and dipped an absorbent dot in my test substance then placed it in the dish to grow. I had 10 test dots per test substance. Two days in a warm dark place produced large overlapping areas of inhibition and very little bacteria growth. This prompted me to repeat all tests using antibiotics diluted with distilled water at 1:10 dilution. Results The average area of inhibition for the full strength amoxicillin control group was 21.7mm. The combined average area of inhibition for the test groups after 24 hour exposures was 16.1mm. Average area of inhibition for diluted amoxicillin control group was 16.9mm. The combined average area of inhibition for the test groups after 24 hour exposures was 9.2mm. The average area of inhibition for the full strength penicillin control group test was 14.7mm. The combined average area for the test groups after 24 hour exposures was 15.8mm. Average area of inhibition for diluted penicillin control group was 8.4mm. Average area of inhibition for the test groups after 24 hour exposures was 0mm. Conclusions/Discussion Through testing I discovered that amoxicillin was better at inhibiting the growth of the bacillus subtilus bacteria than pencicillin. Also, I learned that even though the antibiotics produced areas of inhibition after exposure to different environmental conditions, being exposed to those conditions did affect their ability to inhibit bacteria growth.	
Summary Statement This project is about determining whether or not storing your antibiotics in a manner other than what is suggested by the pharmacy has any affect on their ability to inhibit bacteria growth.	
Help Received Mr. Carl Gong supplied the petri dishes, bacillus subtilus bacteria, and helped with my experimental flow chart. Dr. John Inouye supplied the perscriptions for the antibiotics. Mrs. Hillary Cloud reviewed my work. My mom helped to type some of the written work and photograph the experiment.	