



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Daniela N. Alvarez	Project Number J2301
Project Title Will Increased Levels of Acid Affect Bean Seed Germination?	
Abstract Objectives/Goals The purpose of this project was to find out if acid rain affects seed germination. For this purpose I used different levels of acidic solution of white vinegar with water. I used the following amounts: 0% vinegar- 100% water 10% vinegar- 90% water 20% vinegar- 80% water 30% vinegar- 70% water 40% vinegar- 60% water 50% vinegar- 50% water 60% vinegar- 40% water 70% vinegar- 30% water 80% vinegar- 20% water 90% vinegar- 10% water 100% vinegar- 0% water The vinegar used in this experiment is obviously not falling from our sky, but it is a good substitute for sulfuric acid that comes with rain. Vinegar is a goo substitute because as acidic as the pollutants in acid rain. Methods/Materials I soaked ten bean seeds in each of the different acidic solutions for 24 hours before plant them in soil. I wanted to find out how acid rain affects a plant's seeds before they were planted for germination, even though they looked healthy. I placed the seeds and marked them according to % of vinegar and water. I observed them for two weeks. Results The results of this experiment confirmed my hypothesis that seeds with lower level of acid will germinate. Actually, the only bean seed that sprouted were the ones soaked in pure water (pH=7), the others didn't germinate. Conclusions/Discussion The experimental data shows that the seeds soaked in pure water sprouted and the seeds soaked in a solution with any amount of vinegar died. As i observed my experiment I noticed that something like fungus came out of some seeds. After the two weeks my experiment lasted, I tried to find the seeds and see what happened to them. I just found some of them, it looks like some decomposed and got melted	
Summary Statement The purpose of this project was to find ou if acid rain affects seed germination.	
Help Received Mom hlped with the board, Dad bought materials needed	