



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Brian D. Busemeyer	Project Number J0504
Project Title Where the Big Crystal Grows	
Objectives/Goals The purpose of my project was to determine what happens if you grow a crystal seed in a substance with a different crystal structure. My hypothesis was that crystal seeds that are grown in the same supersaturated solution will grow larger than seeds that are grown in a supersaturated solution with a different crystal structure.	
Abstract	
Methods/Materials Epsom Salt Alum Sea Salt Pot Water Saucers Water Bottles	
Growing the Seeds These steps were done for each substance. 1. Boil water. 2. Add enough of the substance (Alum, Epsom Salt, Sea Salt) until the water is supersaturated. 3. Let the solution cool on a saucer, so the water can evaporate leaving the seeds. 4. Select seeds that are similar in size from each saucer. 5. Measure and record the size of the seeds.	
Growing the Crystals 1. Boil water. 2. Add enough of the substanc (Alum, Epsom Salt, Sea Salt) until the water is supersaturated. 3. Cool the liquid to let the weeds form at the bottom. 4. Hang each type of seed in each type of substance (Factorial Design) in bottles. 5. Let the bottles sit in the the same temperature and humidity. 6. At the end of 2 and one half weeks, measure the growth of each crystal.	
Results The Epsom Salt Seed and the Alum Seed grew larger in the solution that matched the seed. The Sea Salt Crystal failed to grow. All of the seeds that were placed in a supersaturated solution that was different than the seed dissolved immediately.	
Conclusions/Discussion Later I realized what happened. When I put the seeds in the supersaturated solution that was different than the seed, it dissolved through a process of diffusion (particles going from a high concentration area to a low concentration area.) I learned how important the saturation process was. My next step will be to fully supersaturate with two solutions (new structure, seed structure) to see if the presence of a different substance affects the growth of the crystal.	
Summary Statement My project is about the effect of crystal structure on the growth of crystals.	
Help Received My mother helped put the board together. My brother helped me learn about the technical terms and process. I carried out the process.	