



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Leo M. Simkin	Project Number J0517
Project Title Growing Crystals under Variable Conditions	
Abstract Objectives/Goals To evaluate the variable temperature and solutions saturation effect on the crystallization process speed and the resulting crystal(s) size. Methods/Materials Methods: - Cooling Method - Evaporation Method Materials: - Granulated sugar - Monoammonium phosphate Results When the fast cooling method without evaporation was used for crystallization, then the process of crystallization began earlier than in the slow cooling method, but the rate of crystal growth at a constant temperature was reduced and a fewer number of crystals were formed. When the high-saturated solution was used for crystal growing with the evaporation method at a constant temperature, the crystal speed was higher than for the low saturated solution, but the resulting crystal sizes were smaller. Conclusions/Discussion The faster critical saturation is achieved, by either the fast cooling or high saturation of the initial solution, the sooner crystallization process begins, resulting in a greater number of smaller crystals. Slower achievement of critical saturation will result in slower rate of crystallization, but in a smaller number of larger crystals. One of the practical applications is to determine optimal conditions for food product storage to avoid crystallization of dissolved sugar.	
Summary Statement My project is about growing crystals in different temperatures and with different solution concentration.	
Help Received Father helped with digital photography	