



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Tiffany B. Russell</b>	<b>Project Number</b> <b>J0528</b>
<b>Project Title</b> <b>Growing Crystals: Nature's Gems</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of my project was to determine if temperature has an effect on crystal growth. I predicted that crystals grown in colder temperatures would grow faster but less regularly than those grown in warmer temperatures. <b>Methods/Materials</b> I used two methods to grow crystals: closed jar and evaporation. For the closed jar method, I put two jars each of aluminum potassium sulfate (alum) and magnesium sulfate (Epsom salt) supersaturated solutions in three temperature environments: 78 F, 58 F, and 38 F. Before sealing the jars, I suspended paper clips to provide a surface for crystal attachment. In the evaporation method, I placed two jars of alum in each temperature environment. For this method, I suspended seed crystals in open jars. <b>Results</b> The colder the temperature was, the larger, heavier, and less regular the crystals were. The crystals grown in the different temperature zones varied considerably, but these differences could be most clearly see in the Epsom salt crystals. <b>Conclusions/Discussion</b> These experimental results supported my hypothesis. Therefore, when growing crystals, it is preferable to grow them in warmer environments, even though the rate of crystal growth will slow, because the crystals will be more regular. This finding is important because of the widespread use of synthetic crystals in electronic and optical devices.	
<b>Summary Statement</b> My project explores the effect that temperature has on the growth rate and regularity of aluminum potassium sulfate and magnesium sulfate crystals.	
<b>Help Received</b> My father supervised the preparation of the supersaturated solutions. My parents purchased the solutes.	