



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

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Project Title Melodies in the Ice	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals We compared playing classical music to rock music during the freezing process of water to see if it affects the size, shape, count of the crystals formed.</p> <p>Methods/Materials</p> <ol style="list-style-type: none">1. Imported rock and classical music in Audacity to keep levels the same.2. Put water in Petri Dishes.3. Put Petri Dishes in Freezer with edited songs playing.4. Put petri dish under microscope; take picture.5. Count crystals by gridding pictures like counting bacteria.6. Find number, shape, and size of crystals. <p>Results The average number of crystals in the control was 105.8 crystals in each petri dish, the classical music group had about 99.6 crystals in each petri dish, and the rock music group had the greatest number at about 159.9 crystals in each petri dish. In the control group, there were 18 petri dishes that had crystals of blobby shapes, 16 petri dishes that had crystals of circular shapes, 1 petri dish with crystals of cubed shapes, 0 petri dishes with crystals of polygon/sided shapes, and 6 petri dishes with crystals of random/fragmented shapes. In the average Classical music group, there were 20 petri dishes with crystals of blobby shapes, 1.5 petri dishes with crystals of circular shapes, 2.5 petri dishes with crystals of cubed shapes, 3.5 petri dishes with crystals of polygon/sided shapes, and 11.5 petri dishes with crystals of random/fragmented shapes. The average Rock music group had 19 petri dishes with crystals of blobby shapes, 3.5 petri dishes with crystals of circular shapes, 1 petri dish with crystals of cubed shapes, and 0 petri dishes for both polygon/sided and random/fragmented shaped crystals.</p> <p>Conclusions/Discussion Only the classical music category formed polygonal/sided crystals, however unlike what we thought in our hypothesis, the classical music group formed random/fragmented crystals while the rock music group did not form any at all. The control and classical had a similar, but lower average count of crystals at about 99.6 and 105.8 than rock music which had a much larger count of about 159.9 crystals per petri dish. Rock music, however, does not cause random/fragmented ice crystals to form when played during their freezing process, but classical music does cause polygonal/sided and random/fragmented ice crystals to form. Music does affect the crystallization of ice in some form.</p>	
Summary Statement We determined rock and classical music affects the growth of ice crystals, and how.	
Help Received Coach helped with giving us a freeze rto use.	