



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> Rebecca M. Kandell	<b>Project Number</b> <b>J1620</b>
<b>Project Title</b> Effect of Temperature on Musical Instruments	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this project was to determine the effect of temperature on the sound of musical instruments. <b>Methods/Materials</b> The musical instruments used included a quarter size violin with steel strings, a plastic soprano recorder, and a brass glockenspiel. The procedure was to measure the "A" note on these instruments at a cold temperature, room temperature, and a hot temperature. The frequency measurements were done using a tuner. <b>Results</b> Results showed different trends based on the instrument type. The violin note frequency decreased as the temperature got hotter due to less tension on the string. The recorder note frequency increased as the temperature got hotter due to the speed of sound increasing with temperature. The glockenspiel note frequency stayed fairly constant because the brass bar expanded and contracted little over the project temperature range. <b>Conclusions/Discussion</b> Temperature does affect the frequency of a musical note, and so the project hypothesis was confirmed. The information shows that musical instruments need to be protected from extreme environmental factors like temperature in order to maintain their beautiful sound.	
<b>Summary Statement</b> My project was to run an experiment to understand how temperature affects the sound of different musical instruments.	
<b>Help Received</b> Mother helped type display board.	