



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Nicholas A. Salas	Project Number S1518
Project Title What Affects the Pitch of a Sound?	
Abstract Objectives/Goals My project was to find out if volume and strain can affect the pitch of a sound. Methods/Materials I used 10 beer glasses to see if volume is a factor in pitch change. The first five beer glasses had different amounts of water in them, from 50ml to 150ml, and the last five beer glasses all had the same amount of water, 100ml. I struck each glass to hear a difference in sound, and after I concluded my results I moved on to proving if strain affects pitch. I then took a wooden tea box and put five rubber bands around it. I struck each band and noticed that they all had the same sound. I then made an incision where each band was lain, and each band had a different sized incision, from 1in. to 5in. After I concluded my results I took a music tuner and tuned each glass and rubber band to see if my ear was correct. Results The glasses that all had 100ml of water created the same pitch, and the glasses that had different amounts of water created various pitches. Same thing with the rubber bands. The bands that were just lain on the tea box with no incision all created the same pitch, and when the bands each had a different incision, they too created various pitches. Conclusions/Discussion I have concluded from this project that Volume affects the pitch of an object by causing the object to either vibrate more slowly or more rapidly. The faster an object is being vibrated, the higher the pitch is. I also concluded that strain affects an object's pitch because if an object is being stretched out, then the vibrations in that object will have a longer distance to travel. The farther an object is being stretched, the more distance it needs to cover, thus causing the object to vibrate much more rapidly, thus creating a higher pitch.	
Summary Statement If Volume and Strain are some of many factors that affect the pitch of a sound.	
Help Received Mr. Rosse gave me ideas on how to improve my board's appearance.	