



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Jameson A. Stout	Project Number J1539
Project Title Tuning an Instrument Using Beats	
Abstract Objectives/Goals I wanted to learn how to tune my instrument without the use of an electric tuner. If two frequencies overlap, they will produce loud bursts of sound where two peaks match. I used these to see if the frequencies were closer to being in tune when the beats were closer together or farther apart. Methods/Materials I used a stringed instrument called a fretted dulcimer to find the answer to my question. On the dulcimer I used, there were two strings that were exactly the same. These, I tuned to the same note. I used an electric tuner to tune one of the strings slightly down, while leaving the other the same. This produces the off frequency. I measured the amount of beats that occurred in five seconds. I continued down until I reached the next note. Results I have found that the two strings are closer to being in tune if the beats are farther apart. Also when the frequencies are going away from each other, they go higher rapidly, but when they begin to go down, they go down very slowly.	
Summary Statement My project is about using sound frequencies to tune an instrument.	
Help Received Dad helped make charts and graphs; Ms. Rasmussen got board; Mom provided instruments and tuner	