



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Nicole M. Rothschild	Project Number J1021
Project Title Whew, I Am Winded! The Lung Capacity Test	
Abstract Objectives/Goals To determine why some musicians can hold their notes longer than others. Lung capacity is affected by activity. Methods/Materials To measure lung capacity a meter was designed and built specifically for this experiment. The "Air Ball" measures the amount of air that one can exhale by pushing a ping-pong ball up a tube. The tube is marked in liters. Each subject had three attempts and the highest score was used. Results After repeated trials and analyzing data it was found that Oboe players had the greatest lung capacity, followed by Baritone Sax. However, the data is not completely reliable because height, size, age, and other activities were not controlled when doing the experiment. Clearly, height is most important. As it turns out there are several variables in this data that can affect the results. Age, height, weight, activity and size are all factors of this project. To arrive at a conclusion the data was narrowed to find subjects that were most similar, which reduced the variables. What else can affect lung capacity? Health, fitness and physical development should also be considered for further research. A better conclusion may be drawn if the subjects were full grown, in good health and all had similar lifestyles and fitness levels. Therefore the hypothesis could not be proved. Conclusions/Discussion After breaking down all the data it was recognized that the Oboe's have the largest lung capacity among the musicians. Nevertheless, height, or size and development is clearly the most important and significant factor in determining lung capacity. To determine if in fact activity does affect lung capacity a new study would be needed where the variables of height and development are the same. Given the vast difference between people, this would be a great challenge.	
Summary Statement This project measures the lung capacity of different wind and brass musicians to determine if activity affects lung capacity.	
Help Received My mother helped me type some of my report and drove me to the store to purchase materials. She also drove me to Westlake High School to test additional musicians.	