



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Garrett S. McGuire	Project Number J0922
Project Title Breathless in Chino: The Relationship Between Seasonal Air Quality, Weather, and Respiratory Problems in Children	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to see if there was a relationship between seasonal air quality, temperature, humidity, and wind velocity and asthma and/or respiratory problems in students from K-6th grade. My goal was to find if there was a relationship between these variables and asthma/breathing problems in children. During periods of high pollen counts, smog levels, humidity, particulate matter levels, extreme temperatures, and/or high wind conditions, there will be more cases of asthma/respiratory problems for the students at four Chino Valley Unified School District elementary schools.</p> <p>Methods/Materials To test my hypothesis, the school nurses to recorded how many students had asthma/respiratory problems each school day from 11:00 a.m.- 3:00 p.m. during the months from May-November, 2002. I created a table for each month to record the temperature, wind, humidity, pollen, and smog levels from the internet. I checked the internet every weekday at 4:00 p.m., May-November, for each variable. After that, I recorded my data. At the conclusion of the project, I compared the internet chart with the nurses? charts to see how the air quality and weather data was related to the asthma/breathing problem data.</p> <p>Results My study showed that the spring had the greatest amount of visits to the health office. The pollen and humidity were the greatest in the spring. The highest factors in the summer were heat and ozone. Nitrogen dioxide and carbon monoxide were the highest in the autumn months. Wind was at high levels in the spring and summer. All of these contributed to the numbers of students that went to the health office for asthma or other respiratory problems.</p> <p>Conclusions/Discussion Pollen, ozone, nitrogen dioxide, carbon monoxide, humidity, wind, and temperature all contribute to respiratory problems. It seems that there was a greater relationship between high pollen counts and humidity levels and visits to the health offices. In examining the ten to twelve highest visitation days in each season, pollen, ozone, and high temperatures seemed to be factors particularly in the spring and summer. Humidity, carbon monoxide, and nitrogen dioxide were found to be the highest in the autumn months.</p>	
Summary Statement This is a study of the relationship between seasonal air quality, weather conditions and respiratory problems in children.	
Help Received Interviewed Dr. Ospital (AQMD) & Dr. Abrolat (Kaiser) Father gave guidance and support	