



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Nathaniel J. Mooi	Project Number J1019
Project Title What Are You Breathing? Measuring Ozone and Particulates	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to determine if the levels of ozone and airborne particulates varied at different locations close to, and distant from highways, and in a downtown environment. I am interested in this topic because my grandfather has emphysema, and because I noticed that the area around our house near the highway had a coat of dust and grime.</p> <p>Methods/Materials Ozone and particulates were measured by setting up collecting devices that included Shoenbein paper and sticky-tape particle collectors at 5 different sites: the hill in my backyard, in my front yard, next to the road near a park, in the park, and in a downtown setting. Data were collected every day at each site for a week in October and another in November. The color of the Shoenbein paper was compared to a standard chart to obtain a comparative numerical value. Particle counts were made by counting all the particles in the microscope field.</p> <p>Results I found that the levels of ozone and particle counts were low at all of the sites and there was only a little change among the sites. However, the ozone was highest next to the highway on weekdays. The particle counts were highest in downtown San Mateo.</p> <p>Conclusions/Discussion Closeness to a highway can cause slight elevation of ozone levels. On weekends, the ozone level tended to drop slightly at every site except downtown, suggesting that traffic levels are about the same all week in the urban environment. Overall particle counts were highest downtown, possibly because traffic and activity keeps dust in the air.</p>	
Summary Statement Ozone levels and particle counts do vary from site to site depending somewhat on weather conditions, but mostly on human activity.	
Help Received My parents drove me to the various sites to set up and retrieve the collection kits and helped make the Shoenbein paper. The California Academy of Sciences let me use one of their microscopes to make the particle counts.	