



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kiel T. Lewis</b>	<b>Project Number</b> <b>J0919</b>
<b>Project Title</b> <b>How Safe Is the Air for Children Who Play Outdoor Sports?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My objective is to find out if the quality of different barriers and the distance from the source of pollution affect the amount of fine airborne particles that appear on children's outdoor sports fields. <b>Methods/Materials</b> First I plotted out the test sites on a map to find out their distances from the pollutants. I then determined the Independent variable as the barriers that potentially prevent some particles from getting onto the field. The control was the chainlink fence (no protection at all). I decided that the Dependent variable was the affect of the barriers on the amount of particles. First, I planted stakes with test cards smeared with petroleum jelly for the 7 sites. After roughly 24 hours I collected the test cards and analyzed them with a microscope. I repeated these steps and applied the data to tables and graphs. <b>Results</b> On average between the first and second tests the percentage of fine airborne particles was 93% of the total of airborne particles recorded. On the first set of testing the range of the number of particles was 150 and on the second test it was 605. The sites nearest to the source of pollution consistently had a greater amount of fine airborne particles. One unusual piece of data I found on the first test is that the control group, no barrier, was actually better at preventing airborne particles from entering the sites than the barrier trees. On the second test the tree barrier outperformed the control group. On both tests the barrier wall/trees allowed the least amount of particles from entering the test sites. <b>Conclusions/Discussion</b> My conclusion is that the air is not safe for children who play outdoor sports. The wall/trees barrier did the best at preventing particles from getting on the field and that although the barriers did help prevent particles from entering the fields many particles still entered them. I also discovered that the sites closest to the many sources of pollution resulted in having many more airborne particles than others. Then something interesting was that there was a big difference in the ranges of the numbers of airborne particles between the first and second tests possibly because it was twenty degrees warmer on the second day of tests. My data suggests that there should be barriers, natural and man-made, and that the distance away from the sources of pollution of airborne particles should be considered when a new outdoor sports field is built.	
<b>Summary Statement</b> My project is about finding out if children's outdoor sports fields are polluted by fine airborne particles and if barriers and the distance from the sources of pollution affect the number of particles that enter the fields.	
<b>Help Received</b> Mother provided transport; family friend lent me a microscope.	