



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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Project Title Don't Hold Your Breath: Air Quality and Carbon Pollutants	
Abstract Objectives/Goals The objective is to determine what material, when commonly burned, gives off the most black carbon particulate and contributes to the San Joaquin Valley's poor air quality. Methods/Materials Four materials, each tested for a period of 40 minutes, were burned and then the black carbon particulate was collected through an apparatus simultaneously. The materials included were agricultural clippings, charcoal briquettes, firewood, and a DuraFlame log. The black carbon particulate collected on the filter paper was then compared to a photographic scale according to the intensity of the carbon. After determining the air volume, the black carbon can now be measured as uug/cm ² . Results Out of the four materials burned, the Duraflame log produced the most black carbon particulate with 5 uug/cm ² over a period of forty minutes whereas the agricultural clippings produced the least amount of black carbon particulate with 1 uug/cm ² over a period of forty minutes. The firewood produced 5 uug/cm ² and the charcoal briquettes produced 1.5 uug/cm ² after forty minutes. Conclusions/Discussion Black carbon particulate is one of the major contributors to poor air; the exhaust from automobiles, homes, industries, and fireplaces all are the major suppliers of the pollution. Furthermore, it could possibly be a key contributor to cardiopulmonary diseases, such as asthma. Although our hypothesis was not supported, we determined that the DuraFlame log produced the most black carbon particulate over the time tested. We speculated that if cutting back on the materials that produce a large amount of the particulate, it would be possible to reduce the amount of cardiopulmonary cases.	
Summary Statement With an apparatus built with household products, we measured the black carbon particulate given off of commonly burned materials.	
Help Received Father helped in testing and putting board together; Tony Hansen helped in testing.	