



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

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Project Title Measurement of Indoor Radon Concentrations in the Palos Verdes Peninsula Unified School District	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project is to quantify classroom radon concentrations in the schools of the Palos Verdes Peninsula Unified School District (PVPUSD), in order to determine if they exceed the maximum recommended level of 4 pico Curies per liter (pCi/L) set by the U.S. Environmental Protection Agency.</p> <p>Methods/Materials Short-term, activated charcoal radon detectors were placed in 20 randomly selected, first floor classrooms at each school in the PVPUSD, strictly following the guidelines set by U.S. EPA publication, "Indoor Radon and Radon Decay Product Measurement Device Protocols." After a 48 hour exposure, each detector was collected, sealed inside an airtight aluminum bag, and then sent to Alpha Energy Laboratories, Carrollton, TX for radon concentration analysis.</p> <p>Results The mean radon level of the 297 classrooms and offices tested was 1.9 pCi/L, with levels ranging from 0.2 pCi/L to 33.2 pCi/L. To demonstrate the radon potential of the soil at one school site, a sub-slab crawl space measured 590 pCi/L. 11% of the rooms tested exceeded the EPA recommendation level of 4 pCi/L, and of the 15 schools tested, 60% had at least one room with radon levels exceeding 4 pCi/L. Remediation efforts at the highest reading schools were shown to be successful.</p> <p>Conclusions/Discussion Radon is a colorless, odorless gas that is the second leading cause of lung cancer in the United States. Past random measurements of California elementary schools have resulted in only 5.6% of the schools displaying one or more classrooms with radon levels exceeding 4 pCi/L. In Santa Barbara County, the worst known county for elevated radon levels, 16% of the schools had one or more classrooms with radon levels over 4 pCi/L. Comparison of those data with the present measurements indicates that localized elevated radon areas can exist within counties with low or moderate radon risk ratings.</p>	
Summary Statement Classroom radon levels in the Palos Verdes Peninsula Unified School District were found to be significantly higher than those from Santa Barbara County, the highest radon risk county in California.	
Help Received Father helped distribute detectors and reduce data; Mr. Richard Blood, California Department of Health Services Radon Program Director, supplied detectors and advice; PVPUSD provided assistance with classroom access.	