



CALIFORNIA STATE SCIENCE FAIR 2007 PROJECT SUMMARY

Name(s) Priyanka Arunkumar; Shriya Nagpal	Project Number J1001
Project Title Lead in Elementary Schools	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In 1978 paint containing > 0.06% lead was banned but there were still old paint stocks available and being used. EPA's action level for lead is 0.5 % by wt. (5000 m/kg) for chipping or deteriorating paint. In humans, lead inactivates the sulfhydryl group of enzymes needed to synthesize heme, the oxygen carrying pigment in blood. Lead also interferes with metabolism. Low exposures can result in sluggishness and memory loss while high levels effect the Central Nervous System (CNS). Lead has greater impacts on children because children have a high metabolism, are closer to the breathing zone, and have developing CNS. In 1998 the California Department of Health Services tested 200 schools. 95% had detectable levels of lead with 77% above EPA action levels and 37% in deteriorated condition. Most schools were repainted after 1998. This project asks if kindergarten classrooms in Saratoga Elementary Schools have lead in peeling paint. Our hypothesis was if the classrooms were built or repainted after 1992, then no lead is expected.</p> <p>Methods/Materials Three samples were taken from two kindergarten classrooms at Argonaut, Foothill, and Saratoga elementary schools in Saratoga. The samples were labeled and transported to a laboratory for testing. The samples were prepared in the laboratory by digesting in nitric and hydrochloric acid. Project and quality control samples were tested using the ICAP (Inductively Coupled Argon Plasma) Instrument that measures specific spectra for lead at a specific wavelength (220.35) by optical spectroscopy.</p> <p>Results The results showed that 4 samples were non-detect, 12 < 5.0 mg/kg, and 2 > 100 mg/kg. All samples were below the 5000 mg/kg EPA action level for peeling paint. Samples from Oak and Foothill schools were all < 5.0mg/kg.</p> <p>Conclusions/Discussion The 2 samples taken from shelves at the Argonaut school showed results > 100 mg/kg (at 183.33mg/kg and 972.31mg/kg). Notifications were sent to all schools providing them with results. Even though the classrooms were repainted after 1992, lead was detected, particularly in shelf paint. All results were below EPA action levels.</p>	
Summary Statement The project asks if kindergarten classrooms in Saratoga Elementary Schools have lead in peeling paint.	
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