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East Bay Academy for Young Scientists

UC Berkeley - Lawrence Hall of Science

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STEM: A Useful Tool for Community Growth & Development

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- Provide experiences unavailable elsewhere that aid participants in developing deeper understandings of and appreciation for scientific inquiry
- Include air, soil and water quality research activities to provide opportunities for participants to apply acquired understandings to addressing relevant issues

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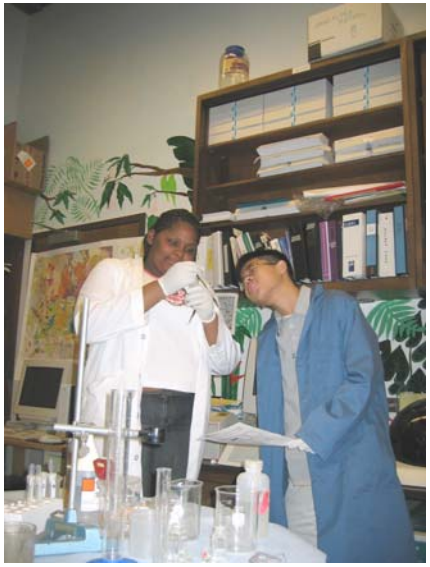
Inquiry Skills Development Through Hands-on Investigations

Student Research (Guided & Student Led)



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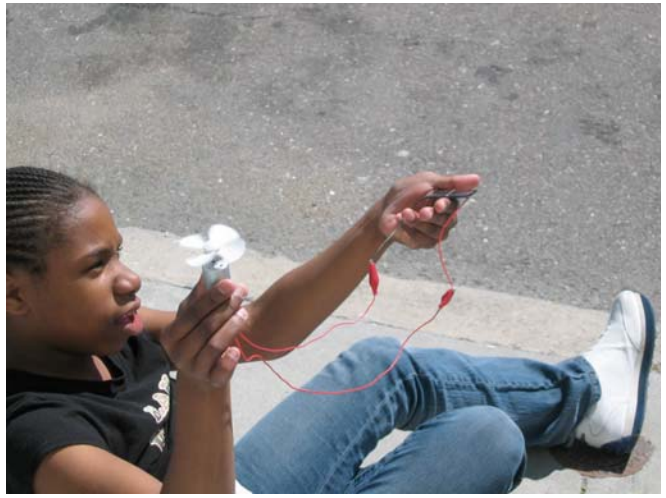
Partnerships

- Mainstream schools in small through large school districts
- School district-based Charter Schools
- Community-based organizations
- Faith based organizations



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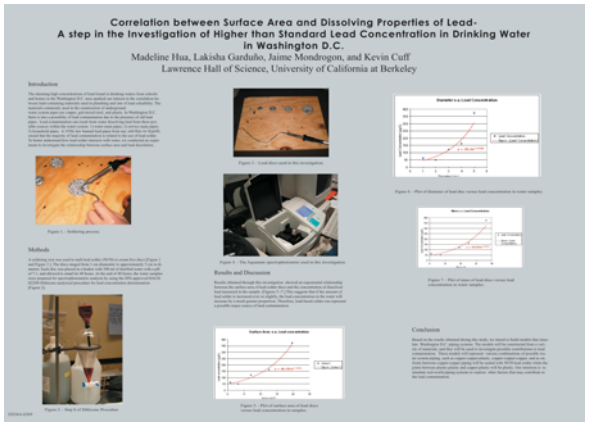
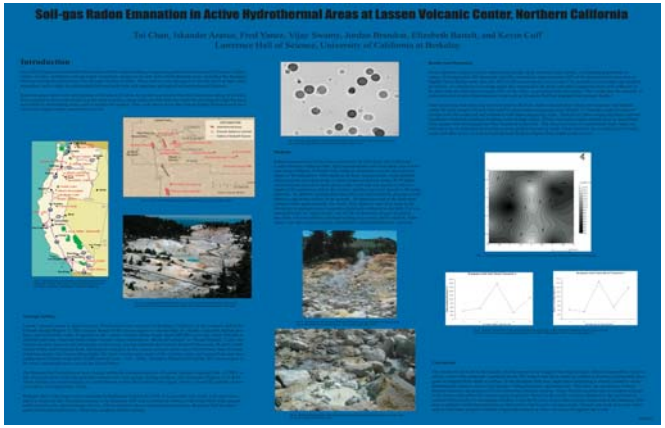
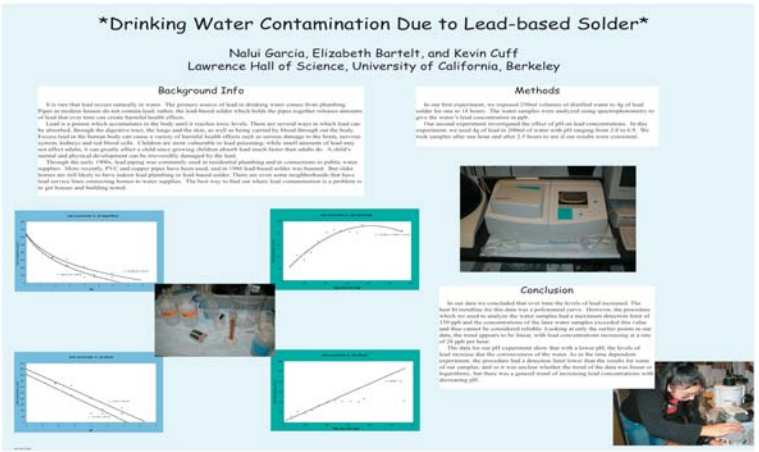
Student Research







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Guided Inquiry

- Present students with research questions, and then engage them in specified research tasks that provide opportunities for them to explore/become familiar with research tools they will be use later
- Engage students in activities such as discussions of their findings that also encourage them to reflect on their research experiences
- Provide opportunities for students to design new investigations, create research proposals, and conduct new studies

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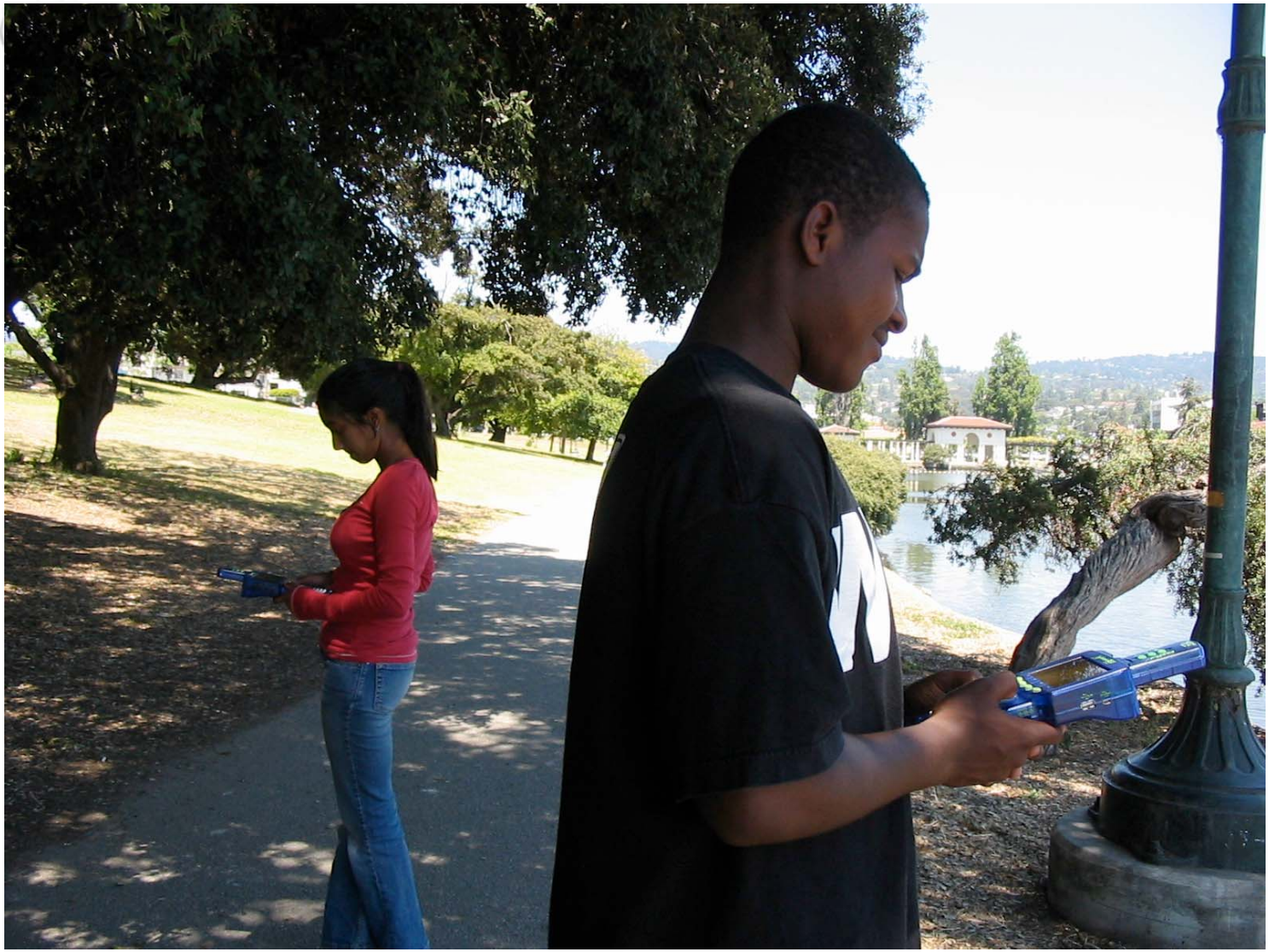

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Students as Community Educators

Lawrence Hall of Science's

East Bay Academy for
Young Scientists

proudly presents:

Bay Area Air and Water Assessments

@ the Cesar Chavez library
meeting room in Fruitvale Village
Saturday, January 24th
3:00-5:00 PM

The Oakland Public Library does not advocate or endorse the viewpoints of meetings or meeting room users.

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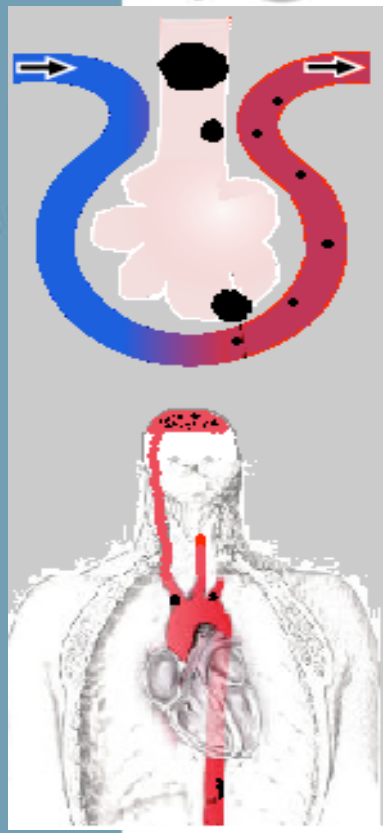

This is what happens when you inhale particulate matter. The particles go into your blood stream from your lungs.

Introduction

This school year we have been studying particulate matter in our community. Particulate matter is small particles that come from cars, dirt and fossil fuels (crude oil, coal). Many of the heath problems that can happen to you when you breath in particulate matter are asthma, cancer and heart problems.

One of the dirtiest fuels is wood and diesel. Why do we use these fuels??? One of the reasons is because they are cheaper and because they are efficient. Some times a lot of people use fast cars, but it is bad because then you have to get more gas.

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Heavy Metals and Water Quality in an Urban Creek Watershed, Oakland, CA

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Heavy Metals and Water Quality in an Urban Creek Watershed, Oakland, CA
By Eliott Ahumada, Joshua Cheung, Nicholas Cheung, Wendy Fong, Juliette Lam, Tony Marks-Block, Sonia Marquez, Nick Rodriguez, Mario Wyon

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Evaluation

(1) Changes in Attitude about the Relevance of Science (CARS) survey (M.S. Siegel, M.A. Raney, 2003)

(2) Q-sort for Scientific Behaviors

(K.D. Peterson, R. Ponzio, 2003)

(3) Embedded assessment questions to measure content understanding

(4) Small group interviews

(5) Student journals

(6) Power Point and poster presentations

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Efficacy

Participants develop a greater understanding of the process of scientific inquiry

> *"If I'm doing a project, I'll write down my hypothesis, conclusion, the procedure."*
>
> *[Why?] "It's important to keep all that information.*
>
> *Because you don't know what you might need or what you might not need."*
>
> *"A lot of scientists do charts to help them organize everything."*

Interest in STEM increases

> *"So, in this program, even though we don't get a grade, it feels like we are earning a grade and we're really learning a lot of stuff."*

Participants ability to relate EBAYS STEM-related experiences to their own lives increases

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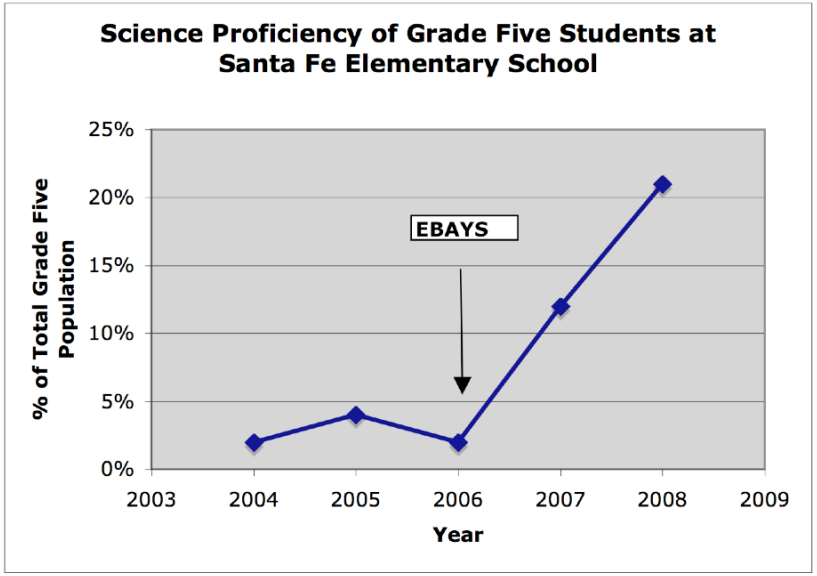
Efficacy

70% of students developed a greater understanding of the process of scientific inquiry.

63% of students enrolled in more advanced STEM courses (including AP).

65% of students have been accepted to four-year colleges.

60% of these students have elected to major in one of the major science disciplines.



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Climate Change ?

- Do not lead with global warming
- Communicate positive messages
- Connect to other themes, e.g., energy production & use
- Link to relevant issues like pollution and families' health