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'BioMobileLab' offers top-notch science lessons, resources to students in disadvantaged areas

SCHMAHL SCIENCE, BIG HELP

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With its psychedelic splatter of colors, retractable striped awning and wide windows on one side, the BioMobileLab could be mistaken for an ice cream truck.

But instead of frozen treats, the experimental laboratory on wheels will dish out invaluable science lessons to junior and senior high school students in San Jose's poorest neighborhoods.

"The kids in East Side and downtown San Jose are just as smart as kids in Cupertino," said Meril Smith of Schmahl Science Workshop, a local non-profit that partnered with Agilent Technologies Foundation to launch what is believed to be Silicon Valley's first school science lab on wheels.

In affluent school districts, science labs are the stuff of everyday learning. But not so for an estimated 77,000 students in poor San Jose school districts, which don't have the resources to conduct hands-on, serious bio-science experiments, Smith said.

"We have brilliant kids in Silicon Valley. We need to tap this source," said Belinda Lowe-Schmahl, a former biochemist who founded Schmahl Science.

"What can these kids on the East Side do if they had the same resources as the students in Saratoga?" she said. "If we can provide the materials, technology and mentor support, imagine the amazing things we can see come out of these communities."

Schmahl Science brings together the expertise of Silicon Valley's scientists, teachers and science professionals, holding student workshops in classrooms that spark interest in science and technology.

In a demonstration Monday of how the BioMobileLab works, teacher Kathleen Pinheiro taught the biology of an owl, using a puppet, owl, macaw skull and a video.

To cap the lesson, Pinheiro gave the group of about 20 home-schooled third-grade students owl pellets - baked and sanitized. After a few "Ewwws!" the students got down to work.

Gaby Newburger of San Jose stood on the sideline, watching her 8-year-old daughter, Laura, pick tiny bones of birds and voles from the desiccated owl scat, identifying the bones with the help of a chart.

"This isn't anything I can do at home," Newburger said. "I don't have the in-depth knowledge that these workshops bring."

For junior and high school students, the BioMobileLab - which runs on bio-diesel - will provide the equipment for advanced biology experiments, including powerful microscopes whose images can be projected on a flat video screen. The lab is also equipped with a DNA thermocycler, which takes a small amount of DNA for

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analysis.

High school students will be able to conduct college-level scientific investigations in molecular biology, chromatography, cell culture and cancer biology, plant biology, microbiology and biochemistry - all in the lab on wheels.

"I didn't learn this until college," said Sarah Thaler, Schmahl's program director, as she showed off the thermocycler and other equipment inside the BioMobileLab.

Lowe-Schmahl, a former researcher at California Polytechnic State University-San Luis Obispo, started the science workshop in 1996.

After Lowe-Schmahl moved to Silicon Valley, her children asked for help one day with their science projects. Soon, her children's friends were asking Lowe-Schmahl for help, and shortly afterward she was conducting workshops in her San Jose garage.

From the first handful of students and the first experiments with baking soda volcanoes in her garage, Schmahl Science has grown. Its array of 400 workshops now spans biology, chemistry, earth science, forensics, math and physics. Last year, the group conducted science workshops at 85 San Jose schools in 18 districts, serving 14,000 pre-K to 12th-grade students.

Lowe-Schmahl said she hopes to reach 10,000 students with the BioMobileLab and identify African-American and Latino students to encourage them to enter local and regional science fairs.

Four other mobile labs will be added in the next three years and will help expand the group's reach in the Bay Area. Corporate funding will help pay for workshops in poor school districts.

"Historically, one of the things we've learned is that major discoveries are made by young scientists between 13 and 21," said Lowe-Schmahl, looking like a fun, mad scientist in a tie-dyed lab coat.

Some promising new discoveries have emerged from her coterie of young scientists, she said proudly. One Schmahl Science student, a ninth-grader, is developing ways to use bacteria to stabilize soil, a discovery that could be a life-saver in earthquake country.

Another student, a sixth-grader, is now working to patent a new method - not unlike a litmus test - using an enzyme from a horseshoe crab to determine whether packaged fresh produce labeled ready to eat is contaminated.

For corporate funders like Agilent, there's the practical side of science. The Santa Clara company spent more than \$200,000 retrofitting and equipping the science lab on wheels.

"This is an investment," said Terry Lincoln, an Agilent program manager. "These are the engineers of tomorrow."

IF YOU'RE INTERESTED

For more information about Schmahl Science Workshop, visit www.schmahlsience.org.

Contact Jessie Mangaliman at jmangaliman@mercurynews.com or (408) 920-5794.

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(From left to right) Zaynab Ismail (8) of Campbell checks out a animal bone found in an owl's pellet with teacher Colleen O' Brien during a lesson about owls at the Schmahl Science Workshop Biomobile Lab set up next to the History Park inside Kelley Park in San Jose on September 10, 2007. A group of home schooled students participated in this mobile science laboratory workshop before the official launching on September 27th by the founder, Belinda Schmahl. (Joanne Ho-Young Lee/Mercury News) (Joanne Ho-Young Lee)



(Center) Naya Ramsey-Clarke (9) and Rowan O' Brien, both home schooled students from San Jose, check out the skull of a great horned owl during a lesson about owls taught by teacher, Kathleen Pinheiro of San Jose, at the Schmah Science Workshop Biomobile Lab set up next to the History Park inside Kelley Park in San Jose on September 10, 2007. A group of home schooled students participated in this mobile science laboratory workshop before the official launching on September 27th by the founder, Belinda Schmah. (Joanne Ho-Young Lee/Mercury News) (Joanne Ho-Young Lee)

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Founder Belinda Schmahl of San Jose smiles while watching the students learn about owls at the Schmahl Science Workshop Biomobile Lab set up next to the History Park inside Kelley Park in San Jose on September 10, 2007. A group of home schooled students participated in this mobile science laboratory workshop before the official launching on September 27th by the founder, Belinda Schmahl. (Joanne Ho-Young Lee/Mercury News) (Joanne Ho-Young Lee)

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(Center) Nyssa Ramsey-Clarke (9) and her twin sister Naya (9), right, of San Jose smile while listening to a lesson about owls at the Schmahl Science Workshop Biomobile Lab set up next to the History Park inside Kelley Park in San Jose on September 10, 2007. A group of home schooled students participated in this mobile science laboratory workshop before the official launching on September 27th by the founder, Belinda Schmahl. (Joanne Ho-Young Lee/Mercury News) (Joanne Ho-Young Lee)

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(Center) Teacher Kathleen Pinheiro of San Jose teaches students about owls at the Schmahl Science Workshop Biomobile Lab set up next to the History Park inside Kelley Park in San Jose on September 10, 2007. A group of home schooled students participated in this mobile science laboratory workshop before the official launching on September 27th by the founder, Belinda Schmahl. (Joanne Ho-Young Lee/Mercury News) (Joanne Ho-Young Lee)

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