

ST. STEPHENS NURSERY SCHOOL,
Two's through Pre-K **ORINDA**
 Since 1973

Socialization
Enrichment
Kindergarten readiness

925-254-3770 Ex.19



FINE BEDDING & GIFTS
 Japanese style & comfort
 Hours: Mon-Sat 10-6pm, Sun: 12pm-5pm

Futons & Frames • Tatami Platforms and Mats
 Custom Comforter Covers • Unique Japanese Gifts

961-A MORAGA RD. LAFAYETTE • 925-299-0882 • sugi-store.com



Robin's Nest

Robin Menzies
 925-283-5668

Lafayette
 Lic. #073406549

• CHILDCARE •



Acalanes High School • Bentley School • Burton Valley • Camino Pablo • Campolindo • Contra Costa Jewish Day School • Del Rey • Donald L. Rheem • Glorietta • Happy Valley • Joaquin Moraga

Lamorinda Schools

Lafayette Elementary • Los Perales • Miramonte • Orinda Academy • Orinda Intermediate • Saklan Valley School • Sleepy Hollow • Springhill • Stanley Middle • St. Perpetua School • Wagner Ranch

Research Program Gives Insight to Undergraduates

By Jennifer Wake



Ozone project team members Matt Jackson (front left), Easar Forghany (back left), Joel Burley (standing) and Katy Orr (right)
 Photo Valerie Burke

This summer, 10 additional undergraduate students have been conducting research alongside top faculty thanks to a one-year \$117,000 grant from the National Science Foundation to create a Research Experience for Undergraduates (REU) site at Saint Mary's College.

More than 60 students applied for the coveted research positions, which gave undergraduates an opportunity to tackle a research problem that provides academic development, and hands-on problem-solving skills, beyond what can be accomplished in a classroom, or even in a teaching laboratory, said Saint Mary's associate chemistry professor Valerie Burke, Ph.D. Students conducted research in the life, physical, social and behavioral sciences.

For SMC senior Katy Orr, the experience led her and her research team, headed by SMC chemistry professor Joel Burley, Ph.D., to mountain peaks at Yosemite, and to the White Mountains just east of Bishop to collect national park air quality data.

"There are only a handful of permanent mountain-top ozone monitors in the world, which records ozone levels in each location every five seconds," Orr said. "We have a total of nine monitors now, one of which might become a permanent mountain-top installation, and we go on data collecting trips every two to three weeks."

The REU program allows students to experience the challenges, frustrations and rewards of research, explained Burke, so they have an idea of what to expect if they choose graduate school or employment in industry. "And they get to contribute new knowledge in their disciplines. . . . They study something no one has ever done before."

REU student Jill Rea-Dilling has been spending the past several weeks culling through data to present to a production company that is creating a documentary on recidivism within the prison system. She has done so with the benefit of experience. Rea-Dilling spent 22 months incarcerated at various prisons following an identity theft conviction.

"I never thought about the prison system before I was there. It was a life-changing, humbling experience," she said. While in prison, Rea-Dilling saw many women return after being released, and believes a lack of quality vocational programs is one reason for the high recidivism rate. "In 2007, fifty percent of people in prison that year sat idle," she said. "They're not teaching the young ones who are



Summer research students working on their poster presentations, which will be presented at a research symposium on August 14
 Photo Valerie Burke



Elizabeth Sandoval-Torres uses a rotary evaporator to remove solvent and isolate her reaction product getting out what will help them."
 Photo Valerie Burke

For Rea-Dilling, the REU experience has given her the opportunity to search for answers as well as to discuss her findings, and brainstorm her own personal goals with her faculty mentor, Saint Mary's sociology and anthropology professor John Ely, Ph.D., who is heading the recidivism project. This close interaction with Saint Mary's faculty is one of the unique benefits of the REU program.

"In addition to teaching advanced techniques and instrumentation, for example, the faculty may chat about their experiences in graduate school, and talk about colleagues working in industry," Burke said. "In subtle or overt

ways, we try to open our students' eyes to the many possibilities ahead of them."

Rea-Dilling now plans to pursue a degree in penology – the study of punishment and prisons.

As for the REU program, Saint Mary's is working hard to have it mix smoothly with the ongoing School of Science Summer Research Program, (which has been part of Saint Mary's curriculum for the past 20 years).

"Knowing how valuable the research experience can be," said Burke, "we will keep working to improve and expand the research opportunities for SMC students, and for students outside SMC who do not have comparable research programs."

Science in the Kitchen ~ Easy Experiments for Kids

By Jonathan Winter



Epsom salt mixed with very hot water and food coloring forms crystals
 Photos Jennifer Wake

When you think of crystals, do you think of diamonds, emeralds and Indiana Jones? Did you know that we use crystals every day in the kitchen? Two kinds that you eat regularly are salt and sugar. Crystals, after all, are simply a regular pattern of atoms or molecules. If you have a strong magnifier or microscope at home you can see the regular shapes of sugar and salt.

Here are two recipes for building real crystals. The first one makes fast crystals, the second takes longer, but you can eat the second kind when they're done!

1. Gather these supplies for quick crystals:

- Epsom Salts (available at the drugstore)
- Food coloring (optional)
- Measuring cup
- A clean jar
- A spoon
- Hot water from the sink

2. Start your experiment:

Get the hottest water you can from your sink. It doesn't have to be boiling. Measure out ½ cup of the hot water into the jar. Slowly stir in ½ cup of Epsom salts. Stir constantly so they dissolve as much as possible. Add two drops of food coloring if you wish. Now set the jar in the back of your refrigerator for at least three hours without dis-

3. What happened?

When you dissolved the Epsom salts, they broke into smaller parts called ions. As the solution cooled, the ions bonded again, hooking onto each other into long delicate needle shapes. Reminder: Don't eat these crystals! They wouldn't hurt you, but they won't taste good!

4. Gather these supplies for edible crystals:

- Sugar
- Water
- Food Coloring (optional)
- Stovetop and Pan
- Clean Jar or Glass
- A few inches of cotton string
- A spoon
- A pencil or stick
- Paper towel or napkin

Start your second experiment:

With adult help, heat 1 cup of water until it boils. Turn the heat off and slowly stir in three cups of sugar, stirring constantly until all of the sugar is dissolved. Add two drops of food coloring if you wish. Carefully pour the solution into the clean glass. Tie the string onto the

pencil and dip the string into the solution (The string should not touch the bottom of the jar). Now roll the string in some sugar and set it aside. When the solution is completely cool, gently lower the sugar-coated string into the solution, suspending it over the top of the glass with the pencil or stick. Try not to knock off any of the sugar on the string. Set the jar on a windowsill or another safe place where it won't be disturbed. Put a small piece of paper towel over the top of the jar to keep dust out. You will have to wait up to three weeks for crystals to form on the string. The longer you wait, the bigger the crystals will get. If crystals start to form on the bottom of the jar, transfer the solution and string to another clean jar.

What happened?

The sugar on the string acted as a seed crystal, a place for the other crystals to attach to. Over time as the water evaporated, the sugar was left behind. You just made rock candy!



Jonathan Winter has been a science teacher at Lafayette Elementary School in Lafayette since 2001. He lives in Moraga with his wife, children, numerous pets – and he experiments frequently in his kitchen.

Submit stories to
schooldesk@lamorindaweekly.com

ORINDA ACADEMY
 Parents Students Teachers Working Together

Limited Fall Openings Grades 8-12

CALL TODAY FOR A PERSONAL TOUR

COLLEGE PREP • GRADES 8-12
 RICH ACADEMICS • INCLUSIVE ENVIRONMENT

Structure-Support-Success

19 Altarinda Rd., Orinda, CA 94563 • 925.254.7553 • www.orindaacademy.org



MUSIC LESSONS
 www.musicandart.org

Lamorinda Academy of Music and Art

Private and group lessons
 Piano, string instruments, voice
 Competitions, Tests, Fun

All Ages & All Levels
925-299-1240



It's all online!
 Ready for you to send to friends and family - worldwide
 www.lamorindaweekly.com