

SEP Newsletter

FEBRUARY 26, 1996 No. 25

TRIAD PROJECT ON THE MOVE AGAIN

Triad Club participants experiment with dry ice at Martin Luther King Middle School.

The Women's Triad Project is expanding on schedule during its second year. Four new middle schools were added this past fall through a competitive application process, and there are now eight school-based teams involved in the project. Each team looks at gender issues in education and sponsors a science club for girls at the school site. Currently, 16 Triad scientists and 14 Triad teachers are working directly with approximately 200 girls. Clubs range in size from 10 to 40 girls.

So far this year, adult participants have engaged in planning sessions, explored issues at monthly workshops, and presented the project at local, regional, and national levels (see p. 6). Triad has also become involved with an upcoming district-wide symposium on gender issues in science and math education and is gathering data on the impact of the project on its participants.

The year began with a retreat in early November. Soon after, the returning clubs had their first club meetings. All of last year's schools (Francisco, Giannini, King, and SF Community) have continued. The following lists the four new teams by school teachers, and scientists: Aptos MS: Jane Gerughty and Patricia Kudritzki with Erin Peckol and Kimberly Tanner; Gloria R. Davis MS: Mishwa Lee and Linda Payne with Patricia Caldera and Sumita Chowdhury-Ghosh; Marina MS: Lorraine Perry and Julie Zastrow with Erin Gensch and Lisa Kim-Shapiro; and Presidio MS: Carol Cockburn with Lisa Clement-Ferrill and Laura Romberg. Sarah Mutka has joined the Francisco team and Chris Rozanas, SF Community.

By early January, all of the clubs had begun. Some have been doing favorite activities from last year, such as investigating dry ice and dissecting hearts and appliances; and new ones such as dissecting frogs and flowers, constructing a simple motor, doing critical thinking activities, playing with light and color, and

learning about chromatography. Many clubs have used activities developed over the summer by Tracy Stevens, SEP staff coordinator, and Elena Levine and Deda Gillespie, both Triad scientists.

The dissections are very popular. As Saida, an Aptos student, wrote, "I thought dissecting the frog was very cool, especially the stomach where we found the whole shrimp and crab claws." Jennifer, also from Aptos, wrote, "I thought it was gross at first, but when the group opened the frog up, it looked very interesting."

San Francisco Community's Triad club traveled to the Chabot Observatory in the Oakland hills to learn about African skies. After the program, the group looked through the Observatory's telescopes. Students were able to see the moon

(see Triad, p 6)

INSIDE:

NetDay '96	2
Lesson Plan Contest	2
BrainLink	3
Summer Interns	3
Thanks	3
City Science	4
Nat'l Science Standards ..	4
SF BASE Workshops	5
SEP Web Site	7
MedTeach	7
SEP Revamps Phones	8
Calendar & Ads	8

SEP

Executive Director

Liesl Chatman
476-0337 liesl@itsa.ucsf.edu

Director

Margaret Clark, Ph.D.
476-0338 mrcsep@itsa.ucsf.edu

SEP Core Programs

Helen Doyle, Ph.D., Coordinator
502-6324 hdoyle@itsa.ucsf.edu
Tracy Stevens, Ph.D., Coordinator
502-5137 tracys@itsa.ucsf.edu
Roberta Heidt, Admin. Ass't.
476-0300

City Science

Janice Low, Project Director
476-6930 citysci@itsa.ucsf.edu
Cynthia Gusman, Admin. Ass't.
476-6937 citysci@itsa.ucsf.edu

Women's Triad Project

Katherine Nielsen, Coordinator
502-6690 kmn@itsa.ucsf.edu

SEP Resource Center

Eva Gordon, Teacher in Residence
502-6689 meerkat@itsa.ucsf.edu

SEP Main Phone Number:
(415) 476-0300

SEP / City Science FAX: 476-9926

The Science and Health Education Partnership (SEP) is a collaboration between the University of California, San Francisco (UCSF) and the San Francisco Unified School District (SFUSD). Its mission is to support high quality science and health education. SEP is the organizational umbrella for the UCSF end of the partnership and is made up of both core programs and specially funded projects. Core programs include equipment and supply donations to schools, partnerships between UCSF volunteers and SFUSD teachers, the operation of a resource center, and the SEP Student Lesson Plan Contest. Specially funded projects include *City Science*, *The Women's Triad Project in Science Education* and summer research internships for teachers and high school students. SEP also supports SFUSD projects including *SF Base* and the newly adopted K-8 science and health curricula. SEP is made possible through funds from NSF, NIH, Howard Hughes Medical Institute, Genentech, Herbert W. Boyer, and the UCSF Chancellor.

NetDay Help Schools Get Wired

Parents, teachers, students, scientists, engineers and other volunteers are being recruited throughout California to participate in NetDay, a project designed to create the internal wiring in schools that will provide classroom access to the Internet. Preparations are already in process, and the project will culminate on Saturday, March 9.

The goal of NetDay is to install connections to at least five classrooms in each school in California. Volunteers at all levels of experience are needed to work with those who have technical expertise. Once connections are in place, the schools can have free access to the Internet for the remainder of 1996, provided by several companies such as AT&T, MCI and AOL.

To find out more about NetDay and to volunteer your participation at a school of your choice or at the district level, visit the NetDay Web page at <http://www.netday96.com>, or call 1-800-55NET96.

Lesson Plan Contest Excitement Continues

The Ninth Annual SEP Lesson Plan Contest has begun! Application forms were sent out on January 2nd, and teams from all over the city are busily putting their applications together for the February 23rd deadline. The applications will be read and judged by a committee of staff and volunteers and the top twenty teams in each division (middle school and high school) will be chosen as finalists. The finalist teams will present their lessons to SFUSD classes between April 8th and 26th. Three UCSF scientists will judge each presentation. The judges will then meet on Monday April 29th to decide the winners. One first place, two second place, and five third place awards will be chosen in each division. The awards will be announced at a ceremony on Wednesday, May 8th at 4 pm in Cole Hall at UCSF. All entrants, coaches, judges and host teachers will receive a

Search For Teacher Scientists

Shoumen Datta, Director of Development for the SFUSD, is looking for M.A. and Ph.D. scientists who are seriously interested in K-12 teaching. The district is initiating a small project in which scientists will be hired as teachers without having to obtain teaching credentials through a school of education. Candidates are now being recruited for teaching this fall 1996. A summer training program will be developed to prepare the selected candidates for the classroom. If you are interested in applying for the program or obtaining additional information, please contact Shoumen Datta at 415-759-2950 (voice) or 415-241-6060 (fax).

Get Acquainted With Your Brain!

The **BrainLink Project** will be very busy this spring, with an extensive series of professional development workshops for teachers planned at UCSF and the California Academy of Sciences. **BrainLink** is an exciting, hands-on curriculum about the brain and nervous system for elementary and middle school. Check the schedule below and sign up soon.

WORKSHOPS AND MATERIALS ARE FREE, BUT ARE LIMITED TO 20 PEOPLE!

The **BrainLink** workshops at UCSF will be from 4-6 PM in the Medical Sciences Building, 513 Parnassus, in Room S170. Parking stickers will be provided at the workshops for participants who park in the UCSF public lot (enter from Parnassus or Irving).

WEDNESDAY, FEB. 28	UNIT 4 MEMORY AND LEARNING
THURSDAY, MARCH 7	UNIT 1 BRAIN COMPARISONS
THURSDAY, MARCH 21	UNIT 2 MOTOR HIGHWAYS
WEDNESDAY, MARCH 27	UNIT 3 SENSORY SYSTEMS

BrainLink workshops at the Cal. Academy of Sciences in Golden Gate Park:

SATURDAY, MARCH 30	UNITS 1 AND 2, 9-2 PM
SATURDAY, APRIL 27	UNITS 3 AND 4, 9-2 PM

CALL HELEN DOYLE AT 502-6324 NOW TO SIGN UP!

Summer Research Internships At UCSF Available For SFUSD Teachers

SEP is pleased to announce summer internship opportunities for two SFUSD science teachers. Teacher interns will do research in biomedical research labs at UCSF for eight to ten weeks over the summer. Interns will receive a stipend of \$5000. This internship is a unique and wonderful opportunity to experience the excitement of scientific research first-hand. A variety of projects will be available this summer, depending on teachers' interests and lab availability. Any SFUSD teacher who teaches science (high school, middle school, or elementary) is welcome to apply. Interns will participate over the summer in weekly meetings, seminars,

tours, and field trips. These sessions will help the teachers relate their summer work to their classroom instruction.

To apply, send the following materials: a cover letter, resume, and letter of support from a school colleague. In your cover letter, you should state your scientific interests, relevant experience, and how you and your students will benefit from this experience. Applications are due in the SEP office by Friday, March 15 and should be addressed to Helen Doyle. More information about the teacher internships can be obtained by calling Helen at 502-6324.

*At a Unit 2 **BrainLink** workshop on Motor Highways, teachers investigate the pupillary reflex using penlights and graduate student Erin Peckol's eyes.*

Thanks To UCSF Faculty & Local Companies

The SEP staff would like to thank several people for gifts and donations received in the past few months. Ira Herskowitz of the Department of Biochemistry and Biophysics donated to SEP the royalties he received for his book and tape, *The Double Talking Helix Blues*. Dr. Herskowitz made this donation in honor of his brother Joel, who wrote the original music and lyrics of *The Double Talking Helix Blues*. Another generous gift was made by Lisa Bero of the Clinical Pharmacology Department, who donated the honorarium she received for participation in a conference sponsored by Merck Pharmaceuticals. These will be used by SEP to support core programs which receive limited funding.

SEP is also grateful to Hoefer Pharmacia Biotech and Biorad, two local scientific equipment companies who donated equipment and supplies that will be used for the development of new SF BASE workshops for teachers and eventually will make up a kit for classroom use (see related article on SF BASE, p. 5).

CITY SCIENCE NEWS

Fruitful Kit Clubs

Naomi Robinson, a UCSF scientist, is helping to pilot City Science's new Kit Club program. This program brings together SFUSD elementary teachers and UCSF scientists for exploring science curriculum units. Here is her report from the initial meetings:

"Cause I'm a nut, nut, nut!" sang out 25 voices as the participants pounded pistachios, walnuts, and almonds into a sticky paste to eat on home-made corn muffins.

That was only the delicious beginning for the kindergarten teachers in-

*One participant exclaimed, "They are like helicopters."
"No, like umbrellas," stated another.*

involved in the Seeds and Weeds Kit Club. These teachers were meeting to learn more about plants and seeds, to develop extensions for the unit, and to discuss science teaching in the classroom. Facilitated by veteran teachers Chris Wilder and Judy Kerr and UCSF scientist Naomi Robinson, the group met several times.

As the teachers examined seed coats, one participant exclaimed, "They are like helicopters." "No, like umbrellas," stated another. They were exploring how seed coat shape influences seed dispersal. "Does anybody have any ideas about how to grow plants so that the kids can see the roots grow?" asked one teacher. In response, at the next meeting, a teacher brought a bean sprouting in water, its rootlets clearly visible to the enthralled participants.

The eyes searched the ground during a walk in the park for plants whose roots, stems, and leaves would be examined under microscopes. In the end, everything was brought back to the important role plants play in producing food. "OK, let's see a show of hands; it's five to twelve that popcorn kernels frozen overnight will not pop." The result was eaten.

Naomi Robinson recently received her Ph.D. from the Department of Biochemistry and Biophysics at UCSF.

City Science Video Available

The City Science Voyage, a 58-minute video, documents the first phase of the City Science Project from the perspectives of SFUSD teachers and administrators, UCSF scientists and SEP staff, and elementary students throughout San Francisco.

The video was produced by Hamid Khani, Assistant Professor of Broadcast Technology at San Francisco State University, in collaboration with Janice Low, City Science Project Director. The writing, filming and editing for the video took place over two years.

People who are interested in improving elementary science education will be interested in seeing this video. Copies are available at the UCSF SEP Resource Center to view or borrow. VHS copies may be purchased for \$10.00 by calling Premier Images at (415) 878-5555.

National Science Education Standards Published

The National Academy of Sciences has published the long-awaited *National Science Education Standards*. The informative document presents standards in six equally important aspects of science education: Effective Teaching; Professional Development; Content; Assessment; Effective Programs; and The Education System: National, State and District Policies. It is the product of four years of intense work, and involved hundreds of people representing various disciplines and organizations who came to consensus about what students in the United States should know and be able to do in K-12 science.

"What is significant about the new standards is that they give us something to measure what we are doing locally against national standards," notes Gerald Wheeler, the National Science Teacher Association's Executive Director. As *Education Week* observed, the book is trim and colorfully illustrated with photographs, charts, and diagrams.

(see Standards, p. 5)

Students at James Lick Middle School prepare samples of cheek cells and onion cells to stain and observe under microscopes with help from UCSF graduate student Jennifer Frazier.

High School Teachers Investigate Protein Expression

SEP is working with the San Francisco Biotechnology Alliance for Science Education (SF Base) to develop new activities for SFUSD high schools. SF Base currently offers kit-based biotech activities ranging from basic lab techniques such as how to use micropipettors and centrifuges to advanced protocols involving splicing genes together, introducing them into bacteria, and testing for their expression. The program also offers workshops on biotechnology throughout the school year, with an eye toward developing new classroom activities. As the current activities spotlight DNA, it seemed appropriate to take the next step and look at the relationships between DNA and protein. With the help of SF Base teachers, two workshop topics were chosen that will address aspects of proteins including expression, structure function relationships, mutation, evolution, and conservation.

The first workshop was held on January 31st at Parkside. Twenty-two teachers attended from the following high schools: Balboa, Burton, Galileo, Lincoln, Lowell, Marshall, Mission, School of the Arts, Wallenberg, and Washington. They spent the day extracting proteins from various sources, quantitating the proteins in the extracts, separating them by electrophoresis, and visualizing the protein bands. Comparisons were made of proteins from muscles of different animals (e.g., ground beef, pork, lamb, turkey and fish), and from different cow organs (heart, liver, kidney, muscle and stomach). In addition, similar comparisons were made using plants as starting materials: leaves of the daffodil, tulip, pine, fern, seaweed, and chrysanthemum were compared, and daffodil flowers, stems, leaves, bulbs and roots were analyzed. Comparisons of the banding patterns were interpreted in the contexts of protein expression by different cell types and protein conservation over the course of evolution.

We would like to thank Ron

At the SF Base workshop on protein expression, high school teachers carefully check each others' pipetting skills when setting up a protein concentration assay to compare with their own protein samples.

Mardigian of Bio-Rad Laboratories for providing equipment, materials and advice for this workshop; and the members of the DeFranco lab at UCSF for sharing their space with Tracy Stevens while she worked out the bugs in the protocols.

The sickle cell anemia workshop will take place on May 15th. Helen Doyle will cover the relationships between changes in the DNA sequence

of a gene (mutations) and the structure and function of the resulting protein. Using the mutant hemoglobin gene that causes sickle cell anemia as a model, the workshop will address mutations and human disease, Mendelian inheritance of diseases, relationships between protein structure and function, the genetic code, and the relationship between evolution and mutation. Flyers with more information will be sent out in April to all SFUSD science teachers.

(From Standards, p.4)

Over a dozen photographs from SEP projects were included.

Science education leaders were invited to participate in regional meetings to gather ideas and promote local investment in public acceptance of the Standards. Janice Low, City Science Director, attended a Bay Area meeting at which participants worked on presentations for various audiences.

These presentations will be synthesized with the versions from other regions and redistributed with visuals and hand-outs to use throughout the country.

Copies of the *National Science Education Standards* are on hand at SEP and are available for purchase from the National Academy Press, 2101 Constitution Ave. N. W., Washington, D.C. 20428; (202) 334-3313 or (800) 624-6242. Single copies are \$19.95, prepaid, plus \$4 shipping.

SEP is Out and About

Triad Goes to the ASME Conference

The Triad Project was invited to speak at the American Society of Mechanical Engineers (ASME) annual meeting in San Francisco this past November. All levels of the program were represented by a panel of speakers: Liesl Chatman, Project Director, discussed research on girls and project organization. Cathy Christensen from Giannini Middle School presented her views as a Triad teacher. Middle school students Kathleen Grady and Emily Smith, also from Giannini, talked about the clubs. Tracy Stevens of SEP discussed the role of the scientists.

The audience of teachers and engineers responded especially well to the girls, and the girls clearly enjoyed having the opportunity to present their views. Kathleen Grady put a human face on the research when she said, "Boys make fun of girls when they know something, and they make fun of them when they don't know something." When asked about working with scientists, Emily said that she liked it because they helped her understand things while still letting her explore. She added that scientists act a lot like kids.

NSF Conference on Women & Science

The Women's Triad Project traveled to Washington DC in December for an NSF-sponsored conference, "Women & Science: Celebrating Achievements, Charting Challenges." Deda Gillespie and Kristen Sorensen of the Francisco Triad team and Liesl Chatman and Katherine Nielsen of SEP made a poster presentation at the conference. A summary of the Project, research on girls and science, and anecdotes from the clubs were incorporated into the poster.

The Triad travelers found the conference useful, but hope that future conferences will involve more people working in K-12 education and provide more information on girls, women, and science.

BrainLink & Partnership at NABT

The national *BrainLink* team presented a session on partnerships at the National Association of Biology Teachers (NABT) National Conference in Phoenix this past October. The session focused on showing how universities and school districts can work together using the *BrainLink* curriculum, and was given by Judy Dresden, Nancy Moreno, and Barbara Tharp of Baylor College of Medicine's Division of School-Based Programs; Connie Philips of the Boston University (BU) School of Medicine's Program for Biotechnical Education; Kathy Jones of the University of Kentucky's Outreach Center for Science and Health Career Opportunities; and SEP staff members Helen Doyle and Liesl Chatman.

The NABT conference also provided an opportunity for SEP staff members to get to know other partnerships across the country, including BU's CityLab Program and the Fred Hutchinson Cancer Research Center (FHCRC)'s Science Education Partnership in Seattle. Connie Philips and Don deRosa gave an engaging hands-on workshop from their work with CityLab. During the workshop, Helen and Liesl teamed up with friend and colleague, Nancy Hutchison, Director of the FHCRC Partnership, in an attempt to solve the "Mystery of the Crooked Cell." CityLab, which is a biotechnology learning laboratory for teachers and their students, has much in common with both UCSF's and FHCRC's SEP programs, and a lot of information was shared by all.

(from *Triad*, page 1)

with its impressive craters and the Orion Nebula. Gloria R. Davis's club braved the rains and Muni one Saturday and went crabbing at San Francisco's Hyde Street Pier. They talked with Ranger Julie Arlinghaus about tides, crabs and starfish, and then caught several crabs.

Peggy McIntosh Visits Workshop

The January workshop featured Peggy McIntosh, a nationally-renowned scholar on gender equity. Peggy is the Associate Director of the Wellesley College Center for Research on Women. Her two-hour presentation focused on two topics. First, she presented her model of five interactive phases of perceptual and curricular re-vision which occur as one tries to incorporate the lives of women and minorities into the traditional curriculum. She then switched gears and explored the feelings of fraudulence which many experience when given praise, press, publicity, or promotion.

Year-end Event

The Triad Project's Year-end Event will bring together the eight clubs for a day of hands-on activities, games, and food. The event, to be held on May 11th at the San Francisco County Fair Building (Ninth Avenue and Lincoln Way in Golden Gate Park), is open to interested members of the SEP community. The County Fair Building is right next to Strybing Arboretum and docent-led garden walks will be included.

Gender Equity Symposium

The Triad Project has been working with the San Francisco Education Fund, the Gap Foundation, and Dr. Karen Smith-McCune of UCSF on the development of a gender equity symposium. The symposium is scheduled for the evening of May 16, and will feature Susan Bailey, principal author of the AAUW report, "Shortchanging Girls, Shortchanging America." All interested parents, teachers, and SEP volunteers are invited to attend. Please call

Katherine at 502-6690 if you would

MedTeach & Clinical Rotations Support Health Education

SEP collaborates with several UCSF programs in which clinical students are learning about health education and adolescents in the context of the school community. SEP supports the following programs by assisting with placement, orientation, and ongoing support through the Resource Center.

MedTeach Volunteers

MedTeach involves teams of volunteer first-year medical students working with students and teachers by presenting lessons about the human body and health. Four teams are visiting 6th grade classrooms with teachers Marlies Lewis at Aptos Middle School, Jay Aquino and Emma Jones at Gloria R. Davis Middle School, Michelle Powers at James Lick Middle School, and Liz Leong at Presidio Middle School. Teachers chosen were new to teaching sixth grade science or in a new school and have schedules and locations that fit those of the medical students. The sixth grade students always respond well to these eager young medical students, and the medical students welcome the break from their classes and the library.

Clinical Students

SEP has also been working with Pediatric Residents, the School Nurse Practitioner Program, Family and Community Medicine's Community Rotation, and the Graduate Program in Physical Therapy. UCSF Professors Tina Gabby, Ardis Hansen, William Shore, and Sandra Radtka work with these respective programs. Their common objectives are for UCSF students to learn about adolescents and their health needs, provide health education, and serve as role models. Many of these courses have included 2-hour workshops from SEP as a part of their coursework. The workshops introduce classroom management techniques and model educational methods such as cooperative learning and inquiry-based science. Health education materials available through the SEP Resource Center are also highlighted

In the Medteach program, first year medical student Julian Davies and students at Gloria R. Davis Academic Middle School observe diseased and normal human lungs, and discuss the dangerous effects of smoking.

<http://itsa.ucsf.edu/~sfiles> SEP gets on the Information Super Highway

Thanks to Paul Herzmark, UCSF staff scientist and SEP partner, SEP is now on-line on the World Wide Web with its very own Web Site. In fact, it was Paul Herzmark who first presented the idea of a Web Site to Liesl Chatman. "All major organizations have their own Web Site," said Paul, when asked why he wanted to volunteer his time to create a Web Site for SEP. Paul Herzmark is one of SEP's most active volunteers, and his assistance with the creation of the Home Page is another creative way in which Paul has contributed to the Partnership.

Like the main character in the movie, *The Net*, Paul is a real pro when it comes to understanding everything about the Information Super Highway. After going through a few useless "how to" computer books, Paul decided instead to teach himself how to create a Home Page with the help of information found on the World Wide Web. Teacher-in-Residence Eva

Gordon assisted Paul in gathering basic information about each of the SEP programs mentioned on the Web Site. Like a secret agent on a mission, Eva Gordon would meet Paul in various locations on campus or at his research

lab and hand him an envelope or disk with the latest addition for the Web Page.

More and more information about SEP's programs will be continually added to the Web Site. In the future, SEP would also like to add color photographs depicting our numerous activities. Eventually it may also be feasible to have the SEP Newsletter on the World Wide Web. If you would like to visit our site, our URL address is: <http://itsa.ucsf.edu/~sfiles>.

Want Ads

- WANTED: Modems** for schools.
- WANTED: MACINTOSH computers** (especially LC and II models), **monitors, modems,** and external floppy or hard **disk drives**—for schools and the SEP office.
- WANTED: IBM computers** (especially 386 models) for schools.
- WANTED: Blood pressure cuffs** for the SEP Resource Center.
- WANTED: Plastic petri dishes,** any size for teachers.
- WANTED: Calipers** for measuring body fat for the SEP Resource Center.
- WANTED: Anatomical models** for the SEP Resource Center.

NEW PHONE NUMBER

NEW PHONE NUMBER

NEW PHONE NUMBER

SEP is pleased to welcome Roberta Heidt as our new half-time administrative assistant. SEP's main number, 476-0300, will now ring Roberta's desk and will give callers a menu of options to reach the SEP staff when Roberta is not available. SEP Core Coordinator Helen Doyle has a new number, 502-6324. Other numbers for specific staff members are listed on page 2.

Need to contact SEP???
Dial 476-0300!

Events Calendar

- March 15**..... Deadline for Teacher Intern Applications
- March 22**.....UCSF Spring Holiday---SEP Closed
- April 1-5**.....SFUSD Spring Break
- April 8-26**.....Lesson Plan Contest Presentations
- May 11**.....Triad Project Year-End Event
- May 15**.....Sickle Cell Anemia Workshop for SF Base
- See BrainLink workshop schedule on Page 3.**