

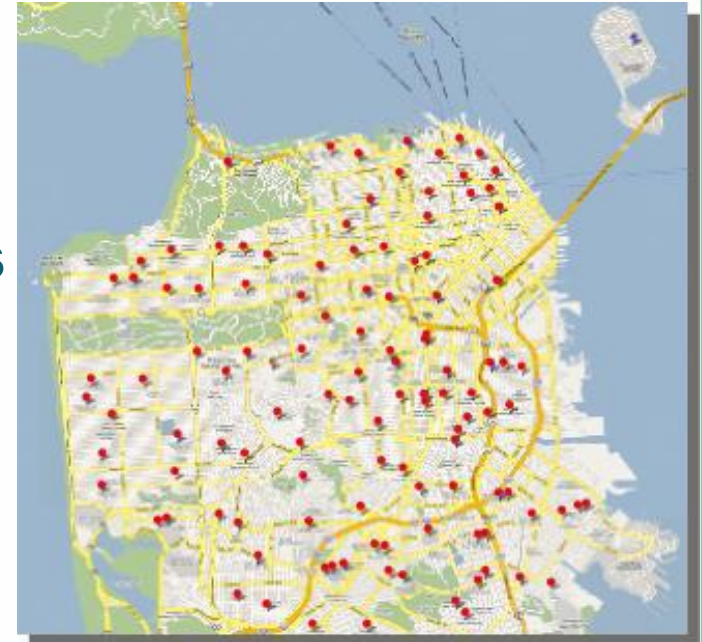


Quality science education for all through
partnerships between educators and scientists

Co-Directors
**Katherine Nielsen &
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Each year, SEP's programs:

- **Are active in 90% of SFUSD schools**
- **Benefit ~21,000 students**
 - 40% of SFUSD K-12 Student Population
- **Involve >350 Teachers and > 250 UCSF Volunteers**
- **Scientists volunteers contribute >10,000 hours**



Bay Area Science Festival

- 10-day celebration of the science & technology of the Bay Area
- 50 events from Santa Rosa to San Jose
- 50,000 people
- *Discovery Day* at AT&T Park – largest free educational event in Bay Area history



Behind the Scenes



- **Staff of 10 – scientists and educators**
- **Work in teams, including directorship**
- **\$1.5 million annually for school programs and \$500K for Science Festival**

Teacher-Scientist Partnerships

- Partnerships between teachers & UCSF volunteers
- Co-plan and co-teach science & health lessons
- Semester to year-long

“When I do the experiments, I feel like ‘Oh my gosh I can really do this, I feel like I’m a scientist right now.’ Because scientists do experiments and then I’m doing an experiment right now.” – SFUSD Elementary Student



Teacher-Scientist Partnerships

Video of Edison team

<http://www.ucsf.edu/news/scientists-bring-hands-fun-class>

Other Programs



- **Courses for Teachers:**
 - Science content
 - How to teach science
- **Courses for UCSF Volunteers**
 - Teaching
 - Mentoring
- **Resource Center**
 - Lending library of science materials

“I wouldn’t want to teach science without SEP and the Resource Center.” - SFUSD Teacher

Key Outcomes - Teachers

- Learn science
- Build their confidence in teaching science
- Deepen their understanding of inquiry & how to implement in the classroom
- For ES teachers, increased frequency & duration of science teaching



“I learned what scientific inquiry ‘looks like.’ I feel much more confident now about turning a question into a learning experience or a mini-experiment. This has been empowering to me!” - SFUSD Teacher

Key Outcomes – Teachers

- **89% of teachers increase their expectations of their students' abilities to do science.**



“This experience showed me a new side of my students. The experiments we planned were challenging, and, for the most part, my students stepped up to the challenge. I am now [of a] position that the best way to teach is to try to teach above where I think their level is, and they’ll prove that their level is higher than what I thought.” - Teacher

Key Outcomes - Scientists

- Develop their teaching skills
- Become better communicators of science
- Become advocates for science education & teachers



Key Outcomes - Scientists

- Rediscover their enthusiasm for science



“As a research scientist, I easily get wrapped up in the details of my work. The kids reminded me that I actually have an awesome job. I get to play in a lab all day in order to answer a cool question. I came out of this experience having a better appreciation not only of teaching, but of science as well.” - UCSF Scientist

Key Outcomes - Students



- Talk about science and do experiments
- See themselves as scientists & UCSF volunteers as role models
- Positive shift in students' attitudes towards science & scientists

“When we did the fruit fly genetics lab, I felt like I was a real scientist – shaking down the flies, putting them to sleep, and observing their traits.” - SFUSD MS student

High School Intern Program

- **20 SFUSD Students**
 - Identify talented students who have not recognized their own potential
- **8 weeks of research**
- **College counseling & prep**
- **2011 Presidential Award**



- 92% of alumni matriculate to college
- 76% of alumni complete Baccalaureate degrees in the sciences
- 87% of alumni pursue post-graduate education

What has been key to our success?



Bruce Alberts at Bay Area Science Festival

- **Advocates at UCSF and beyond**
- **Dedicated to our principles but flexible**
 - Range of program models
 - Funders come and go
- **Work in teams**

What has been key to our success?

- **Work from the bottom up and top down**
- **Actively seek stakeholder input**



Funding

- UCSF Chancellor's Office
- UCSF School of Medicine
- National Institutes of Health
- National Science Foundation
- S.D. Bechtel, Jr. Foundation
- Chevron
- California Science Project

"I'm very grateful to SEP – I'm a better teacher for it, and my students receive a better science education, undoubtedly." – SFUSD teacher



- California Institute for Regenerative Medicine
- Gordon & Betty Moore Foundation
- Silicon Valley Community Foundation
- Baskin Family Foundation

Learn more at AAAS

- **Increasing Diversity in Science: Learning from Successful Program Models – Saturday, 10-11:30 AM, Room 311**
- **Science After School: Scientists Inspire the Next Generation Outside of the Classroom – Sunday, 8:30-11:30 AM, Room 311**
- **Science Festivals: Grand Experiments in Public Outreach – Monday, 9:45 -11:15 AM, Room 202**