



Community Resources for Science News



Weaving connections among teachers, students & science in the Bay Area

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Proving the Effectiveness of CRS Science Support

How do we know our programs and services work as intended?

Assessment and accountability are watchwords in education. Even when we “know in our hearts” that our approach to connecting scientists with young students and their teachers makes a real difference, it’s important to back that claim with evidence.

Throughout the year we gather narrative and survey data, documenting the impact of our programs. And, with generous funding from the RGK Foundation, CRS was fortunate to engage Rockman et. al. to conduct an external research evaluation of our impact over the past year. We are delighted to share some of the key findings with you, our dedicated and thoughtful supporters, volunteers, teachers, and partners.

According to Rockman study author Scott Burg: (*emphasis added for readability*)

• Our study findings strongly indicate that CRS has filled critical gaps in, and has **had an appreciable impact on, the quality and quantity of science instruction** amongst participating CRS member teachers and their schools.

• Teachers in our study overwhelmingly confirmed that participation in **CRS has positively impacted their comfort and confidence** levels in teaching science.

• By observing BASIS instructors, **teachers developed a better understanding of how scientists work** in the real world and **became more motivated to involve their students in scientific practices** such as questioning and hands-on activities.

• CRS support has translated into a **level of enthusiasm amongst teachers** for continuing to promote and ‘push’ the amount of science instruction in both lower and upper elementary grades.

• Teachers credited CRS staff and volunteers with **keeping them informed and up-to-date** on the most current science information, materials and teaching methods.

• Teachers and administrators believed that participation in CRS’ Science Superstars program helped to **promote their schools’ commitment**

to science with students, parents and other members of their school’s broader community.

• Teachers and school administrators remarked that through **BASIS lessons, professional development workshops, and other resource support, CRS has provided clarity and invaluable**

assistance to their schools with Common Core and NGSS training and implementation.

• As a result of exposure to (BASIS) scientists and introduction of hands-on activities to support science content in these classrooms, participating **students demonstrated behaviors and skills important to science and other content learning** such as critical thinking, problem solving, application of research strategies, collaboration, and visual and written interpretation of data.

To see the full Executive Summary, and other CRS program and annual reports, please visit: www.crs-science.org/about/annualreports



Students are eager to get their hands on BASIS investigations

Why Should Students Have All the Fun?

Dozens of teachers gasped in amazement as they explored chemistry activities. More laughed in delight as they tinkered in an engineering activity. Together, CRS member teachers enjoyed an evening of science learning and fun at the Fall **Field Trip for Teachers** event hosted in October at the **Lawrence Hall of Science**.

While noshing on pizza and sweets, teachers learned about LHS in-class programs, field trips, and teacher resources. Diana Velez presented an overview anticipated FOSS adjustments in response to the new science standards. The Bay Area Science Project shared about their Saturday Seminars in partnership with Bay Area Math Project and Bay Area Writing Project.

Before the raffle prize drawing, teachers also spent time exploring sample class field trip presentations and learning experiences in the chemistry and

engineering labs. Afterwards the exhibits were open to wander through and enjoy.

Field Trips for Teachers are important events that CRS hosts twice per year in partnership with science education organizations. These behind-the-scenes events allow teachers to learn and plan for field trips for their students and gives them a chance to network with teachers from across the East Bay.



Teachers delve into chemistry explorations in the LHS field trip lab.

Be A Scientist: A Pilot Middle School Program

What happens when you give 150 7th graders the tools to do their own experiments? Chaos! But add in a few scientist mentors for guidance...and great things happen!

In Fall 2014, CRS, in partnership with UC Berkeley Professor Mary Wildermuth,

launched an exciting new initiative at King Middle School called Be A Scientist. In this program, UC Berkeley graduate students and post docs guide 7th grade students through an independent investigation of a scientific question of the student's choosing over a 6-week period. Twenty-seven enthusiastic graduate students and post docs from a range of science and engineering fields participated in this first round of the program, each responsible for a group of 4-7 7th grade students.



A 7th grader carefully sorts gummy bears for her investigation.

The implementation of Be A Scientist is especially timely given the NGSS focus on experimentation and development of the practices of science and engineering. Mentor scientists guided their students through the process of exploring a scientific question, from selecting a testable question and designing an experiment, collecting and analyzing data, to communicating results. Volunteers went above and beyond: staying after class, taking time to purchase supplies or bring them from their own labs, and dealing with the logistical hiccups of a first-time program.

A HUGE thank you to all of our Fall 2014 volunteers:

Becky Mackelprang, Eric Hunter, Nicole Haloupek, Hannah Reese, Brian Perea, Ryan Morrie, Megan Cohn, Claire Kunkle, Darren Sholes, Norma Morella, Hector Neira, Jennifer Soto, Lucy Chang, Spencer Frank, Jing Chen, Devon Hunerdosse, Claire Funke, Olga Sokolovskaya, Evan Hemingway, Daniel Westcott, Kirk Hansen, Christine Preston, Judith Owiti, Elias Cornejo-Warner, Parker Fagrelus, Austin Peck, and Michael Steinwand.

Also, many thanks to the Berkeley 7th grade teachers from all schools for participating in the development of the program, and to Jill Bergan, Bret Wallan, and Jay Cohen for allowing the program to be piloted in their classrooms at King this year.

Thank you to our 2014 Partners, Donors & Supporters

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Students watch enthusiastically as dry ice begins to inflate balloons

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Exploring how salt affects the melting point of ice at the Bay Area Science Festival

Thank you to our many individual donors who together contributed \$40,000 to Community Resources for Science in 2014!

If you are planning to do some shopping on Amazon.com this holiday season, consider "smiling" for CRS by logging into your account using the company's charitable giving platform:

www.smile.amazon.com

You can select Community Resources for Science as your beneficiary organization (thank you!) and shop as usual

Keep Science Thriving: The Bergman Welch Award Challenge!

UC Berkeley Professor, and CRS Board Member, Robert Bergman is the recipient of the 2014 Welch Award in Chemistry! We are honored that he has generously pledged to match individual contributions to CRS up to a total of \$20,000! Join Professor Bergman in supporting our work to bring diverse, enthusiastic scientists and engineers into local school and double the impact of your giving!

"the best friend a teacher can have." By helping these teachers feel supported, motivated, and recognized, CRS ensures more kids have more opportunities to explore, investigate, discover, and imagine. That's why I give, and why I encourage others to give too."
--- Robert Bergman

"When CRS scientist volunteers walk into a second grade classroom in a high-need neighborhood in Oakland, they change lives by inspiring kids to consider a future for themselves in STEM they had no idea was even possible. The kids delight in learning to program mini robots, squeal at the effects of liquid nitrogen and dry ice, and puzzle intently over plant roots or animal skulls, and they treat the young scientists like rock stars.



Professor Bergman in the lab with Becca Wilson.

Does it make a difference? One teacher wrote to tell CRS we are her "safety net" and another called us

"This morning was absolutely wonderful!!!! The scientists were amazing!!!... Every single one of my kids was completely engaged in every activity...I would love to know if there are any resources that will give me center ideas so that I can implement this form of science inquiry on a regular basis!"
-- Oakland TK teacher

Please help keep science thriving in local schools!



Consider these examples of what your donation could do this year

- \$75** : One science visit to a class of 25-30 students
- \$100**: Customized support for 10 teachers, impacting science learning for 250-300 students
- \$250**: Training sessions for 10-15 volunteers
- \$500**: Field Trip for Teachers Event
- \$1,000**: Workshop stipends for educators
- \$1,500**: "Day of Science" event for the entire 6th grade at one school

To make a donation, go online to www.crs-science.org/donate OR mail your check and the form below to: **Community Resources for Science / 1611 San Pablo Ave. Suite 10 B / Berkeley, CA 94702**

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The CRS Science Super Star Challenge

Each year CRS recognizes teachers who meet a series of best practice benchmarks for "excellence in elementary science teaching" through our Science Super Star Challenge. Now in the 4th year, this program provides both motivation and recognition for public elementary teachers in the East Bay.

Last year, over 120 teachers, several "whole schools", and over 3,000 students completed the challenge, earning recognition and prizes that included field trips, classroom books and supplies, and a book for every student.

"Thanks to CRS' Science Super Stars program we got fabulous science books for the kids and classroom and a great hands-on climate change lessons from the Aquarium by the Bay," says Joanna Davis of New Highland Academy, one of last year's honorees.



Over 3,000 students delighted in receiving a science themed book of their very own!

Generous contributions from publishers, science education partners, and individual donors allowed CRS to provide over 5,000 books, dozens of in-class presentations, field trips, school assemblies, and other prizes.

Teachers Say Thank You!

CRS was recognized by the Berkeley Schools Fund in May, 2014 for community partnership. We were honored and deeply touched by the warm introduction and testimonial given by Cragmont teacher Cherene Fillingim-Selk. Some excerpts:

There are many things to love about Community Resources for Science for example; their breadth of knowledge and services, their professionalism, their eagerness to advance the cause of science education, but what I love most about CRS is that they make my extremely complex job a little easier.

CRS helps a teacher out in a pinch! The year that I was a more than a little surprised to find out that I would be teaching one section of 4th grade social studies along with my regular science load, I went to CRS to help me draw connections between Island of the Blue Dolphins and science. I asked CRS for help and help they did, providing me resources on the native animals and flora of the island, details and implications of the island's tides and more. I got so much information that I wanted to teach Island of the Blue Dolphins all year.

CRS recruits local experts to teach great lessons! The BASIS lessons that CRS coordinates are fantastic...(I)t is inspiring to see experts come into the classroom and share their passion with the students. My classes have been visited by the wind man, the digestion people, the fire scientist, the electricity van graaf guy, the phosphorescence

folks, and more. With every single lesson I have had the pleasure of watching the students get to learn from, see and meet people that work in the real worlds of science.

CRS ignites teacher interest with field trips! The teacher field trips that CRS puts on are fun, social, and educational. I have had the opportunity to go on several of these trips: to the Exploratorium, California Academy of Sciences, and the Oakland Museum. They are all excellent because you get to learn more about these local institutions while networking with colleagues from all over the Bay Area. The most memorable trip for me was to the Crucible in Oakland. The Crucible is not a place that you immediately think of as a science institution, however each of the demonstrations - in metallurgy, glass blowing, and welding were so well thought out and informative that I came away inspired and excited about the connections between art and science, connections that have led to collaboration with both the art specialist and the after-school art teachers at Cragmont resulting in the creation of some beautiful science-inspired artwork.

CRS is upping our game! This was my first year meeting the Science Super Star Challenge, which was all the more exciting because four other Cragmont teachers met the challenge. Going through the process of completing the Challenge tasks helped me focus on multi-disciplinary, student-centric science tasks and inspired me to reach out to all of my colleagues and offer my support as a resource for the others who were upping their game to meet the CRS requirements. At Cragmont alone that means that over 200 students have received well thought out, cross curricular, hands-on science instruction with CRS support. While reflecting with a 1st grade colleague on how to help more K-3 teachers reach the benchmark we came up with several ideas that we will put in place next year so that we can continue to improve not only the science content knowledge of our teachers but also to inspire, motivate and excite our youngest scientists. We can all be Science Super Stars thanks to Community Resources for Science.





Community Resources for Science

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Who knew carrots could be so captivating? Students contemplate plant parts during a BASIS lesson.



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