



COMMUNITY RESOURCES FOR SCIENCE  
practical support for great science teaching

ESTABLISHED  
1997

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## 2018-19 Academic Year Program Evaluation: Accomplishments and Impact

*Science is the BEST way to get kids engaged in learning. It is fun, fascinating, & fabulous!*

*--3<sup>d</sup> grade teacher*

### **The challenges**

Our society is missing out on potential innovations, discoveries, and solutions because too few children are prepared and inspired to pursue STEM degrees and jobs

Low-income children, underrepresented minorities, and girls are missing critical early learning experiences that can put them on pathways to high-earning STEM jobs

Teachers need more training, support, and resources to teach science & engineering well

Scientists and engineers need training to become powerful partners for teachers

### **Our Solution:**

Empower teachers to gain skill, knowledge, confidence, and access to resources by providing long-term partnership, support, information, and professional development

Engage scientists and engineers to effectively lead inquiry-learning experiences for children and teachers, and serve as diverse, enthusiastic STEM role models

Facilitate collaboration among a vast network of STEM education organizations to support excellent science teaching

Ensure children have opportunities to wonder, explore, and discover in school



“Teacher confidence is the most important element in determining how much and how effectively the teacher will teach a given subject area. The varied supports CRS provides, including introductions to field trip possibilities through the Field Trip for Teachers program, BASIS lessons, lesson planning and help in finding resources, all increase teacher confidence in their ability to teach science. The Science Super Star program takes this a step further by challenging teachers to take their new pedagogical knowledge and push it just a bit outside their comfort zones, then reflect on how it impacted student achievement throughout the curriculum. My science program in my TK classroom has improved immensely both in quality and in quantity since I started receiving CRS supports many years ago.”

## Empowering Teachers: Information, Connections, Support & Training

As a result of CRS support, teachers report they are more informed, skilled, motivated, and successful in increasing both the quantity and the quality of science learning experiences for students in their classrooms. Their students are engaged, curious, and inspired.



*Teachers and scientists explore habitats at a regional park during summer professional development.*

### **Educators Reflect on the Impact of CRS Support and Partnership in Strengthening their Science Teaching**

*I love CRS -- it's the best thing ever and I can't wait to continue learning more and growing to be the best science teacher I can be. I know that I have a long way to go but I know I can keep improving with each year thanks to these amazing resources and opportunities. I hope to use BASIS again next year because they have been so awesome so far. Thank you so much everyone for all you do I really appreciate it!*

*I love CRS! All of the support and resources have definitely made me more confident and willing to teach science. Every year when we get a first year teacher I always tell them to look at CRS for any and all science resources!*

*I greatly appreciate CRS's tireless efforts to meet teachers "where they are" in order to build our scientific literacy and teaching capacity. I also appreciate their readiness to provide resources that will enrich and deepen our instruction!*

*Being able to observe my students engaging with content, having scientific conversations, and interacting with the volunteers was truly incredibly helpful for my teaching practice. Thank you SO much!!*

**This year, CRS served 1,750+ teachers  
Impacting learning for over 45,000 students  
across more than 140 East Bay schools**

**90 teachers earned recognition for  
Excellence in Elementary Science Teaching**

### **We provide teachers with:**

- \*Invitations for free in-class scientist-led lessons
- \*Personalized on-call science planning support
- \*Timely information bulletins, online resources
- \*Free Science Field Trips for Teachers events
- \*Customized professional development

### **Program assessment data**

As a result of CRS support and services, teachers indicated they:

- 97%** Taught more science after having BASIS in-class lesson
- 95%** Discovered new strategies for engaging struggling learners
- 88%** Became more enthusiastic about teaching science
- 82%** Added new lessons, field trips, learning experiences
- 80%** Became more confident in planning and teaching science
- 75%** Effectively connected science with math & language arts



*Teachers enjoy exploring the Oakland Harbor on a Field Trip for Teachers*



## Engaging Scientists & Engineers to Inspire Kids and Lead Explorations

As a result of CRS support, scientists and engineers are well-prepared and confident as they head into classrooms to lead young learners in science and engineering investigations. We coach volunteers to develop skills in communicating their research and their passion for STEM, and prepare them to effectively teach while serving as role models. They inspire students to imagine their own futures and discover their own talents as they investigate magnets, circuits, plants, space, and more. Teachers are able to observe their students as active learners, motivating them to do more science.



### Inspiration and Impact in Classrooms

*I was specifically impressed with the answer a volunteer gave to a student question. The student asked when the volunteers became scientists. The volunteer flipped the question and asked students when they started asking questions and searching for answers -- explaining we are all scientists. It was a truly beautiful moment.*

*These volunteers did an excellent job...My students were very engaged in the lesson and when we did a review and sense-making lesson the next day, they were able to remember information that they had learned from the lesson. I noticed my students using a lot of the concepts and ideas presented by the scientists in their own research for their final science projects. They were really able to make connections between the BASIS lesson and our science that we do in class every day.*

*The volunteers were perfect! They were enthusiastic, friendly, knowledgeable, funny, thoughtful, diverse, respectful, prepared and they worked well as a team. Thank you for sending such a wonderful, smart group of "17th Graders."*

***CRS has allowed my students of color to interact with scientists of color and to regard them as every day, normal people.***

**More than 16,000 K-8 students met and learned from 700+ scientists, engineers our education outreach programs**

### ***Bay Area Scientists in Schools (BASIS)***

*Free in-class lessons for grades K-8*

**512 BASIS presentations**

**650+ STEM volunteers**

**15,500 students directly engaged**

### ***Be a Scientist, 7<sup>th</sup> Grade Mentoring***

*Mentors guide students through designing and conducting independent investigations in school.*

**182 scientist and engineer mentors**

**700+ students received individual support**

### ***Science Festivals & School Fairs***

*Pop-up science activities to engage and delight the whole family!*

**50+ STEM volunteers**

**Thousands of families participated!**



*Girls get to see real women who are working in the field of science. I know my young girls really appreciate seeing women who like science the way they like science.*

## Impact on Student Learning and Science Exploration Opportunities

Thousands of children in Oakland, Berkeley, Richmond, and other East Bay communities have more opportunities to explore, make meaning, and build understanding of the world around them, because of the services that CRS provides for teachers and the in-class programs that directly engage young learners in science and engineering learning. Quantitative and qualitative data confirm that CRS programs and services continue to move the needle, increasing opportunities for young learners.



### Bay Area Scientists in Schools Assessment Data

#### Teachers indicated their students:

- 99% Engaged in hands-on experiences
- 99% Learned new science concepts
- 96% Grew more interested in science
- 96% Discussed their own ideas & observations
- 95% Asked thoughtful questions
- 95% Connected learning to experiences in their lives, real world

#### Teachers indicated that they:

- 95% Observed specific students engaged and learning above their typical level
- 97% Added more science as a result of BASIS visit
- 92% Valued the opportunity for students to meet diverse STEM role models

CRS STEM volunteers reflect the diversity of young learners, dispelling stereotypes of “who” can be a scientist.

- 63% identify as person of color
- 56% identify as female

*One of the most salient benefits of this program is the amount of talking about science that my students do every day of this project. Some of these students are very reluctant to speak in front of an entire class, so the low stress small group or one-on-one conversations are just perfect for them to stretch their wings. BUSD 7<sup>th</sup> grade teacher*

#### *Be a Scientist* STEM In-Class Mentoring

Teachers indicated that “all or nearly all” of their 7<sup>th</sup> grade students:

- Successfully completed an independent investigation using authentic, standards-aligned science and engineering practices.
- Gained confidence in their ability to engage in science
- Gained a greater understanding of the process of science
- Benefitted from the individual attention from their Cal mentor
- Students said the program “made us strong in our own learning” and showed them that “science is fun but challenging, and necessary to learn about our world.”





## Connecting Teachers with a Wide Network of Partners & Resources

As a result of CRS collaboration with a network of over 200 science education organizations, informal education institutions, science centers, and academic research programs, the teachers we serve have access to, and timely information about, resources to help them “up their game” in science. With monthly email bulletins, quarterly comprehensive resource guides, curated online resources, and planning support available on-call, CRS lets teachers know about field trips, grants, lesson plans, material, events, trainings, and much more.

Twice each year, CRS hosts free **Science Field Trips for Teachers** at local science centers. Teachers have a chance to explore science topics such as dinosaurs, plants, space, ecology and more.

Events this year were held at **Port of Oakland, Marine Mammal Center, YMCA Pt. Bonita, Children’s Discovery Museum, and Chabot Space and Science Center**. More than 20 partner organizations took part in our Spring **Science Education Resource Fair**, providing teachers with one-stop access to a wide array of programs, training, and materials.



The resources that CRS provides enrich our science lessons, and ultimately are propelling us towards equity in education! .... It makes science teaching more accessible to those who do not have science backgrounds. There is so much information and resources available to us, but we don't always know where to look. – Richmond teacher

I would like to thank CRS for reminding us of all the great resources out there that can enhance our science teaching, including organizing BASIS volunteers, field trip for teachers, information about funding and deadlines. CRS has kept teachers connected and excited about teaching science. –Berkeley teacher



CRS is such an incredible resource for classroom teachers. Building an excitement in science is such an amazing opportunity for students to dive into real world experiments and develop a curiosity for our natural world! --Oakland teacher

**CRS & BASIS scientists developed and presented lessons aligned to standards for grades K-8, on more than 75 topics, including:**

Adapting to Survive: Predators & Prey

All About Volcanoes!

Balloon Rocket Cars

BioEngineering: Design A Pill Coating

Bioengineering: Unblock My Heart!

Birds: Evolution and Tools

Buoyancy: Who Sank the Boat?

Can We See Your DNA?

Catapult Challenge!

Cells and Microscopes

Chemical Reactions

Chemistry of Water and Carbon Dioxide

Clouds Clouds Everywhere

CSI: Chromatography Science

Designing a Polymer

Dry Ice Explorations

Earthquake Engineering

Earthquakes in your Backyard!

Electricity, Magnetism and the Wall Socket

Exploring Magnets

Exploring States of Matter

Eye See It: Understanding How

Eyes See

Feel Dead Brains

Finding the Perfect Fit! An

Introduction to Enzymes

Germs and Your Body

Glow in the Dark Science

Go With The Flow!

Good to the Bone

Graph Paper Programming

Green Polymers

Green Roofs

Magnet Mania!

Magnetic Mystery Planets

Materials and Structures

Microbes in Action!

Microorganisms: Good or Evil?

Ocean Ecosystems & You!



Head! Shoulders! Knees! & (more) Bones!

Hear All About It!? Sound

Hidden Colors

Honey I Engineered Our Food

How Do My Lungs Work?

Involving Dissolving

It came from a single cell

It's just a phase!

Let's Get Brainy!

Oceans Are For Everyone!

Our Brains Sensing Our World

Paper Circuits

Plants Adapt to their

Environments

Play With Your Food

Properties of Gak!

Renewable Energy & Climate

Change

Robots that Run

Secret Formulas

Sensing the World Around Us

Soils are Diverse!

Squishy Circuits

States of Matter: Sublime Suds/

Ice Cream Science

The Brain in Our Daily Lives

The Spice of Life: Variation

Within Species

The Wonderful World of Water

How Diet Shapes Teeth!

Water in our Atmosphere:

Make It Rain!

Wildland Fire

