



Early science is a game changer for students because it captures their hearts and inspires their minds to grow beyond the walls of the classroom!

—Paulette Smith, Elementary Principal

Community Resources for Science

Empowering educators & scientists to engage young learners in wonder, exploration & discovery

**2021-22 Impact Report:
25 Years of Opening Doors to Science Learning**



Science levels the playing field in my 2nd grade classroom. My not-yet-reading students are as intelligent, curious, and communicative as those who are well above grade level. They are all excited and raring to go for hands-on, inquiry lessons. My advanced students are not bored, my emerging readers are not intimidated. Science is the one area they interact and learn together happily and fully engaged. -- Richmond elementary teacher, on impact of CRS training & support

During the 2021-22 school year, continuing pandemic disruptions and statewide policy-makers' focus on mitigating 'learning loss' threatened to once again push elementary science teaching and learning aside. However, for most of the nearly 2,000 educators at more than 135 schools in the Community Resources for Science network, access to CRS support, resources and long-term partnership has made a significant difference in ensuring that children have authentic science learning experiences.

- More than 45,000 elementary and middle school students across the East Bay, particularly in communities that have been historically marginalized, had teachers who received regular, up-to-date information about local resources, curated online tools and lesson plans, and on-call support for their science teaching needs.
- More than 15,000 students met with actual scientists and engineers, exploring everything from tiny particles in biomedicine to plant growth and alternative energy, to the vastness of space – and much more.

This brief report highlights the quantitative as well as qualitative impact of CRS programs and services.

Program Services, By the Numbers

Overall CRS served 1,700 teachers, impacting learning for 45,000 TK-8 kids, across 135+ schools and more than 5 school districts.

Bay Area Scientists Inspiring Students (BASIS) reached 428 classes, plus school & public festivals, engaging 15,000+ young learners in authentic science & engineering

700 7th Grade students had individual mentoring support from 150 UC Berkeley science and engineering grad students

Nearly 2,000 children – and their teachers - earned Champions of Discovery recognition

200+ teachers took part in professional learning focused on building climate & environmental literacy, strengthening teaching strategies, and delving deeply into content

Since 1997: CRS Core Values Lead to Lasting Impact

Partnerships and collaborations, long the heart of CRS approach, provided critical resources to meet the urgent & ongoing challenges.

Customized, responsive support, another longstanding CRS core value, allowed CRS to meet the huge range of needs among teachers, across schools and districts.

Access to support, materials, equipment & training made all the difference in how much science teachers included in their lesson plans each week.

STEM professionals served as powerful partners, engaging kids (in person and virtually), and fostering a sense of belonging.

Climate & environmental literacy building propelled teacher and student learning.

Empowering Teachers: Information, Connections, Support & Training

CRS has been instrumental in turning me into a science teacher. Science was never my strongest subject in school and, as a teacher, I did not feel particularly competent to teach science to my students. However, the training I received from CRS has made me feel confident about teaching science. I realized that I did not have to know everything about a topic or be able to answer all students' questions. Science is about curiosity and exploration; it is about approaching problems with a certain mindset; it is about careful observation and critical thinking. Now, my students do science every week and we learn together.

– Richmond teacher, Science Super Star honoree

CRS teacher members are dedicated to providing learning experiences that activate students' curiosity as a powerful engine for learning. Throughout the school year, teachers turned to CRS for support in as they continued to adapt to pandemic challenges. Field trips, assemblies, and in-class visits were not allowed for most of the year, so teachers needed creative partnerships to extend learning 'beyond the classroom walls.' CRS provided scientist-led BASIS lessons via Zoom, mailing science material kits ahead of time to ensure kids were fully engaged in active, hands-on learning during the virtual BASIS lessons. In addition, hundreds of teachers participated in professional learning, with a strong desire to extend science more broadly across the curriculum, and to provide robust, action-oriented learning experiences to build student climate and environmental literacy.

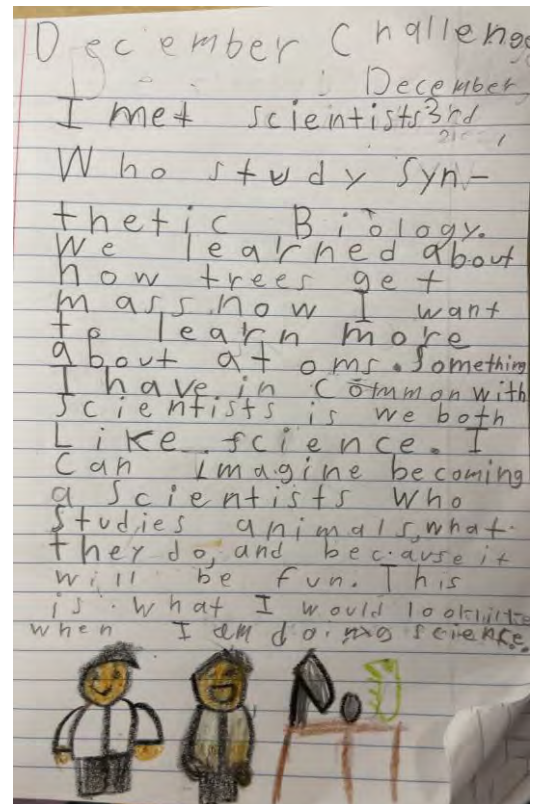
Kids arrive in Kindergarten wide eyed and wondering about everything from rainbows to robots, from dinosaurs to digital technology, and more. Over their elementary years they need to not just memorize facts. They need to understand complex systems that impact their daily lives, like weather and ecosystems flows of water and energy, and how plants, animals, and people adapt to survive. –

Elementary Principal

CRS Support Builds Teacher Skill & Benefits Students

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

- 95%** Discovered & used new resources to keep science a part of their teaching
- 88%** Discovered resources for teaching students about issues that impact students' lives directly, including health and climate change
- 86%** Despite covid challenges, increase the amount of science they taught
- 85%** Became more confident and enthusiastic about teaching science.
- 81%** Effectively incorporated science with language arts and/or math
- 75%** Believe their students need even more time for science



Engaging Scientists: Inspiring, Fostering Belonging for Young Learners

Bay Area Scientists Inspiring Students: Well-prepared Scientists Lead Learning, Virtual & In Person

Through in-person and virtual lessons & festival presentations led by teams of actual scientists and engineers, 15,000 kids explored topics of interest, and imagined their own future pathways in STEM fields.

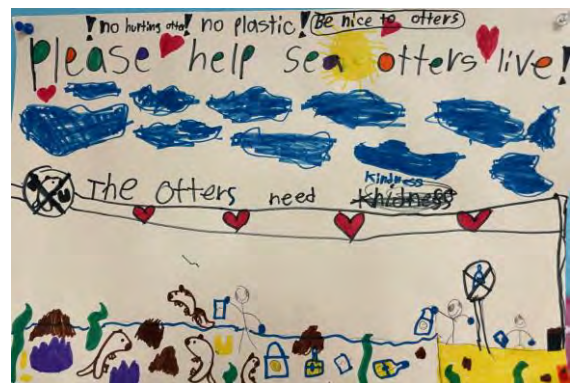
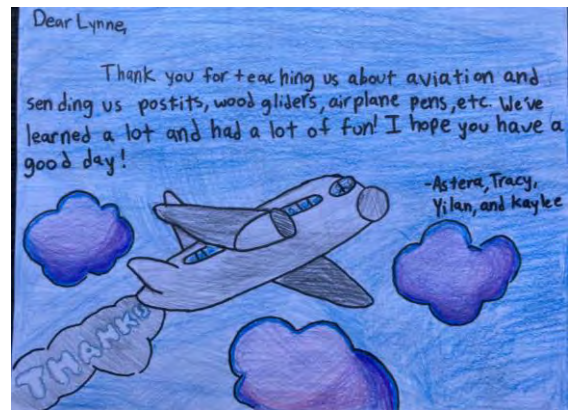
Storytime with a Scientist lessons featured stories & accomplishments of notable scientists of color.

Science Ambassadors collaborated with teachers to develop a series of lessons, with scientists leading phenomenon explorations and sharing about their research, and students 'flipping the script' to teach scientists what they had learned.

Day of Science events featured FAA and Oakland Airport and Port employees leading hundreds of students in explorations of the forces of flight and paper plane engineering, or biotech employees leading entire schools (one class at a time!) in experiments with seed germination, or in-person tabletop activities on schoolyards, exploring DNA, properties of matter, forces and motion, close observation of nature, and much more.

Family Science Festivals, virtual, in person, at school and in public venues, connected thousands of kids and families with enthusiastic scientists as they explored science in everyday life together.

Champions of Discovery Challenge motivated teachers to document and reflect on the impact of their science teaching and student learning. 3,000 Kids earned recognition & prizes!



Teacher Reflections: Scientist Impact & CRS Support

Interacting with and learning from a working scientist benefited my students, and was a great way to enhance their science education. I enjoyed learning from our scientist ambassador as well, meeting someone who's so knowledgeable and excited about science.

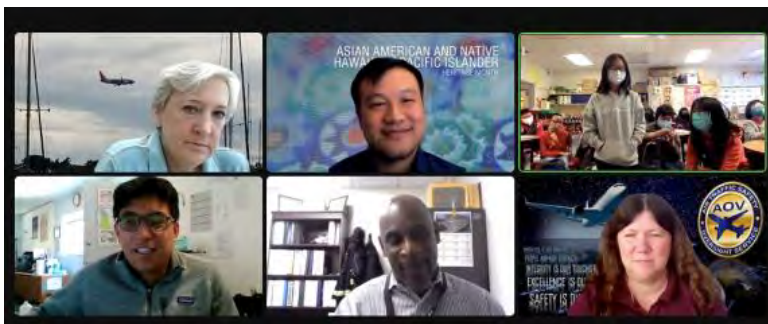
For many years, and both in-person and online, CRS has connected my Grade 5 students with amazing local scientists who have informed and inspired them. The lessons have been top-quality and optimally geared to our grade level. Students really get to know the guest scientists, who have been personable and well-prepared every time. The visits are high points of the students' science education that year. Everyone at CRS has been genuinely supportive and helpful to me and other teachers at my school, and passionate about elementary science education.

2nd graders love science! Already curious about everything around them, science becomes like magic and inspires many questions and rich discussion! Thanks to our scientist visitors!

The online virtual field trips have "saved" our classes this year; Thank you all for what you do every day to expand our curious students' horizons!!

CRS has been crucial to helping me engage our families in schoolwide events over Zoom, bringing joy and fostering connection during this time of Covid.

Loved to have graduate students, and especially many women of color, presenting these science ideas. They spurred a lot of discussion in my classroom. My students also LOVED the pinwheel activity sent to us. Thank you so much for a great experience!

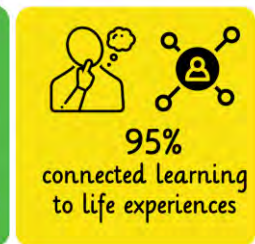
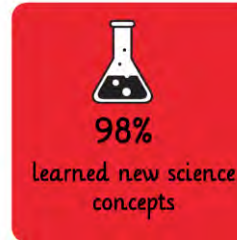


750+ Active STEM role models & mentors from UC Berkeley & STEM Industry

65% identify as a person of color

54% identify as women

Teachers who had BASIS lessons or Science Ambassadors said their students:



Champions of Discovery: Kid Reflections

I met scientists, and now I can imagine becoming a scientist who studies...

*Oceanography *Weather *Spiders
*Viruses *Robots *Lakes *Plants *Space

I see science in my school, home, and community when I...

* brush my teeth *bake muffins
*look at the sky *turn on the tv
*play soccer *see flowers and leaves

Science is what people use to figure things out. They observe things and take notes. Science is everywhere!

7th Grade Mentoring Fosters Confidence, Engagement, and Resilience

The Be a Scientist 7th grade mentoring program provides nearly 700 Berkeley Unified School District students with 150 UC Berkeley scientists to guide students through the process of designing and conducting independent science or engineering investigations, during science class.

I just wanted to say thank you so much for all you have been doing for our kids! (Our child) has been having some rough times lately, but has come back from Be A Scientist days so happy and telling us how much he loves those activities, and is much more like the kid we know and love. He is so inspired, and I just wanted to thank you for helping him find that focus and motivation. — Parent, 7th grader

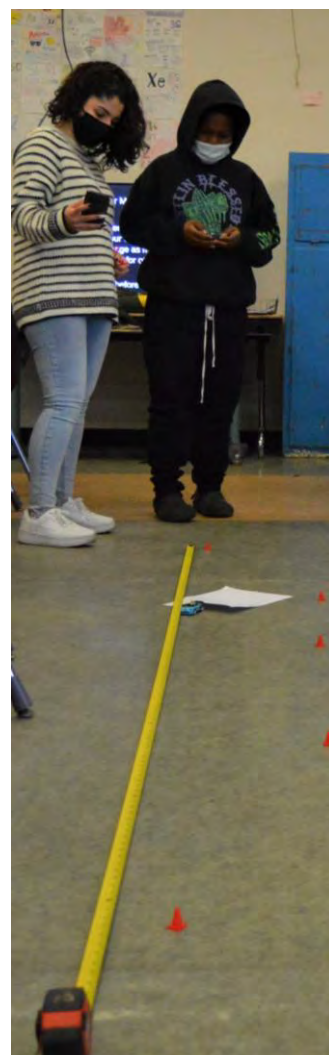


Students showed significant increases in their appreciation for, interest in, and engagement with science, and significant decreases in viewing science as “boring” or not important to their own futures. Students described their mentors as helpful, flexible, kind, good at explaining things, interesting, and fun. Most students indicated they valued the opportunity to take agency for their own learning.

One representative student comment: *My mentor was really nice and helpful. She showed me a lot about how to present my data and have it make sense. She also showed me more opportunities for this kind of science, and talked to me about her research, which was really interesting!*

Teachers consistently have indicated over the years that a major benefit of the program, with more caring adults in the room and more individual attention for students, is that typical middle school negative behavior issues decrease substantially during the mentoring sessions. Project coordinators also noted that after a year of remote learning, that student behavior during the program sessions is even better than pre pandemic. “They were taking nothing for granted, and were so jazzed to have the mentors in person with them in the classroom. They were more excited, engaged, and well-behaved than ever before.”

Teachers describe the excitement of watching their students blossom into ‘scientists in the making.’ Female students gain confidence seeing women in STEM who share their own pathways into research; Spanish-speaking students are proud to discover ‘that it’s possible to do science in Spanish’ as they work with Spanish-speaking scientists. And, African American students take on a new level of focus when they have an African American mentor who takes their ideas seriously— and challenges them to deepen their thinking.



One Teacher's Story: Fostering Science Joy & Learning

Tracy teaches 3rd grade in an East Oakland community that was particularly hard hit by the pandemic. When schools shifted to distance learning in Spring 2020, Tracy, like many teachers, took on the added burden of caring for her students and their families experiencing struggles with food, shelter and health concerns in addition to her stewardship of their learning in the new, online world. But she was determined to keep science learning going strong, especially as scientific literacy took on life-or-death urgency.

Tracy reached out to CRS to ensure scientists could visit her Zoom classroom to help students learn about viruses and how to stay healthy. With the prize she won from CRS in Spring 2021 for her excellence in elementary science, Tracy engaged her young learners in explorations of honeybees and pollinators. And, she shared the learning journey with us via emails and photos.

We worked on the little books, made the flowers and the bees, and did our honey tasting today! The kids love it so much! We are going to make the habitat tomorrow- I will send more photos!

When school resumed in person, she engaged Kids for the Bay to come and lead learning about watersheds and the connections between school yards and the ocean and Bay. Even though field trips were still not allowed, Tracy found creative ways for her students to extend learning beyond the classroom walls. They even presented a virtual program for more than 150 parents and community members via Zoom to share their watershed learning and urge community action to protect the Bay.

The kids Bay performance is actually really funny and awesome! I think you will love it! Get a smile going for your day! We'll have a lot of people viewing. A little scary. But I just want the kids and families to be proud of the work we've done!

Throughout the 2021-22 school year, Tracy engaged with scientist presenters, shared her lessons and reflected on student impact, once again earning recognition through the CRS Champions of Discovery program. She and the students were delighted with the books, science supplies, stickers – and A's beanies – they received as prizes in Spring 2022. Just in time for their first real field trip to Muir Beach. For many students, it was their first time to visit a beach and explore marine ecology. It was drizzly, but the A's beanies and the kids' enthusiasm ensured a joyful day of observing, wondering, exploring and discovering.

It was absolutely a beautiful day- although it was raining- we just had a good time! We got soaked and enjoyed every second of it!

Hats off – or, in this case, hats on! – to Tracy and the nearly 2,000 CRS teacher members who have been working to keep meaningful, authentic science discovery a part of their students' learning experiences.



Joy, Wonder, Inspiration, Opportunity

BASIS Lessons Featured Health, Dinosaurs, Stories of Scientists of Color & More

Electricity, Magnetism & Motion
Outbreak: One Health One World!
Squishy Circuits
Storytime with a Scientist
Rosie Revere, Engineer
Ynes Mexia, LatinX Botanist
Honeybees & Dr. Turner
Oceans are for Everyone
Buzzing bees & Entomologist
Henry Turner
All About Vaccines
Leaf Fossils & Climate Change
Parts of the Brain
Sending Solar Panels into Space
Microorganisms
Fantastic Polymers & Recycling
Therapeutics: Treating Disease
with Medicine
Germs and Your Body
CheMystery Liquids

Brain & Emotions
Clouds, Clouds Everywhere
Robots that Run
Snapshots in Time: Exploring the
Fossil Record
Visual Pathway
Skeletal System
My Five Senses
BioEngineering: Design A Pill
Body's Responses to Exercise
Immune System & Vaccines
Eye See It: Understanding Eyes
Drill Down to DNA
The Science of Heating and
Cooling
Functional Parts of the Brain
Renewable Energy & Climate
Change
Solar Sails and Space Exploration
Earth Day: Seed Dispersal

Making Sense of What's Dense
Storytime with a Scientist: Shark
Lady
Physical and Chemical Reactions
Storytime with a Scientist: Mae
Among the Stars
The Circulatory System
The Digestive System
Storybook Science: Ada Twist
Exploring Aviation
Los Germen y tu Cuerpo
Story of Mary Anning
Microscopes of Tomorrow
Our Amazing Muscles
mRNA Vaccines
Storybook: Mario & Hole in the Sky
Zero Waste
Earth Day: Science Celebration
Forces of Flight: Aviation & Paper
Plane Engineering

