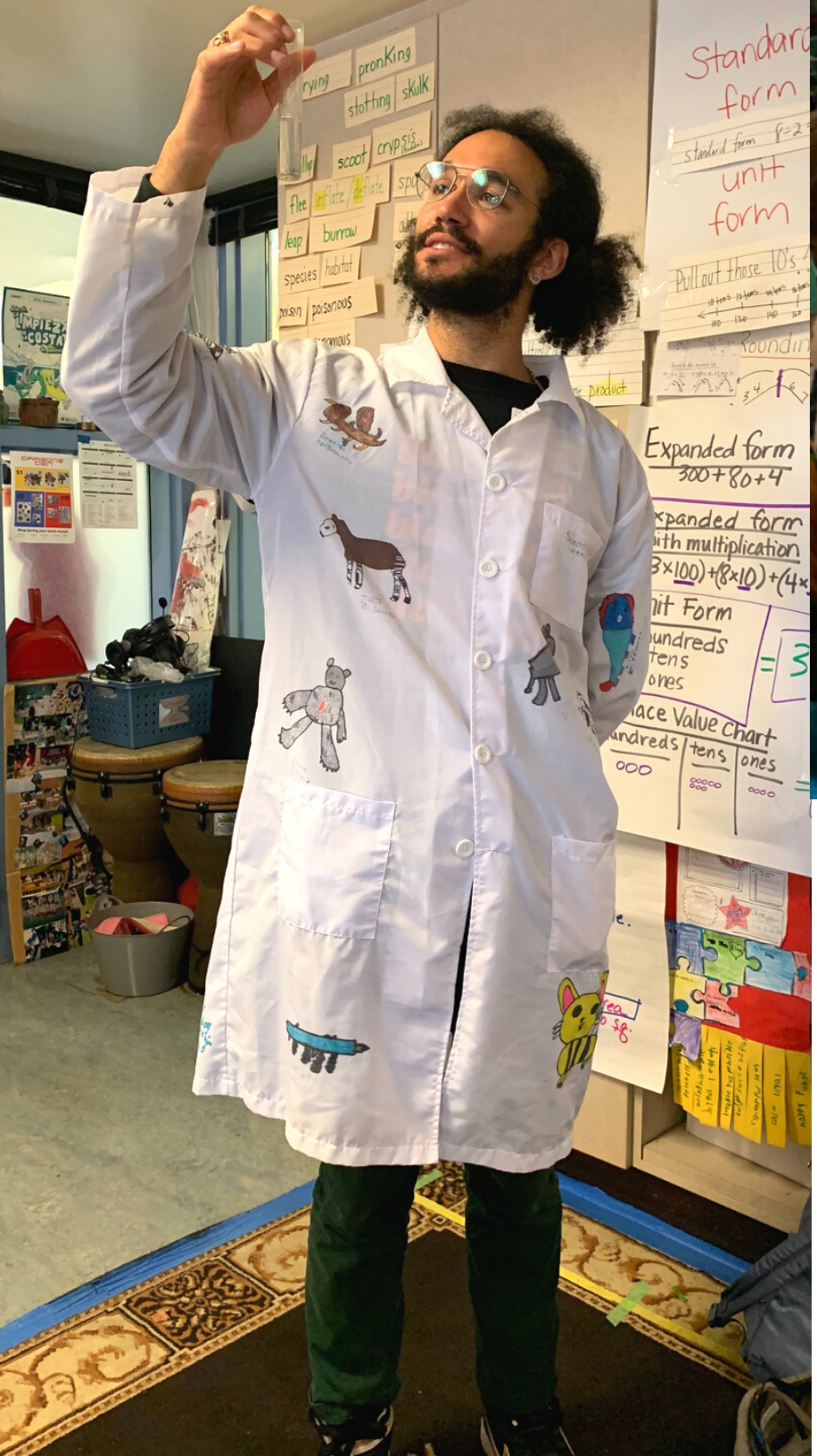


COMMUNITY RESOURCES FOR SCIENCE

25 years Openings

2022 Annual Report

Table of Contents

This tree image serves as a visual guide of our strategic priorities. The colorful leaves in the left margin throughout this report correspond with the outcomes and impacts for the teachers, students, scientists, and partners in our community.

Advocacy for STEM Education
Empowering Teachers
Connecting Partners
Engaging Scientists
Building Community

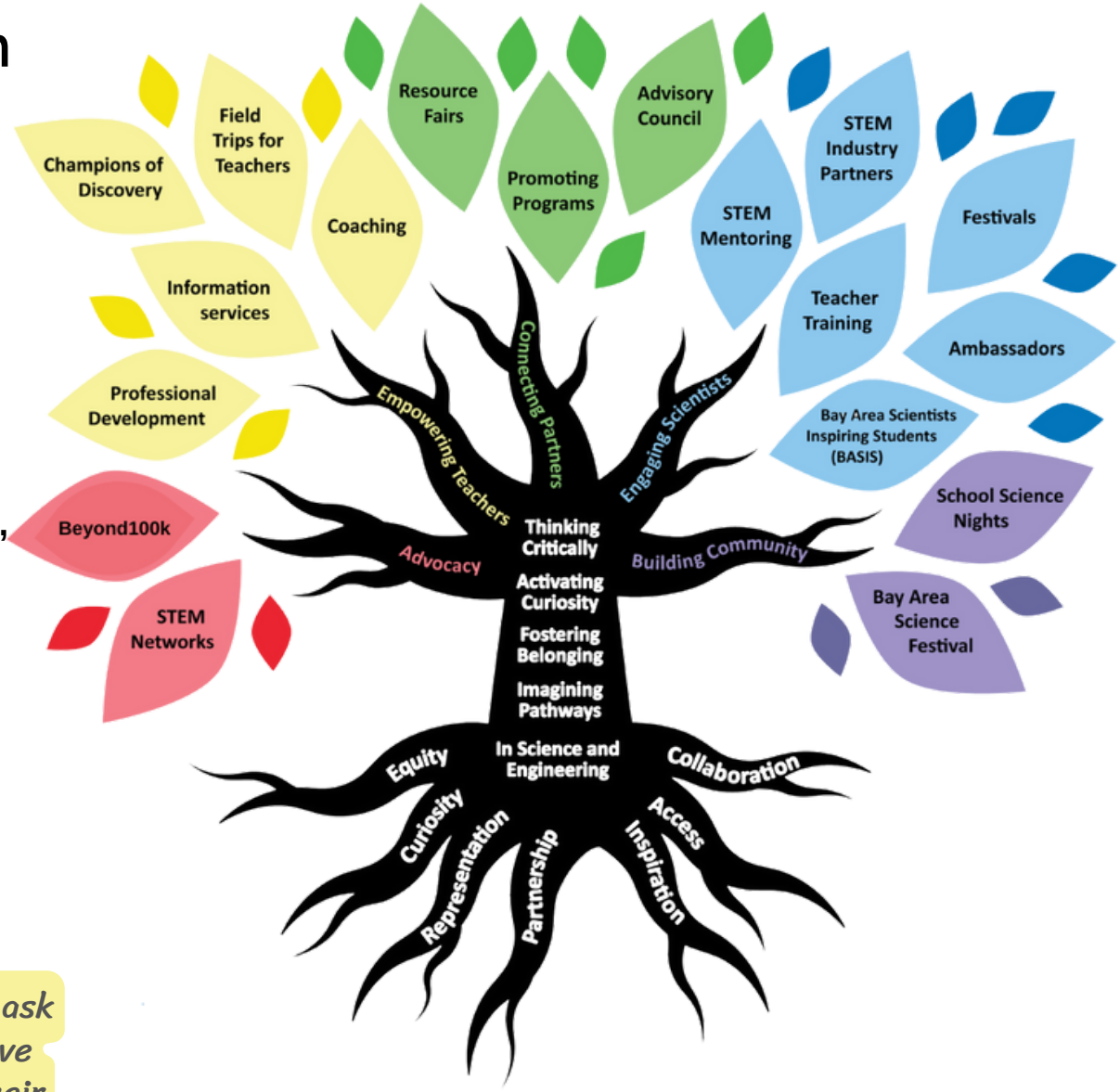
Our Mission and Vision

The mission of CRS is to empower teachers and STEM professionals serving schools in historically marginalized communities to activate TK-8 students' curiosity about the world, foster critical thinking, and inspire children to imagine future career pathways.

We envision a community of educators, scientists, families and partners working together to build school cultures that equip all children to explore the world around them and build the skills needed to become innovators, problem solvers, environmental stewards, life-long learners and leaders.

"My students are full of curiosity, they ask so many questions. And they love to give information as well– they talk about their families, themselves, their cultures...So showing students how they can be scientists and find the answers to questions is huge! This experience helps them already know they are part of the scientific community."

-Transitional Kindergarten Teacher, West Contra Costa



The tree image is a graphic representation of the goals, values, and resources that guide our efforts to strengthen science teaching and learning. The roots are the core values that anchor our mission, to empower teachers and scientists to support students to think critically, activate curiosity, foster belonging, and imagine their own pathways in science and engineering. The branches represent each of the interconnected partner groups in our network, connecting to the leaves representing our programs, services, and resources.

Letter from CRS Leadership

Reflecting & Looking Forward: Centering Equity, Belonging and Joy

Throughout 2022, Community Resources for Science celebrated, shared, and reflected on the impact of our 25 years of providing openings into science exploration, discovery, wonder, and inspiration.

Our staff and Board dove into data, asked countless questions, conferred with partners and researchers, and lifted up the voices of teachers and students, in order to map out strategies to guide our work going forward toward our north star of STEM education equity and opportunity for all young learners.

Our new strategic plan centers these key priorities:

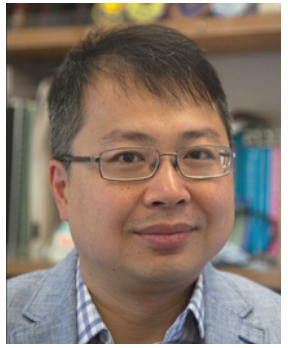
- Empowering teachers and STEM role models to lead authentic, effective and joyful science and engineering learning for elementary and middle schoolers.
- Fostering a sense of belonging through representation and cultural connections students can relate to in lessons and stories.
- Developing and sharing resources that allow teachers to build students' understanding and agency to address causes and impacts of climate change in their own communities.

This report provides a few glimpses into the many CRS collaborations and experiences throughout 2022, along with a summary of some of the most notable impact numbers (such as: 2,000 teachers served, 15,000 elementary and middle schoolers meeting and learning with 1,000 STEM professionals engaged in outreach).

But in all these numbers, we keep as our touchstone, the number One.

Every teacher, every student, every person participating in our outreach programs, is unique. They each have a story of their own science journey to share, and their own curiosity to stoke and nurture.

As CRS has done for 25 years, we embark on a new year with optimism and determination. Guided by our newly adopted strategic plan, we will work to meet each teacher, each student, and each STEM role model wherever they are on their own science journey and help them gain the skills, information, confidence, experiences, and inspiration they need to get to the next place as they continue to build their own science story.



Alan Poon
2022 President

Anne Baranger
2022 Vice President

Teresa Barnett
Executive Director

"CRS has been instrumental in turning me into a science teacher. Science was never my strongest subject in school and I did not feel particularly competent to teach science to my students. 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. 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

2022 at a Glance

February

With Be a Scientist back to fully in-person, we deploy over 150 UC Berkeley grad students as STEM mentors. More than 650 Berkeley 7th graders prepare to observe and measure changes, launch items, conduct crash and flight tests, chart growth, and more, as they design and conduct their own investigations.

January

CRS' 25th year of programming! Anne Jennings and Nicki Norman founded CRS in 1997 to address elementary teacher requests for science role models and support. Throughout 2022, CRS shares stories and hosts events to celebrate, reflect, and envision the future for our work supporting excellence and opportunity.

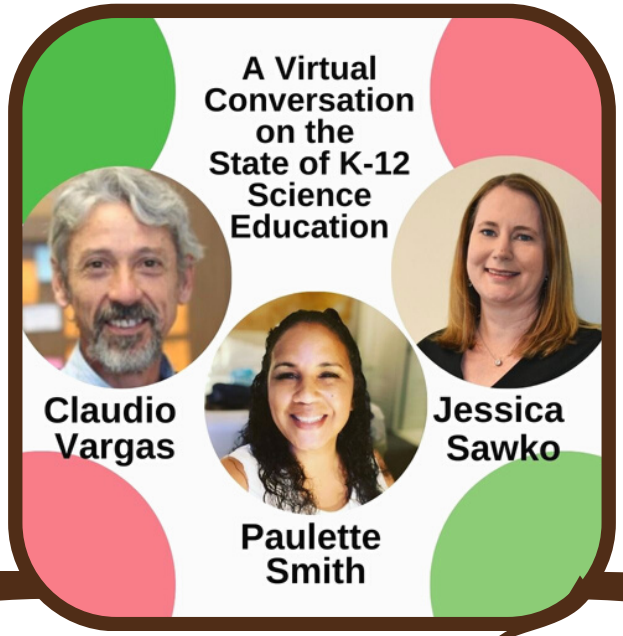
March

Forty one classes across 7 school districts successfully complete the '21-'22 Champions of Discovery challenge, demonstrating their prowess in science. In addition to recognition, CRS distributes thousands of prizes including science books and materials and scientist-led experiences for more than 1,500 students!

2022 at a Glance

April

We rejoice with dozens of scientists and thousands of families as Spring brings a return of many public science festival events. Our teams engage families in exploring circuits, balloon rocket cars, and more at the Bay Area Science Festival at Oracle Park and Science Palooza at The Lawrence.



June

Teachers dive into summer professional development and collaborations. One project brings together 24 teachers across 4 districts to develop new lessons integrating math and science. In the Fall, they lead fellow teachers in piloting these lessons which center joy, belonging and representation in authentic science and math learning.

May

CRS hosts *A Virtual Conversation on the State of K-12 Science Education* for STEM industry and science education partners, urging action and advocacy for greater funding and support for K-12 science teaching and learning.

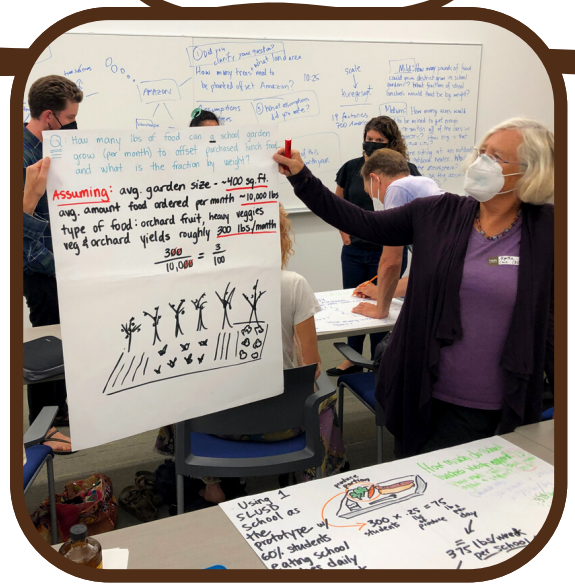
2022 at a Glance

August

Nearly 50 K-12 educators participate in summer climate focused professional development, including our 2-day Climate Institute co-hosted with Oakland Teachers Advancing Climate Action (OTACA). Together, teachers share climate teaching stories and strategies to inspire teachers and students about climate literacy.

July

CRS Board and Staff map out an ambitious, multiyear strategic plan centered on fostering greater equity, student belonging, and building climate and environmental literacy.



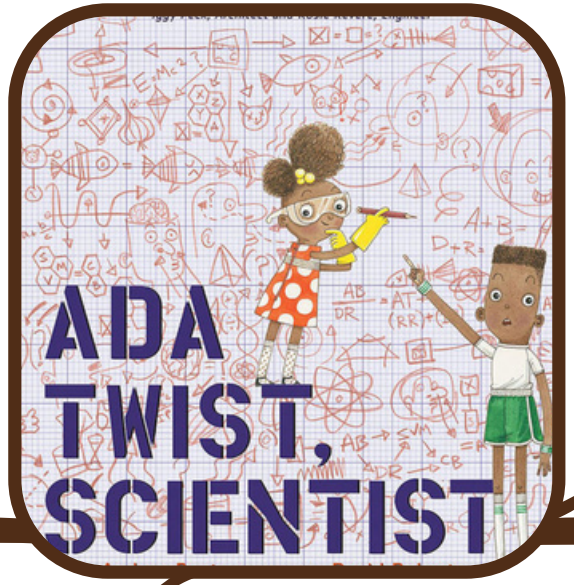
September

The 2022 Fall Kickoff gathering at UC Berkeley welcomes new recruits along with the familiar faces of our longtime outreach volunteers. Nearly 700 Cal STEM grad students, post-docs, and undergrads participate in BASIS and other CRS outreach. They are eager to return to classrooms in person after two years of virtual K-5 lesson presentations.

2022 at a Glance

October

Teachers happily pick up lesson kits, prizes, and books to diversify their classroom library! It takes a lot of material to teach elementary science well. Throughout the year, CRS prepares and distributes kits, books, lesson supplies and more to hundreds of teachers, reaching more than 20,000 students.

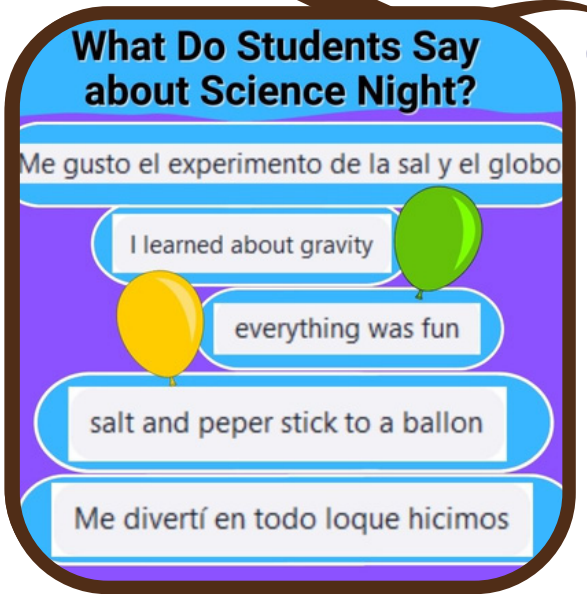


December

CRS hosts and helps with many virtual Family Science events (including sending out materials in advance) reaching 600+ kids and families in 2022. This month, UC Women in Engineering help us lead 'Zip, Spark, Bounce' physical science activities for nearly 200 kids and families from Oakland's Bridges Academy.

November

STEM professionals from local companies return for in-person class visits. Teams from Bio-Rad lead "Storytime with a Scientist" lessons, reading *Ada Twist, Scientist* in 14 classrooms. They engage 400 K-2 students in exploring the role of curiosity and asking questions, as they read about how Ada wonders and explores her world.

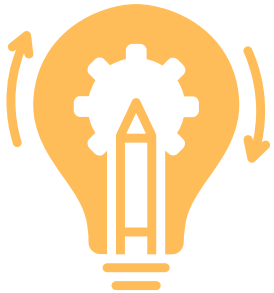


Addressing the National Need for Science Pathways

In 2021, National Academies of Sciences issued an urgent call to action, saying that for the next generation to become scientifically literate adults, today's teachers need:

Networks of science educators & institutions

Science teaching professional development opportunities



Quality hands-on science curriculum for grade level standards

Representation of women and underrepresented minorities in the national STEM workforce, 2021

STEM jobs make up a growing share of all jobs- nearly 25% of the national workforce in 2021- but access to these higher paying fields is not equal.

The CRS Response and Impact in 2022

Nurturing a dynamic network connecting 2,000 educators with 200+ partner organizations, impacting learning for 45,000 TK-8 students

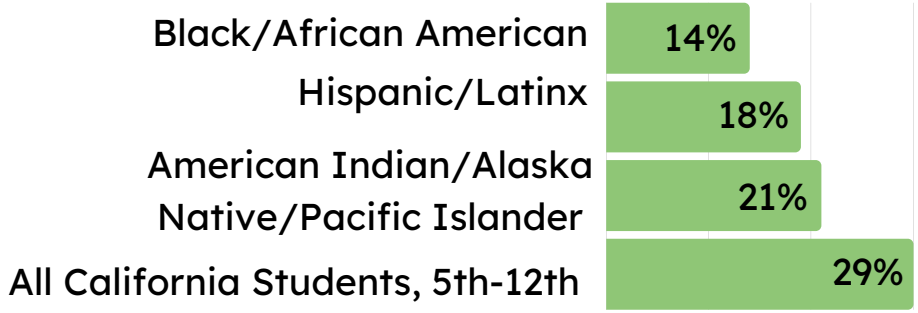
Engaging 300+ educators in 50+ professional learning workshop & collaboration sessions

Mobilizing and placing 1,000+ STEM professionals to lead lessons and serve as mentors, reaching 15,000+ students

The Need for Equity in Science Pathways

To support the next generation at the state and local level, the California Blueprint for Action for Equitable K-12 Education states:
An investment in science education and renewed focus on scientific literacy must address state and local policies and practices that, as the data indicates, do not ensure equally positive outcomes in science for all learners.

Students across California are Missing Key Learning Opportunities



% of Students By Ethnicity Testing Proficient or Above in CA Science Exam, 2022

Only 25% of 4th graders across CA had teachers who say they teach science inquiry.

Fewer than 30% of schools in CA even included science in their Covid recovery plans.

CRS Helps Close the Science Gap in Schools in 2022

In contrast to the statewide trends, teachers active in our network are working to effectively teach more science. 86% of CRS Member Teachers reported that CRS support helps them continue to increase both the quality and the amount of time they spend teaching science and engineering lessons.

In Spring 2022, CRS teacher members indicated CRS programs and support had these significant impacts on their students' learning:

100% Connected science lessons with their lives and the world

95% Discussed their own observations and ideas

94% are highly engaged in science and engineering lessons

97% Grew more interested in science

Empowering Teachers

Our Strategic Approach

Teachers are true levers of change. Well-supported teachers can pave pathways for equity and opportunity for their young learners. But their needs are not all the same.

CRS provides long-term, customized support to meet the unique needs of each teacher, school and district we serve. Our innovative and evidence-based approach empowers educators to strengthen science teaching and learning. From timely information bulletins and on-call support, to scientist visitors in the classroom, to curated professional development, we offer teachers opportunities to collaborate, explore, and rekindle their own excitement about the process of science.

In 2022, our teacher support efforts focused on reigniting science teaching and learning as schools emerged from pandemic impacts. Teachers were eager for training and collaboration opportunities, ranging from climate change to physics, from math integration to equity in STEM teaching, and more.

"Every student regardless of academic level, background, prior knowledge or experiences, was able to fully participate, explore, and make meaning from these lessons in a positive and joyful way. It also reinforced our classroom community simply through giving us these shared joyful learning experiences."

-1st grade teacher, West Contra Costa

Over 50 East Bay K-12 educators participated in CRS/OTACA Climate Institute

Our Action Highlights

More than 300 educators across five school districts took part in professional learning, ranging from one-time workshops to year-long collaborations. Teachers engaged in science and engineering to experience the wonder of discovery first-hand; they interacted with actual scientists; and they came away with practical tools, lessons, and materials to use in their own classrooms and to coach fellow teachers.

- **Joyful Math & Science** - Collaboration to develop lessons & tools for effectively integrating math and science, foster student belonging, and train teacher peer coaches; pilot new lessons with partner teachers. Directly impacting more than 1,000 TK-5 students across 3 districts. Ready to scale in 2023 with major grant from Impact100.
- **Climate Change & Environmental Justice** workshops, including 2-day K-12 Summer Climate Institute and ongoing OTACA (Oakland Teachers Advancing Climate Action) partnership
- **STEM Equity: Inclusive Teaching Practices** - Supporting K-5 Science Specialists across entire district, in partnership with STEM4Real
- **Garden Educators & Climate Connections** - Districtwide support for garden educators
- **Art & Science Outdoors at Oliver Ranch**
- **Fun with Physical Science**
- **Using Models to Build Student Understanding**
- **Reading for Meaning in Science**

Engaging Scientists

Our Strategic Approach

Scientists, engineers, and others working in STEM fields are powerful partners for teachers and inspirational role models for children. CRS provides the training and logistical support STEM professionals from university and industry need in order to be effective, and to fit outreach in their demanding professional lives.

Through our various Bay Area Scientists Inspiring Students outreach and mentoring programs, STEM professionals share about their own research and career pathways, dispel stereotypes, and lead students and teachers to experience “ah-ha” moments that have lasting impact.

In 2022, CRS mobilized 1,000 scientists and engineers to share their passion and expertise with hundreds of teachers, more than 15,000 students, and the larger community. In person and virtually, these STEM role models shared information about cutting edge research and fascinating phenomena from kids’ daily lives. From tiny particles to the vastness of space, from animals and plants to robots and solar panels, teachers and students explored complex topics and engaged in authentic science practices.

"The excitement I get from sharing science with curious kids reminds me of the reasons I wanted to get involved in science, reigniting my passion for learning in my work. Outreach seems to have a unique ability to inspire both those teaching and those learning, and I love being able to be a part of it."

-Clorox Employee

UC Scientist & CRS' Tyler Chuck demonstrate Newton's laws to 2nd graders

Our Action Highlights

- **BASIS Elementary Lessons –** Teams from UC Berkeley labs & local industry partners presented lessons in more than 450 TK-6th grade classrooms, exploring bugs and circuits, air quality and climate change.
- **Storytime with a Scientist: You Belong! –** Lessons centered on stories of notable scientists of color & diverse cultures foster a sense of connection & belonging for the youngest learners.
- **Science Ambassadors –** Champions of Discovery classes earned special semester-long scientist-in-residence to share in science teaching and learning, encourage and celebrate successes.
- **Middle School Mentoring –** Be a Scientist program pairs 650+ 7th graders with STEM mentors from UC Berkeley to support each student in self-selected research project in class.
- **Recruiting and Training STEM Professionals –** Preparing 1,000 STEM professionals from university and industry to be effective teachers, mentors, and role models.

Advocacy

Our Strategic Approach

CRS is a leading voice in local, regional, state, and national advocacy for greater investment in equitable science teaching and learning opportunities. These experiences build the scientific and environmental literacy essential to prepare today's students for thriving, just and fulfilled futures.

CRS convenes partners from science education organizations, museums, outdoor education programs, STEM industry, public agencies, parks, University, and regional and national networks. Together we build capacity to meet the needs of educators, document impact on students, and offer discovery and inspiration opportunities.

"We need science teacher leads, we need to have a curriculum, to value science as a district. As the principal, I have the opportunity of having the vision for a school, and getting everybody on board for that vision. Getting materials into the hands of teachers, they're interested in teaching it and I'm able to see the joy of learning science hands-on. Once you get the ball rolling, you see evidence of it, the science becomes alive at your school community."

-Paulette Smith, Principal, San Leandro

Educators exploring art and science outdoors at Oliver Ranch

Our Action Highlights

- **Call to Action-** Adding our voice to the growing state and national movement for greater prioritization and funding of TK-12 science education.
- **Convening for Action: The State of K-12 Science Education-** Virtual program to engage and inform STEM industry partners, featuring: Claudio Vargas from the National Academies of Sciences, Engineering, and Medicine Committee; Jessica Sawko, Director of the California STEM Network; and Paulette Smith, San Leandro Principal.
- **Climate Change and Environmental Justice-** Collaborating with writing teams, educators and organizations across California in the Climate Change and Environmental Justice Project. CRS - OTACA team is developing curriculum for grades 3, 4, and 5 for use across the state.
- **Commitment to Belonging-** As partners in Beyond100k and the Department of Education's You Belong in STEM initiative, CRS shared lessons, stories, and teachers resources to foster students' sense of belonging in STEM.

Connecting Partners & Building Community

Our Strategic Approach

At the classroom and community level, CRS ensures teachers know about the wide range of offerings from science centers and environmental education partners, and that science educational partners know about teachers' needs so that they can provide the effective programming. From lessons and field trips, to grants and professional development, we keep teachers up to date and help our partners highlight new and powerful learning supports and experiences.

2022 brought many moments of science joy, shared with our community partners at festivals, and in the shared experiences between UC Berkeley scientists and private industry science mentors and students who had the opportunity to learn about the vast range of science pathways, making connections between the skills they are developing today and the scientist they can become.

"(Our visiting scientist) read the amazing story Ada Twist Scientist, a great way for my students to know the power of questions. We started talking about pencils and where every part of a pencil comes from. The kids wanted to know so much about pencils. The scientist was great with the kids. He explained what he does for his job and that he may not look like a "typical Scientist" in a lab coat with potions. He explained that being a scientist is a job of constantly asking questions and finding solutions. Kids were so engaged and had a great time!"

-Kindergarten Teacher, West Contra Costa

Our Action Highlights

- **Advisory Council –** Educators from the Bay Area's science institutions gathered to share what they're changing, learning, and designing for their program offerings, and what that means for local teachers and providing them with equitable opportunities to these experiences.
- **Trusted Partner Resource Guide-** CRS revised its website to always provide the most up-to-date information about science programming around the Bay Area all in one place for educators.
- **Supporting Family Science Events at Schools –** Virtually and in person, CRS helped bring scientists together with hundreds of students and their families. We distributed material kits so everyone could participate in activities such as paper airplane engineering, static electricity explorations, and balloon paddle ball challenges.
- **Student Belonging Activities –** Champions of Discovery teachers submitted dozens of entries of students learning about the science in their daily lives, and imagining where science may lead them.
- **Science Festivals in Community** – Joyful return of scientists to the Bay Area Science Festival, Science Palooza and more!

Looking Ahead to 2023

Meeting Goals in the New Year

Our north star in 2023 will be working toward greater impact in these four major areas:

- Empowering even more educators to lead learning experiences that build student climate literacy and agency to contribute to positive solutions.
- Empowering and engaging more STEM professionals to join in outreach and share their own science stories, and inspiring more students – especially those from underrepresented groups – to discover that they too belong in STEM.
- Connecting even more partners and educators to build capacity for schools to ensure that all elementary and middle school students have meaningful, authentic science learning opportunities.
- Celebrating even more Champions of Discovery as even more students and teachers lead students to discover the science in their daily lives and imagine their own futures in science.

"This lesson was effective in building student belonging. I read the story, Mario and the Hole in the Sky: How a Chemist Saved Our Planet. It aligned perfectly with our celebration of Hispanic Heritage Month. I had a student ask if Mario was a real person and when I told him 'yes', the student was amazed to learn that someone who spoke Spanish (like himself) was a scientist. This experience helped students see that they, too, can be scientists!"

-4th grade teacher, West Contra Costa

Advisory Council

Thank you to these individuals who served on our Advisory Council at some point in 2022.

Betsy Mitchell, Chair
Berkeley Natural History Museums
Sal Alper
Exploratorium
Leena Bakshi
STEM4REAL
Robert Bergman
UC Berkeley, Chemistry, *Retired*
Sagit Betser
Science Educator
Nancy Blachman
MathDelights
Molly Campbell
Exploratorium
Ana Carneiro
PhD Candidate, UC Berkeley
Maryam Cermal
SMART Center, OUSD
Constance Cobb-Zunino
Garfield Elementary, OUSD
Elysa Corin
Institute for Learning Innovation
Tracy Dordell
Highland Community School, OUSD
Cherene Fillingim-Selk
Berkeley Arts Magnet, BUSD
Helen Fitzmaurice
Postdoc, UC Berkeley; OTACA
Tanner Frank
PhD Candidate, UC Berkeley
James Frank
East Bay Regional Park District

"I believe that I really stretched my teaching muscles... I especially loved collaborating with other 3rd grade teachers. I don't believe I would have taught this lesson without the support of CRS and of my 3rd grade colleagues."

-Richmond Teacher

Roma Groves-Waters
Martin Luther King Jr. Elementary, OUSD
Emily Harris
BSCS Science Learning
John Iwawaki
West Contra Costa Unified School District
Channon Jackson
Alameda County Office of Education
Sabine Jeske
UCSF Science Health Education Partnership
Annie Kohut Frankel
California Coastal Commission
Ben Lavender
Central Contra Costa Sanitary District
Debbie Lenz
Willard Middle School, BUSD
Corigan Malloy
Martin Luther King Jr. Elementary, OUSD
Clea Matson
California Academy of Sciences

Chris Parry
California Coastal Commission
Jan Robertson
Robertson Consulting
Duffy Ross
Berkeley Public Schools Fund
Megan Schufreider
California Academy of Sciences
Bruce Simon
CSUEB Institute for STEM Education
Sarah Soule
California Academy of Sciences
Dan Stanton
Chabot Space and Science Center
Joanna Totino
Bay Area Science Project
Diana Velez
The Lawrence
Lisa White
UC Museum of Paleontology

CRS Team & Leadership

Staff

Teresa Barnett, CRS Executive Director
Corinn Brown, Director, Data & Teacher Services
Tyler Chuck, Associate Director, Education Outreach & Operations
Adriana Threlkeld, Communications Manager
Greg D'Arezzo, Director, Strategic Growth Planning
Georgia Tan, Data and Digital Project Assistant
Jeremy Eddy, Project Coordinator, STEM Industry Outreach
Eric Havel, Professional Development
Betsy Mitchell, Project Coordinator, Be A Scientist
Darlene Yan, Project Coordinator, Be A Scientist
Ana Carneiro, UCB Campus Coordinator
Tanner Frank, UCB Campus Coordinator
Ana Vardapetyan, BASIS Lesson Coordinator

Board of Directors 2022-2023

Alan Poon, *Outgoing President,* Deputy Division Director, Lawrence Berkeley Lab
Anne Baranger, *Acting President,* Associate Dean of Diversity, Equity, and Inclusion, UC Berkeley College of Chemistry
Marguerite Hutchinson, J.D., *Secretary,* CEO, Tatara Therapeutics
Russell Wong, *Treasurer,* Engineer, Bayer, Senior Manager *(Retired)*

Directors

Jun Axup
COO, E11 Bio
Justin Curley
Partner, Seyfarth Shaw LLP
Asha Harikrishnan
Science Educator
Trina Ostrander
Executive Director, Institute for STEM Education, CSU East Bay, *(Retired)*
Armbien Sabillo, J.D.,Ph.D.
Associate Counsel, Intellectual Property, Gilead Sciences

Emeritus Board Members

Robert Bergman
Gerald E.K. Branch Distinguished Professor of Chemistry, UC Berkeley
Anne Jennings
Co-founder, Community Resources for Science, Exploratorium, *(Retired)*
Susan Kattchee
Assistant Director of Facilities & Environment, City of Oakland, *(Retired)*
Nicki Norman
Co-founder, Community Resources for Science
Diana Vélez
Professional Development Specialist, The Lawrence, FOSS

*Also Served in 2022

Michael Britton
Senior Staff Scientist, Bayer, *(Retired)*
Erik Busby
Project Leader, Lawrence Livermore Lab
Rodney Turner
CEO, AYOXXA Biosystems GmbH

In Memoriam
Tony So
Co-Founder & COO, Magnitude.io

Financials

Statement of Financial Position Dec 31st, 2022

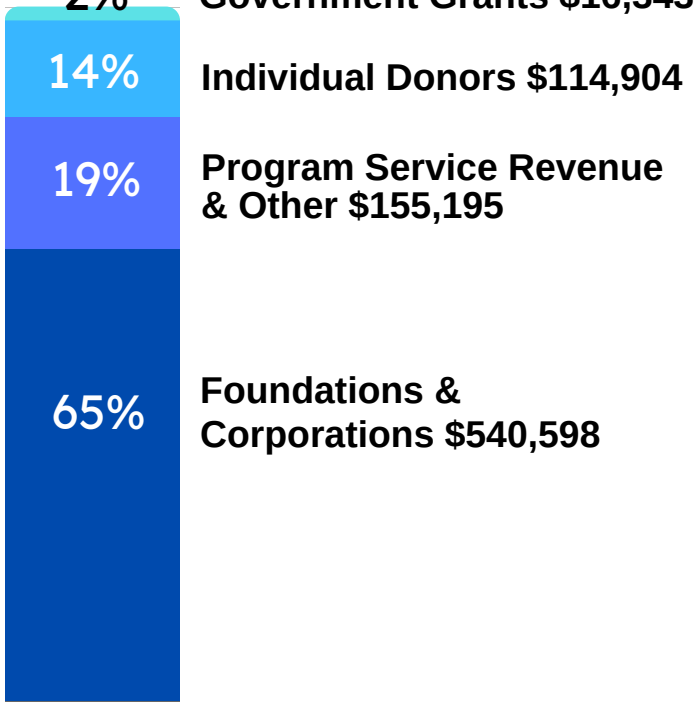
Assets

Checking and Savings	$517,595
Other current assets	$4,304
TOTAL ASSETS	**$521,899**

Liabilities and Equity

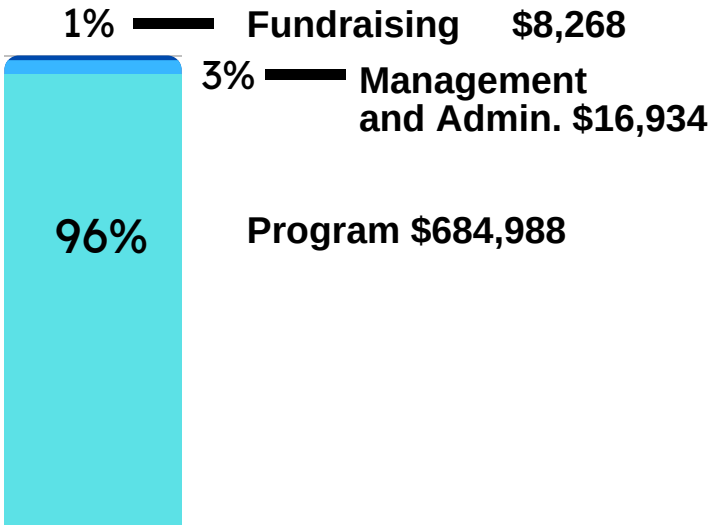
Liabilities	
Accounts Payable	$12,679
Credit Cards	$3,837
Other Current Liabilities	$43,984
Total Liabilities	$60,500
Equity	
Unrestricted Assets	$42,064
Retained Earnings	$302,488
Net income	$116,849
Total Equity	$461,400
TOTAL LIABILITIES & EQUITY	**$521,899**

2022 Income



TOTAL INCOME $827,039

2022 Expenses



TOTAL EXPENSES $710,191

Our Generous Community

Thank you to these Foundation, Corporate and Public Agency partners who provided grants or donations that supported our work in 2022

Associated Students University of California
Bayer Health Care
Berkeley Public Schools Fund
Bernard E. & Alba Witkin Charitable Foundation
Beyond100K
BRIDGE Association of Realtors
Callison Foundation
Clif Bar Family Foundation
Clorox Company Foundation
Crescent Porter Hale Foundation
Dean and Margaret Lesher Foundation
Grifols
Impact100 East Bay
In Dulci Jubilo, Inc.
Joseph and Mercedes McMicking Foundation
Kinder Morgan Foundation

Photo Credit: Duy Dang, Impact100EastBay

KLA Foundation
Lawrence Berkeley National Lab
Lowell Berry Foundation
Matson Foundation
Morris Stulsaft Foundation
National Geographic Society
Nicholson Family Foundation
Nancy P. and Richard K. Robbins Foundation
Arthur and Toni Rembe Rock
Port of Oakland
Renegade Bio
Seyfarth Shaw Charitable Foundation
Stocker Foundation
UC Berkeley Chancellor's Community Partnership Fund
Wareham Development

Thank you to these generous sponsors of CRS' 25th Anniversary Celebration

WAREHAM DEVELOPMENT
BAYER
Genentech A Member of the Roche Group
140 YEARS 1882 • 2022
Matson
SONOMA BIOTHERAPEUTICS
HEALTH ADVANCES Strategy Consultants for the Healthcare Industry
ENGEO Expect Excellence
BERKELEY LAB Lawrence Berkeley National Laboratory
kyverna TAMING AUTOIMMUNITY™

Our Generous Community

2022 Employee Engagement

Thank you to these STEM industry partners and associations whose employees engaged in outreach with CRS and/or participated in community service projects in support of CRS science education programs this year.

Thank you to employee groups at the following companies who directed contributions to CRS:

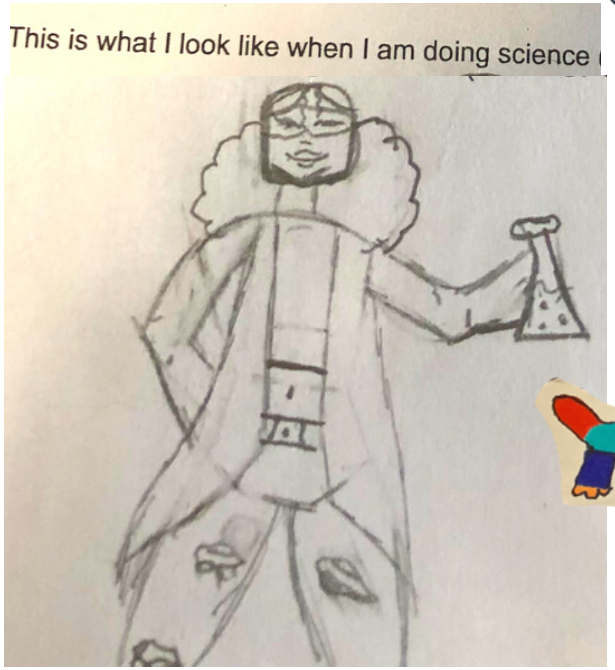
Clorox Company Employees
Genentech Employees
Tesla Employees

Thank you to these partners for matching employee contributions in 2022:

Apple
Bristol Meyers Squibb
Clorox Company
Convergent Research
Genentech
Lawrence Livermore National Lab

Thank you to these partners for in-kind contributions in 2022:

Abrams
Bellwether
Charlesbridge
DK
Hands On Bay Area
Holiday House
Nomad Press
Planet Bee
Synopsys



Thank you, students, for sharing these pictures of what science looks like in your lives!