

Educator FAQ

Coordinating with Schools

1. How many grades do you teach when starting at a school?
 - SiE launches at schools in 2 grades: K and 1st grade. Each subsequent year we add a grade (ex. Year 2 = K, 1, 2).
2. How do you work with schools with a science specialist?
 - SiE is happy to make custom arrangements with schools to accommodate the needs and preferences of that school. Here are some options that we can combine in a package to serve schools with a science specialist:
 - In-class Instruction for grades K and 1 (and/or)
 - Regular coaching and professional development to the science specialist to support instruction and growth in professional practice in all grades (and/or)
 - Regular professional development training for all staff and/or specific teaching teams on integrating science content and skills across subject areas
3. What information does the school need to provide you to schedule classes?
 - Schools should provide their “bell schedule” that includes the times each grade has lunch, recess, and assemblies.
 - Please also send the school’s calendar that includes breaks and other days-off from school.
 - Send any other special dates we should avoid for events (ex. school photos, eye-exams, walkathons, testing days).
4. Do we have to provide any materials?
 - Name tags: it’s incredibly important for students to be addressed by name
 - We ask teachers to provide materials that students already have in the classroom: pencils, crayons, and scissors.
 - SiE provides all other materials, including worksheets and folders to hold them.

Lessons in Action

5. What role do the classroom teachers play in your lessons?
 - Classroom teachers are a critical force in supporting student learning. They have built meaningful relationships that help students focus and problem-solve when individual students are struggling. We ask that teachers:
 - Be present in the classroom during the entire 90 minute lesson.

- Assist SiE educators with any classroom management challenges they may experience in helping all students focus on learning.

6. How do you select the content in your curriculum?

- Scientific practices and skills
 - Skills that students learn while doing science, and are obviously useful in science, translate easily into other content areas (for example: asking testable questions, looking for evidence, arguing from evidence)
- Physical science and engineering content. We focus on these because:
 - The fundamental science that underlies physical science and engineering can be understood by young children.
 - Multiple complete experiments can be done in 90 minutes, allowing for increasing complexity and depth as the lesson progresses. In each experiment, students start with observations, ask testable questions, collect data, draw conclusions, and argue from evidence.
 - They are often the strands of science that teachers feel the least confident teaching and that therefore students receive the least instruction in.
- SiE uses the following tools and resources to inform our curriculum design
 - Scientifically Accurate Content
 - Engaging Experiments
 - Standards (NGSS, CA CCSS, 21st Century Learning)
 - Critical Thinking Skills
 - Developmental Appropriateness

7. Who are the educators and the volunteers?

- Our educators are scientists who have higher degrees, including in engineering, geology, chemistry, and physics; in addition to years of classroom teaching experience.
- Our volunteers are local STEM professionals who are passionate about science and science education and are interested in mentoring students and supporting learning in local elementary science classes. We welcome classroom parents to volunteer with us as well.
- We make a concerted effort to recruit educators and volunteers that reflect the communities we serve.

8. What is the structure of a typical SiE lesson?

1. Introduction (10-15 min):
 - Introduce objectives, vocabulary, and build on prior knowledge
2. Experiment 1 & Discussion (20 min):
 - Illustrates the most basic concept/skills
3. Experiment 2 & Discussion (20 min):

- Builds on the previous concept/skills
4. Experiment 3 & Discussion (20 min):
 - Builds on the previous concepts/skills
 5. Closing (10-15 min):
 - Ties together how all concepts and skills support one another
9. Why do you ask for lessons to be 90 minutes?
- Physical sciences and engineering is most effectively taught through hands-on experiments. 90 minutes allows students to do at least three experiments and have meaningful discussions, so that they have multiple opportunities to experience and learn the objectives for the lesson.
 - We carefully scaffold each experiment and discussion so that it builds on the previous one and provides rich understanding of the content for students.
10. How can parents be involved and stay engaged in SiE?
- SiE encourages parent volunteers to join our lessons, if they are able. Parents are powerful mentors; they also know the students in the classroom well and are able to create a great atmosphere for learning.
 - For parents whose home language is not English, we pair them up with bilingual parents of their home language so they can facilitate and support learning as well.
 - SiE has written bilingual parent letters (English/Spanish) to help parents support science learning opportunities at home that align to the content and skills students are learning in our lessons.



FOR EDUCATORS



CONTENTS

Mission & Vision	3
Our Philosophy	4
The Challenge	5-6
Our Impact	7-9
Our Program	10-13
Our Curriculum	14
Contact	15

VISION

All children realize science is awesome and use its principles to better their lives.

MISSION

To effect systemic change in elementary school science education by teaching students, training teachers, and engaging the scientific community.

OUR PHILOSOPHY



Science is Awesome

- Science is both cool and awe-inspiring.
- Science is best learned through inquiry, small groups, and hands-on experiments.

Science is for Everyone

- Everyone can achieve high standards in learning science.
- Students hear their own voices while practicing science.
- We are responsive to the needs, identities, culture, and community of our students.

Science is Everywhere

- Honor and nurture children's curiosity; help them explore observations and questions about how the world works.
- Interdisciplinary connections across content areas.
- Experiment with everyday and found materials.

THE CHALLENGE



PRINCIPALS

- 56% -

say students **don't receive high quality science**



TEACHERS

- 17% -

feel prepared to
teach physical science



STUDENTS

- 1/2 -

students of color are proficient on the national science test vs White peers.

Elementary science education is lacking in California and in the U.S. at large. This neglect especially affects students of color.



THE CHALLENGE

Half of Bay Area 5th graders score “below proficient” on our state science test. The Bay Area has some of the largest achievement gaps in CA.

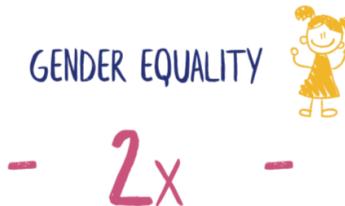
OUR IMPACT



more likely to say **they**
are good at science



more likely **to want to**
work in a STEM field



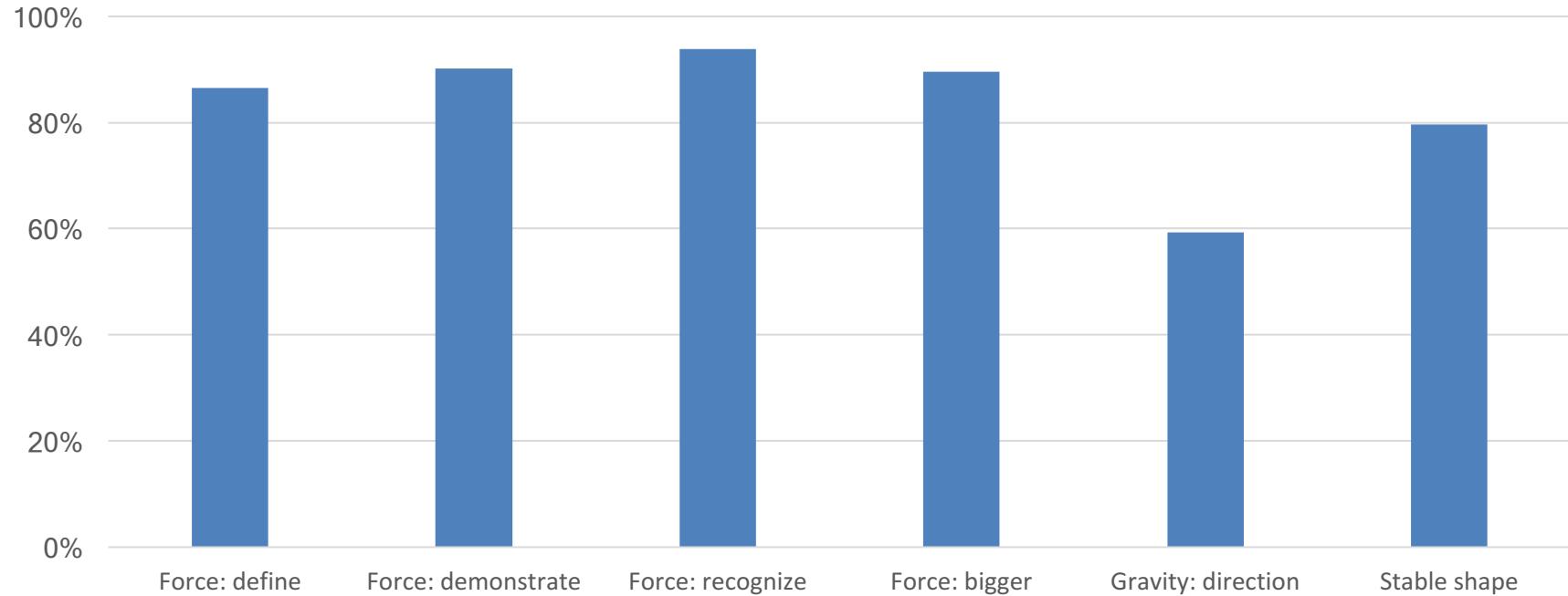
as likely if they are girls



increase in **content**
knowledge

Our students thrive on the high-quality hands-on science education they receive from us.

OUR IMPACT



Students show strong retention of science concepts they learn with Science is Elementary.*

*End of year Kindergarten assessment, 206 students, mixed demographics

OUR HISTORY

SiE was founded when Tzipor saw the dearth of high quality science education in her local elementary schools.

Now in our 10th year, we serve over 6000 students and 100 teachers. Our schools are in 6 districts in the Bay Area including the Peninsula, South Bay, and East Bay.

- Science hours per student: 100
- Grade levels: 7 (TK-5th Grade)
- Volunteers: 450



OUR PROGRAMS

IN-CLASS INSTRUCTION

- We teach monthly 90-minute lessons per grade level (9 total), with a physical science and engineering focus. All lessons are standards aligned (NGSS, CCSS, 21st Century Skills).
- Our lessons are hands-on, inquiry-based, with small group experimentation.
- Each class has the same SiE team – educators and volunteers – throughout the year. All SiE team members hold STEM degrees.
- We offer regular in-class sessions, year after year, ensuring continuity of learning and the development of strong mentor relationships.

OUR PROGRAMS

IN-CLASS INSTRUCTION

- Science should be taught by scientists. Our educators have higher degrees in Engineering, Geology, Chemistry, and Particle Physics in addition to years of classroom experience.
- We bring in scientists and engineers to volunteer and support the learning in their local classrooms.
- Our educators and volunteers partner with classroom teachers and science specialists to ensure that our students benefit from our love of science and receive the highest quality science education possible.





OUR PROGRAMS

PROFESSIONAL DEVELOPMENT

- We offer whole group training sessions with the entire staff at each school site. Topics include science education, scientific practices, and integrating science across disciplines.
- Our teacher coaching is personalized and one-on-one, corresponding with their instruction of our curriculum.
- Coaching is a powerful tool that allows professionals to improve their practice in a consistent and ongoing way.
- Coaching occurs with and between our leadership, our educators, and classroom teachers.

OUR PROGRAMS

PROFESSIONAL DEVELOPMENT

- Our coaches are our highest achieving science educators. They receive their own ongoing training and coaching on how to be effective coaches.
- We draw on others' expertise and we host guest presenters from Stanford and other partners to support our trainings.
- Our coaches partner with classroom teachers to ensure that our elementary students receive science instruction that is integrated across subject areas.





OUR CURRICULUM

Our curriculum is a continuum - each consecutive year builds on what has been taught in the previous year. Take a look at the [Curriculum Map](#) – it reflects what is currently being taught at each grade level.

Learn more about what's happening for some of our youngest learners! For a sample kindergarten unit, and additional information, please visit these links:

[Guided Lesson Plan](#) | [Reading List](#) | [Kindergarten Standards Alignment](#)

CONTACT US

ELEMENTARYSCHOOLSCIENCE.ORG



Tzipor Ulman, CEO and Founder
tzipor@elementaryschoolscience.org
650-575-0492

Rebecca Haskell, Associate Director
rebecca@elementaryschoolscience.org
202-617-0465