



STUDENTS 2 SCIENCE, INC.

A New Jersey non-profit corporation inspiring, motivating, and educating students to pursue careers in Science, Technology, Engineering, and Math

Accomplishments 2015 – 2016 Academic Year

2016-2017, Students 2 Science (S2S) entered a formal partnership with the City of Newark and Newark Public Schools to address the needs of the public and private sectors, bringing STEM education and 21st century skill development to all elementary, middle and high school students. This new venture is a model for the nation in understanding how to create opportunities for all students to compete in a global economy. It puts science and analytical thinking at the forefront. And we could not be more delighted!

“Our goal is to make students in Newark the best scientific thinkers in the country. With this innovative partnership, we will do just that---not only providing better careers for students in fields like engineering, biotechnology, but also putting Newark on the map as a place people look for great science education.”

Christopher D. Cerf, Superintendent, Newark Public Schools

“This tremendous educational opportunity for our children will put them on a path toward a brighter future and will help develop the workforce our employers are demanding.”

Newark Mayor Ras Baraka



As STEM advocates and champions, Students 2 Science (S2S) created a forum for diverse stakeholders to gather and discuss science as a catalyst for how we make informed decisions as global citizens, Americans, and community leaders. Leadership and speakers included innovators and visionaries from academia, non-profit, public policy, grass root membership and corporations. This year we welcomed our new program “S2S: The Salon” because we believe that discovery and innovation in science encourage us to have educated discussions about our health, energy, investments, and perhaps even how we envision a world where good community partners share and prioritize our limited resources.

And for teachers and students, S2S officially launched our Virtual Laboratory (V-Lab) program after a successful pilot in the previous academic year. With encouragement and funding from our corporate partners and the support of our STEM role models, we are making a difference in classrooms across the state of New Jersey with a program that has global potential.

And finally, S2S hosted a total of 5,156 students this year, the most students in our history, along with hundreds of teachers, administrators and district leaders. Our ISAAC (**I**mproving **S**tudent **A**ffinity and **A**ptitude for **C**areers in STEM) program served 3,150 students from 35 Schools through 92 sessions. And our V-Lab program reached 2,006 students in 26 schools and a hospital through 101 sessions.

Our growth has been exciting and we could not have done it without the generosity of so many extraordinary individuals, partners, and funders. It is with appreciation and great pride we present to you our 2015-2016 Accomplishment Report.

S2S - Organization Background and Mission

Students 2 Science, Inc. is a 501(c)(3) model program in New Jersey that bridges the needs of the public and private sectors. Our mission is to inspire, motivate and educate elementary, middle and high school students to pursue careers in science, technology, engineering and math (STEM subjects). We do so by providing an authentic, state-of-the-art laboratory experience complete with modern instrumentation and professional scientists. Additionally, we offer remote, web-based virtual STEM experience through our V-Lab program. Teams of students, working collaboratively with scientific professionals who serve as role models, solve real life problems while being introduced to a wide variety of 21st century STEM career opportunities.



Since our founding in 2009, by a group of entrepreneurs whose goal was to inspire students to pursue STEM subjects, S2S has served approximately 15,000 students and used more than 1,000 scientific professionals as volunteer mentors and instructors, consistently achieving a success rate of greater-than-25% measurable increase in the affinity for pursuing STEM subjects by participating students. Approximately 65% of the students served by S2S come from schools located in underserved school districts, formally known as New Jersey School Development Authority Districts (SDA).

In its seven years of operation, S2S has evolved to meet many needs:

- We provide our young people with 21st century career readiness skills and help meet the anticipated career needs of New Jersey. By 2018, New Jersey will rank 12th in STEM employment in the US and will need to fill 270,000 STEM jobs. (Research Development Council of NJ).
- We offer programs that provide hands-on STEM experience while meeting curriculum requirements. A special challenge facing New Jersey school districts are the new science standards aka Next Generation Science Standards. S2S can assist schools with compliance to these standards by:
 - Offering a curriculum that promotes or relates to career opportunities;
 - Educating via hands-on work that uses inquiry-based, research-driven methods;
 - Assisting teachers in their classrooms to meet the new standards and training them on the use of hands-on science experiments, thus improving their teaching practices;
 - Providing interaction with the private sector through our staff, mentors and instructors;
 - Employing best practices that can be replicated by teachers in all subjects and activities.
- We build the capacity of schools by offering professional development for teachers including content expertise, training, problem solving, how-to videos and in-class support.
- We offer great opportunities for employee engagement, which has become a significant factor over the past seven years. Corporate volunteers are enriched by their time with us as they experience teamwork, mentor the students, and spend rewarding time in the lab. Employers benefit through employee satisfaction and retention, two acknowledged benefits of employee engagement programs. Students, many for the first time, are provided with role models in scientific fields who are willing to answer questions about their education and careers.

Why is STEM Education Important?

According to McKinsey & Company, we are in the midst of "...two related global crises: high levels of youth unemployment and a shortage of people with critical job skills ... [Youth unemployment] represents not just a gigantic pool of untapped talent; it is also a source of social unrest and individual despair. Paradoxically, there is a critical skills shortage at the same time."

The number of U.S. companies reporting difficulty in filling positions because of a lack of skills grew from 14% in 2010 to almost 40% only three years later. Sixty percent of U.S. businesses report difficulty in filling technical positions. The situation is especially acute in New Jersey. By 2018, NJ is expected to rank 12th in STEM employment in the U.S. and have 270,000 STEM jobs to fill. S2S addresses these issues by encouraging youth to pursue meaningful careers in the skilled sector and by providing them with 21st century workforce skills.

Our Solution

S2S provides authentic, hands-on STEM laboratory experiences, complete with sophisticated instruments and professional scientists. The S2S Technology Center in East Hanover, New Jersey, houses approximately 5,000 sq. feet of commercial laboratory space equipped with approximately \$4 million of laboratory instrumentation to perform wet chemistry, organic chemistry, chromatography, spectroscopy, biology, botany, biotechnology, ecology, environmental science, computer science, engineering, and robotics. We have developed three innovative programs for accomplishing our mission:

1. The ISAAC Program (**I**mproving **S**tudent **A**ffinity and **A**ptitude for **C**areers in STEM), conducted at the S2S Technology Center in East Hanover, New Jersey
2. The Virtual Laboratory (V-Lab Program)
3. Enrichment Programs

The Students 2 Science Theory of Change: A National Model

- *In order for our nation to compete in a global economy we need to increase the number of students who graduate from college and pursue STEM careers. Beginning STEM exposure in elementary school is critical to our long term success for our students.*
- *STEM education programs in the country are dramatically under-resourced, particularly in communities of poverty.*
- *According to the National Science Board, test scores for U.S. students in STEM subjects drop rapidly after 8th grade. By the end of 12th grade, our students' proficiency in STEM subjects is below the average of other industrialized nations.*
- *The S2S ISAAC program inspires, motivates, and educates middle school students to pursue STEM in high school and learn through career exploration and project-based learning.*
- *90% of high school students surveyed expressed interest in STEM. Our objective is to make career alternatives and their earning potential clear, so students continue on the path to receive STEM certificates and post-secondary degrees in STEM fields.*
- *The S2S V-Lab is designed to meet our ISAAC objectives, while shifting needed support to educators where our technical assistance and professional development provide rigorous supplemental programs that assist elementary, middle, and high school teachers.*

The ISAAC Program (Improving Student Affinity and Aptitude for Careers in STEM)

In our ISAAC program, middle and high school students have the opportunity to participate in multiple visits to the S2S Technology Center to maximize impact and develop practical skills. Students conduct rigorous, age-appropriate experiments designed to reinforce State and Federal core curriculum standards. They are also provided with coaching and mentoring - all students work alongside successful scientists and technical entrepreneurs, many with PhDs.

The *ISAAC Middle School Program* is designed to:

- Engage middle school students with three visits to our S2S Technology Center over the course of a school year.
- Offer the opportunity to perform challenging and age-appropriate experiments (4 per day) using scientific methods to solve contemporary problems. S2S uses analytical chemistry to introduce students to a wide variety of STEM disciplines and careers. The three major topics covered during the visits are matter, solutions, and separations. Specific examples include exploring the world of product development and formulations as students develop their own sunscreen and test them versus commercially available products. Additionally, students experience a life in the day of an environmental scientist as they test samples of beach sand to determine the impact of the oil spill in the Gulf of Mexico.
- Create excitement in students as they work in an authentic laboratory environment and are provided with a clear vision of a great career opportunity. According to their teachers, these students are much more likely to participate in class, complete homework assignments and prepare for tests after participating in the ISAAC program.



The *ISAAC High School Program* is designed to:

- Engage high school students in highly technical one-day experiences, e.g., the Pharmaceutical Day Program, which presents students with a challenge to confirm and identify contaminants in an over-the-counter drug.
- Offer future opportunities to take part in programs in forensics, bio-technology, engineering, and computer science, among others.
- Present career alternatives and make their earning potential clear, so students continue on the path to higher education and careers in STEM fields.

ISAAC Participants

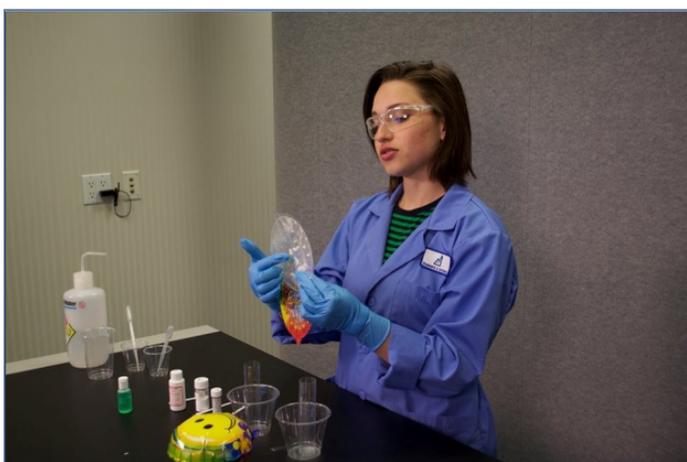
The 2015-2016 academic year saw 92 individual school visits and 3,150 student visits to the S2S Technology Center. Participating schools were:

Participating Schools	Number of Students
BRICK Academy - Avon & Peshine (Newark)	96
Central Bucks West High School (Pennsylvania)	27
Charles Boehm Middle School (Pennsbury, PA)	46
David Brearley Middle School (Kennilworth)	53
Discovery Charter School (Newark)	93
East Hanover Middle School	221
Girls' Academy of Newark	77
Great Oaks Charter School (Newark)	114

Green Hills School	127
Grover Cleveland Middle School (Caldwell)	140
Henry Hudson Regional School (Tri-District)	55
High Tech High School (North Bergen)	159
Irvington High School	56
Kennilworth High School	32
Link Community School (Newark)	104
Maria L. Varisco-Rogers Charter School (Newark)	107
McManus Middle School (Linden)	40
Newark Preparatory Charter School	93
Newark Science Park High School	173
North Penn High School (Pennsylvania)	32
North Penn Middle School (Pennsylvania)	94
Paterson Charter School for Science	234
Pennsbury High School (Pennsylvania)	64
Pennwood Middle School (Pennsylvania)	43
Quitman Street School (Newark)	129
Rae Kushner Yeshiva (Livingston)	48
Scotch Plains High School	59
Park & Terril Middle Schools (Scotch Plains)	107
Soehl Middle School (Linden)	40
Union Avenue Middle School (Irvington)	112
Union City High School for Enrichment & Adv.	50
Union County TEAMS Charter	123
University Heights Charter School (Newark)	47
University Middle School-Irvington	110
William Penn School (Pennsylvania)	45

Virtual Laboratory (V-Lab) Program

Our V-Lab program was designed to eliminate the geographic and language constraints of the ISAAC program, broadening our reach to serve a wider audience. S2S is no longer limited to those students, teachers, and volunteers who reside within commuting distance of the Technology Center in East Hanover. V-Lab gives us the means to expand our services nationally and globally, and to impact significantly the lives of thousands more students. S2S continues to demonstrate what is possible by making these offerings available to all students, including children with special needs.



S2S, in partnership with Connectivity, Inc., and in collaboration with the American Chemical Society, has developed a fully interactive, web-based, hybrid,

distance-based learning program to support elementary, middle and high school science curricula. The V-Lab program uses Connectivity's proprietary communications platform to enable students (grades 4-12) in their classrooms or non-traditional settings and the S2S Technology Center to *simultaneously* conduct a series of supplemental, age-appropriate, hands-on science experiments. Volunteer professionals provide in-class mentoring and instruction. S2S provides the kits and recruits local STEM professionals through its network of supporting

corporations. Teachers are supported by this program in their efforts to present core curriculum subjects. S2S provides training and technical assistance to the educators, in order to support rigorous science offerings. S2S maximizes the value of the V-Lab program by ensuring that it is both sustainable and cost-effective. Our experiment kits can be used one time, after which there remain sufficient materials for additional 2 or 3 sessions (approximately 26 students per session). The price per session goes down with the number of refills and number of sessions; efficiencies such as these bring the cost down from \$150 per session to approximately \$20 - \$25 per session, or less than \$1.00 per-student. In addition, S2S provides the invaluable services of training and technical assistance to teachers with lesson plans and how-to videos.



To keep our V-Lab work timely and relevant, our V-Lab team will, over the summer, develop, test, and modify new experiments in fields such as biology, physics, chemistry, engineering, materials science/polymer, and biotechnology. Each experiment will target specific careers in areas such as biotechnology, pharmaceutical sciences, forensics, chemistry, electrical and chemical engineering, material science, and consumer products development.

V-Lab Participants

During the 2015-2016 academic year, in its first full-year of implementation, we served 2,006 students through 101 V-Lab sessions. Among them were four special education classes (with a total of 88 students) and a children’s hospital (17 children at the Pediatric Oncology Department at the Joseph M. Sanzari Children's Hospital). Planning for 2016-2017 includes expansion to 400-500 sessions, serving 10,000 to 13,000 students and teachers. Participants in our 2015-2016 academic year were:

Participant Name	Number of Students
ACE - Alternative Center for Education (Rahway)	19
Atlantic Highlands Elementary School (Tri-District)	124
Bear Tavern Elementary School (Hopewell Valley)	38
Berkeley Terrace Elementary School (Irvington)	70
Brick Avon Academy (Newark)	13
Brick Peshine Academy (Newark)	16
David Brearley High School (Kenilworth)	61
David Brearley Middle School (Kenilworth)	50
Florence Avenue School (Irvington)	86
Franklin Elementary School (Rahway)	197
Girls Academy of Newark	108
Great Oaks Charter School (Newark)	50
Harding Elementary School (Kenilworth)	230
Henry Hudson Regional School (Tri-District)	163
Highlands Elementary School (Tri-District)	118
Hillsborough High School	62
Irvington High School	28
Joseph M. Sanzari Children's Hospital (Hackensack)	17

Jr. CDP	14
Memorial Junior School (Hanover)	95
Montgomery High School (Skillman)	7
New Brunswick High School	54
Rahway High School (Rahway)	120
Roosevelt Elementary School (Rahway)	68
Science Park High School (Newark)	63
South Brunswick High School	54
Technology High School (Newark)	21
Union Avenue Middle School (Irvington)	40

Enrichment Programs

Internships

S2S offers internships to high school and college students in order to develop meaningful and relevant experiments, communicate effectively across multi generations, and contemporize our offerings. This year 7 high school and college students developed experiments to support our new biotechnology day, which will be offered in Spring 2017, as well as 7 new V-Lab experiments, which will be piloted during the 2016-2017 school year. In addition, five students from Stevens Institute created a social media campaign, increasing our offerings on Facebook, LinkedIn and Twitter.

STEM Advocacy

"S2S: The Salon"

As STEM advocates and champions, S2S created a new forum for diverse stakeholders to gather and dialogue about science as a catalyst for how we make informed decisions on a community and global level. Leadership and speakers included innovators and visionaries from academia, non-profit, public policy, grass root membership and corporations.

Speakers and topics included:

- Evo Popoff, Chief Innovation Officer, NJ Department of Education
"STEM Education, Is it a priority for all?"
- Debbie Hart, President and CEO, BioNJ
Dean Paranicas, President and CEO, HealthCare Institute of New Jersey
"Science and Innovation: Why Does It Matter to You and to New Jersey"

These events were moderated by Hans Dekker, President, Community Foundation of New Jersey, and attended by over 100 community leaders.

Program Effectiveness

To gauge the impact of ISAAC and the V-Lab programs on fulfilling the S2S objectives, the following are measured: 1) increased affinity for STEM after participation; 2) likelihood of pursuing a STEM career; 3) improvement in subject matter test scores; and 4) enjoyment and appreciation of the program. S2S also tracks the number of students hosted, volunteers employed, demographics, and participating schools. The effectiveness of the programs has been continually evaluated using teacher surveys, student surveys, and in-class proficiency testing prior to and after the program.

ISAAC Program 2015-2016 - Highlights from our teacher and student surveys this year are as follows:

- Teacher surveys:
 - 88% said the S2S experience was effective in achieving the goals of inspiring, motivating and educating students to further pursue STEM subjects and careers.

- 96% said the experience supported the classroom
- 100% said it supported NJ Core Curriculum Content.
- 98% said they are recommending S2S to their colleagues and would like to return with future classes.
- Middle school student surveys:
 - 82% of all students said they would like to return for a new set of experiments.
 - 42% of students exhibited a measurable increase in affinity for a career in STEM.
- High school student surveys: Our data indicates that >90% of all the attendees had an interest in pursuing a career in STEM prior to their visit. Our goal was to increase their knowledge of career opportunities in specific fields. Our ISAAC program focused on careers in the Pharmaceutical Sciences and Organic Chemistry this year with the following results:
 - 86% of all high school students had little to no knowledge of what a scientist in the pharmaceutical industry or what an organic chemist does prior to their visit to S2S. After the visit, 81% of the students demonstrated an increase in their knowledge in these fields.
- Proficiency Testing:
 - For middle school students, the average score on the quizzes increased 28% for all students over the three visits. 53% of students who took both quizzes over the three visits increased their score.
 - For high school students, there was a 36% increase in proficiency of subject matter scores and 54% of the students showed a positive change.

V-Lab Program 2015-2016 - Our V-Lab teacher surveys indicate:

- 93% stated that the students were engaged in the experiment.
- 98% said that it was age appropriate.
- 84% said the experiment supported the classroom curriculum.
- 98% said the in-class mentors related the material to real world experiences.
- 95% stated that it is a valuable teaching experience and would consider using this tool again in the future.
- 98% would recommend the program to a colleague.
- 91% would run the experiment on their own in the future.

Here are some comments we received from participants in both our programs:

- *“Students2Science program has opened up the world for my scholars. Because of very limited resources in my classroom, I am not able to engage them in the level the extremely talented volunteers at the program can. For weeks, all the scholars raved about what they learned at the program. I see a direct correlation with enthusiasm in class and attending the program.”* - Debra Cho, 9th Grade Biology Teacher, Newark Prep Charter School
- *“Being able to work with the students in their own classroom was a wonderful experience made possible by the V-lab technology. The students really enjoyed the work and learned more by working in small groups with active scientists right there with them. This program has real benefits for students, educators and volunteers. I am much closer to my colleagues, and we form a stronger team through our participation in S2S.”* - Elizabeth Galella, Volunteer from Bristol-Myers Squibb
- *“Students 2 Science is creating a pipeline of STEM volunteer mentors by collaborating with major pharmaceuticals, technology and instrument manufacturers within the state of New Jersey. We believe this organization has global potential to support student’s learning.”* - Karnel Walker, OEM Business Development Leader, Thermo Scientific; Member, African Heritage Employee Resource Group for Diversity and Inclusion Programs

Communities Served

While all students benefit from the experience and guidance we provide through our ISAAC and V-Lab programs, we focus primarily on those who most need our assistance, and on those who are least likely to receive such an experience. Because we are strategically located in north-central New Jersey, within commuting distance of 31 School Development Authority Districts such as Newark, Paterson, Irvington, North Bergen, and Union City, we are able to reach these disadvantaged students and as a result they comprise approximately 63% of our population. Technical schools, suburban schools, and charter schools are also represented in our population and help to provide us with differing perspectives. In addition to the students, we also host their teachers, and have had stellar results working with them as they acquire first-hand knowledge of the practical application of STEM concepts.

Community Support: The community recognizes the value of the S2S Program, supporting us with funding, supplies and volunteers.

Cash Donations

Corporations.....\$1,728,719

- 3M
- AAI Pharma
- AC Services
- Amega Scientific
- Amicus Therapeutics, Inc.
- Ashland, Inc.
- Barr Laboratories
- Bayer Corporation
- BASF, Inc.
- Becton Dickenson
- Benjamin Moore & CoBIONJ
- Bristol Meyers Squibb Corporation
- Belmay, Inc.
- CA, Inc.
- Celgene
- Daiichi Sankyo, Inc.
- Dow Chemical Corporations
- Environmental Compliance & Control
- Exxon Mobil
- Fox Valve Corporation
- Gas Management Systems Inc.
- Goldman Sachs & Co.
- Ikaria
- J. L Schiffman & Co
- JP Morgan Chase & Co.
- Kirkpatrick Group, LLC
- LifeCell Corporation
- Merck
- Novartis
- Novo Nordisk Corporation
- PDI, Inc
- PerkinElmer, Inc.
- Pfizer
- Planet Argon
- PolyGel
- Pricewaterhouse Coopers, LLP
- Prudential
- PSEG
- Snap VRS
- Staples
- The TAO Reinsurance Company
- Thermo Fisher Scientific
- Wei East, Inc.
- Whitehouse Analytical Laboratories
- Viscot Medical, LLC

Foundations.....\$532,189

- Amazon Smile Foundation
- Bacon Winslow Family Trust
- Belmay Family Foundation
- Bodman Foundation
- Camille & Henry Dreyfus Foundation
- Diversity Alliance for Science
- Doss Family Charitable Foundation
- Ena Zucchi Charitable Trust
- Ferry Family Helping Hands Foundation
- George A. Ohl Charitable Trust
- Green Township PTA
- Henrietta McPherson Fund
- John Whitehead Fund
- Merck Foundation
- Mountaintop Foundation, Inc.
- NJC Education Foundation
- Pfizer Foundation
- Provident Bank Foundation
- Rita Allen Foundation
- Staples Foundation
- The Bayview Foundation
- The Meyer Family Foundation
- The Hyde and Watson Foundation
- The Victoria Foundation

Individuals.....\$327,134

Gifts in Kind:

Capital Assets.....\$1,744,738

- Airgas
- Avaya, Inc.
- Becton Dickenson
- Brad-Pak Enterprises, Inc.
- Connectivity
- Daiichi Sankyo
- Dow Chemical Company
- Edmund Optics
- Eppendorf North America
- Erlab Group
- Gerhart
- Intertek Corporation
- Happy Chef
- Jaece Industries, Inc.
- J-Kem
- Johnson & Johnson
- Kean University
- National Marketing
- Net Property Group
- Novartis
- PerkinElmer, Inc.
- Pfizer
- Phenomenex
- Products Abroad
- Roche USA
- Sartorius
- Snap VRS
- Scientific Machine
- Teva Pharmaceuticals
- Thermo Fisher Scientific
- Thomas Edison Foundation
- Worlwide Glass Resources, Inc.

Professional Services.....\$726,790

- AC Services
- Brennan & Co
- Caresoft IT Services
- Carollo & Meo
- Carway Communications
- Commerce Park
- Connectivity
- Custom Electric Design LLC
- Distek, Inc.
- Elm City Productions
- Gerhart Service
- Intertek Corporation
- Jannone Complete Heating & Plumbing
- Linders French Cleaners
- LinkedIn
- Long Electri-Mechanical, Inc.
- Mario & Yvonne Accumanno
- Mr. Charles Risko
- Mr. John Bell
- Mr. Robert Johnson
- Mr. Robert McAnally
- PAI Architects
- PerkinElmer, Inc.
- Pfizer
- Ravenwood Photographic
- Sills Cummis
- Somerset Hills Refrigeration

Total Contributions through 2015: \$5,059,570

Volunteer STEM Professionals

S2S is made possible by the generous contributions of its many volunteers. STEM professionals from the community and local corporations volunteer to work side-by-side with our young students providing them with support, inspiration, motivation and career advice. Our volunteers, by definition, bring positive and generous attitude to the students in our programs. This positive attitude and affinity of the subject matter is the very essence of S2S as an organization. One of our primary goals is to promote enthusiasm for STEM careers.



We are very thankful to all of our volunteer STEM professionals – we had 341 volunteers who provided approximately 1160 volunteer days in the 2015-2016 academic year. STEM professionals who volunteer to work with the students do so as Mentors, Assistant Lab Instructors, and V-Lab Volunteers. Our volunteers come from many sources, practicing STEM Professionals, retired scientists and scientists-in-transition, teachers, interested community leaders and STEM advocates.

The S2S Corporate Volunteer Program provides corporate sponsors with high quality, professional volunteer assignments. Corporations provide teams of 4 to 13 professionals to serve as volunteers for single or multiple days during the school year. Each volunteer accepts a role, and promotes their profession and their corporate employer by providing encouragement and support to the students. Students benefit by seeing a clear pathway to a professional lifestyle. Corporate officers value the highly visible community involvement and recognize the importance of improving the competency of future employees. In fact, corporate officers have recognized that sending teams of professionals as volunteers improves corporate morale as their employees describe how their work benefits the community. Our partners in the Corporate Volunteer Program include Alcami, Becton Dickinson, Benjamin Moore, Bristol Meyers Squibb, Celgene, Daiichi Sankyo, Givaudan, International Fragrance and Flavors, Ferring Pharmaceutical, Merck, Novartis, Perkin Elmer, Teva Pharmaceutical, Thermo Fisher Scientific and others.

For STEM professionals who are actively seeking new employment, volunteering is a highly supportive activity, as it provides both emotional support and networking opportunities. Volunteering at S2S reminds them of the value they bring to the community and provides them with a positive activity during this period of transition. They find renewed dignity and vigor as they continue their job search. Many of these scientists return to school to become retrained, and in fact, many decide that teaching is a rewarding career path. The ACS (American Chemical Society) and BioNJ have both endorsed the S2S Corporate Volunteer Program.

For teachers, it serves as professional development, with 6 hours in observation serving as Assistant Instructors in the laboratory. It demonstrates Next Generation Science standards, including problem- and project-based learning, and helps teachers move their confidence and skills forwards.

Expansion Plans

The demand for participation at S2S far exceeds our current capacity. We are continuously seeking new ways to improve and expand our capacity to better serve the needs of students and teachers. Highlights from our expansion plans in the near future include:



- *Newark Partnership*

- S2S, the City of Newark, and Newark Public Schools have embarked on a remarkable new partnership to take our services district-wide and reach over 35,000 Newark students in the next 5 years. The focal point of this new venture (an \$8 million capital campaign) would be a S2S sister site of 10,000 square feet in downtown Newark – a technology center outfitted with four million dollars of state-of-the-art commercial equipment. This innovative, collaborative project will receive program expertise and in-kind donations of equipment from S2S. Financing for the project will come from a diversified funding stream from a combination of public and private funders.
- S2S has consistently demonstrated a strong commitment to Newark Public Schools - approximately 40% of all students currently served by S2S are from Newark. This new partnership with Newark Public Schools highlights the next phase of our commitment to bring innovative STEM education to all Newark students. Through this project, we will be able to provide district-wide live and virtual labs, offering students in elementary, middle and high school the opportunity to do hands-on, project-based learning with PhD scientists. We will also provide professional development and technical assistance for teachers in STEM. Both in-lab and in-class instruction will include mentoring, teacher support, and rigorous science education compatible with the NextGen Science standards.
- The significant public and private investment in this project underscores the critical need to make STEM and hands-on learning a priority for all of Newark's students.
- Private investment and support for this project is demonstrated by the fact that the state-of-the-art four million dollars' worth equipment and instrumentation in our Newark laboratory will be donated by New Jersey's leaders in pharmaceuticals, bio-technology and chemical manufacturing.
- This project will bring live and virtually-delivered science instruction to over 35,000 students throughout the City of Newark.
- We will implement a district-wide, highly interactive, communication platform which enhances teacher-to-teacher, teacher-to-parent, and teacher-to-student interaction. The platform will facilitate professional development and provide improved technical assistance for teachers district-wide.
- This innovative platform will further allow the district to leverage its significant investment in IT hardware and infrastructure to allow students and teachers access to any educational content and subject matter experts anytime, from anywhere in the world. The Connectivity platform is available in over 200 spoken languages with interpreters on demand.
- S2S has been called a national model for building STEM ecosystems in New Jersey. The goal of this partnership is to bring our considerable expertise in hands-on STEM education to Newark and to expose Newark students to rigorous science learning opportunities and to authentic, high-demand STEM careers. Our goal is to make an early impact on students by connecting with them in elementary schools and to continue to build on that experience through high school. By making STEM education and 21st century technical skill development a priority in Newark, we will ensure that Newark's children are part of the dialogue and future workforce of the state.

- *Going Forward:*
 - Over the next year, S2S will add the following program content:
 - The ISAAC program will develop and implement a new Biotechnology High School Day.
 - The V-Lab program plans to develop and pilot approximately 8 new experiments to support elementary, middle and high school students.
 - Increase our V-Lab program to 400-500 sessions per year, impacting over 10,000-13,000 students and hundreds more teachers as well as administrators.
 - Pilot the V-Lab in non-traditional settings such as the Boys and Girls Club, Boy Scouts of America, and Girl Scouts.
 - Rollout an integrated Employee Engagement and Volunteer program.
 - Launch a new website to better service teachers, volunteers and STEM leaders globally.
 - Continue to promote and encourage the development of STEM Ecosystems by working with diverse leaders including innovators and visionaries from academia, non-profit, public policy, grass root membership and corporations.
 - Develop best practices and curriculum aligned to Next Generation Science standards.
 - Create a culture of excitement and passion around science!

With the continued support of our volunteers, corporate partners, foundations, and like-minded individuals, we are confident that we will achieve these objectives and improve scientific literacy throughout the United States.

For more information, go to www.students2science.org and follow us on Facebook and LinkedIn.



Paul Winslow, PhD
President, Students 2 Science, Inc.