

Request to: Framingham State University Nonprofit Giving Course – March 21, 2016

Organization Name: Citizen Schools

Project Name: Erasing the Economic Opportunity Divide through Science, Technology, Engineering, and Math (STEM) Learning in Boston in 2015-16

Introduction

Access to learning opportunities, to mentors, and to experiences of success is alarmingly and increasingly stratified by family income. By the time they reach sixth grade, middle-class children have spent 6,000 more hours learning than children born into poverty — differences in time spent reading with their parents, attending preschool, and participating in extracurricular activities, summer programs, and field trips (ExpandedEDSchools by TASC). This opportunity gap – originating primarily outside of the formal school system – drives troubling and growing disparities in outcomes. More than a million young people fail to graduate from high school each year, and more than 20% of those who enroll in college require remediation (Institute of Education Sciences, 2013). Although three million STEM job openings are expected by 2018, less than 3% of African Americans and Latinos earn a degree in the natural sciences by age 24 (Maltese and Tai, 2011; NAS, 2010).

The path to the workforce begins in the middle grades. Concrete goals can inspire achievement; 8th grade students who believe that their desired career requires a college education are more likely to complete college, and students who express interest in a STEM career at this age are more likely to graduate with a STEM degree (Bedsworth, Colby, and Doctor 2006; Tai et al. 2006). On the other hand, students who go off track in middle school often struggle to recover; 6th grade students who attended school less than 80% of the time, received a poor final behavior mark, or failed math or English had less than a 25% chance of graduating from high school (Balfanz 2009).

Citizen Schools partners with public schools to set students in grades 5-8 on a path to success in high school, college, and the workforce. Our expanded day programs add more than 400 hours to the school year through a proven combination of hands-on, career-oriented apprenticeships led by volunteers; targeted academic support; and college and career readiness programming in order to equip students with the skills, motivation, and community connections that drive long-term success. Our educators and ordinary citizens create extraordinary enrichment and academic opportunities to:

- Increase students’ access to mentors, professional networks, and career pathways
- Develop essential academic, 21st-century, and social-emotional learning skills
- Foster students’ belief in education and in their own ability to succeed
- Build a skilled pipeline of scientists, engineers, mathematicians, and technology professionals to fill the national gap in qualified STEM professions

Citizen Schools respectfully and enthusiastically requests \$10,000 in support of its STEM programming designed to help middle school students in Boston and Chelsea discover and achieve their dreams.



Organizational Overview

In the 2015-16 academic year, Citizen Schools Massachusetts is serving 1,376 students at six partner schools: the Edwards Middle School in Charlestown, MA; the Joseph Browne School and the Wright Middle School in Chelsea, MA; the McCormack Middle School and the Trotter Innovation School in Dorchester, MA; and the Orchard Gardens K-8 School in Roxbury, MA. As a transformative partner to high-need schools for more than 20 years, Citizen Schools multiplies the talent available in the building with its “second shift” of carefully selected, trained, and supported staff, AmeriCorps members, and volunteers, who lead small teams of students through a coordinated set of program elements including:

- *Apprenticeships:* Apprenticeships are the centerpiece of Citizen Schools’ Expanded Learning Time (ELT) model, delivering high-quality, project-based learning and career exposure in finance, technology, law, business, and the arts. Working alongside volunteer experts, called “Citizen Teachers”, students complete hands-on projects that provide exposure to potential careers and reinforce core skills in a real-world context.
- *Academic Support:* Through dedicated homework time and daily math or literacy lessons aligned with Common Core standards, Citizen Schools’ academic support offers students more time to practice essential academic skills and more personalized assistance in reaching and exceeding proficiency standards.
- *College and Career Programming:* College and career readiness are explicit goals for all Citizen Schools students. For our rising 9th graders, Citizen Schools offers 8th Grade Academy (8GA), which focuses on successful middle school to high school transition, critical for at-risk students to have a fair chance at graduating from high school and getting into college.

Our primary front-line educators are Teaching Fellows, AmeriCorps members serving with Citizen Schools for two years. Most Teaching Fellows are recent college graduates with distinguished records of achievement and leadership. More than 50% are people of color and more than 40% are first-generation college students. Fellows receive extensive training and professional development, including more than three weeks of pre-launch summer training focused on preparing for the first six weeks of program and monthly in-service training during the school year. Teaching Fellows are managed by Campus Directors, experienced educators who oversee operations at a school site. Campus Directors provide extensive coaching, including through five annual rounds of observations, ratings, and feedback aligned to Citizen Schools’ Instructional Rubric, which is designed to reflect a developmental arc typical of novice teachers. Both Campus Directors and Teaching Fellows are based at partner schools for the full day, allowing them to collaborate closely with school leaders, teachers, counselors, and other staff in order to coordinate instruction (such as selecting focus standards for Citizen Schools academic support), identify the needs of individual students, and engage families.

Program Overview

Citizen Schools has a special focus on STEM (science, technology, engineering, and math) and features academic support in math as well as field trips to colleges, universities, and workplaces that encourage students to envision careers in STEM. Citizen Schools’ unique “apprenticeships” are the highlight of its STEM programming. In apprenticeships, students explore new fields and career opportunities alongside community volunteers who share what they know and love through project-based learning.



Claire Chazen, a Citizen Teacher at the Browne School in Chelsea, described the impact of a computer coding apprenticeship on one of her students: “During one of the first sessions the children were given a tour around the [Wayfair] office. Walking next to me, [Joanna] commented on how inspiring it was to see people working so hard, and that one day she hoped to have a job that allowed her to work as hard as the people she was observing. I got chills. A 10-year-old with the insight and ambition to make such a comment is exactly why I do what I do.”

Working with Citizen Teachers (and with crucial support provided by AmeriCorps members), students have researched astrophysics, refurbished computers, studied human brains, designed solar cars, created hot air balloons to study astrophysics, built Lego robots, developed websites, advised their schools on reducing their carbon footprints, and constructed model solar systems. Students have worked with technology experts, marine biologists, university researchers, neuroscientists, and engineers. The skills learned in these hands-on lessons — to hypothesize, imagine, design, collect and analyze data, give and take feedback, strive, and persevere — are the same skills students need in order to succeed in school and to grow as young leaders. Each apprenticeship culminates in a public celebration of learning known as a WOW!, where students have the opportunity to “teach back” what they have learned to their community. For example, in Ice Cream, You Scream, students practice generating and testing hypotheses and learn about the chemistry behind their favorite foods as they make cheese, butter, and ice cream. For their WOW!, students make a video exposing the science behind food – and serve ice cream to community members as they explain how they used scientific methods to perfect their recipe.

Students choose four apprenticeships annually, and each apprenticeship is comprised of eleven 90-minute sessions. In 2015-16, Citizen Schools is offering 222 apprenticeships, 48% of which are in STEM fields, including Robotics with Verizon, Design Thinking with Athena Health, and Codes, Games, and Magic with Google.

Uniqueness and Track Record

Citizen Schools works intensively with middle school students, and our program model is closely aligned with their developmental needs. We help to close a gap, sometimes called “the missing middle,” between efforts focused on school readiness for young children and programs aimed at drop-out prevention or college access for high school students. By focusing on the middle school age group, we capitalize on this critical developmental period and inflection point, effectively setting students’ sights on high school graduation and college matriculation, while building their skills and networks so that they can reach those goals.

Citizen Schools’ core insight is that the resources to close the opportunity gap exist in our communities, but an infrastructure connecting them to young people does not. Without this infrastructure, a student may grow up in Roxbury, down the street from the power centers of Cambridge, without ever meeting a software developer, visiting a technology company, or setting foot on the campus of a university offering computer science degrees. By partnering with public schools, Citizen Schools seeks to make access to inspiring adults and sufficient learning time universal, rather than dependent on personal networks or parental resources.

Citizen Schools embraces accountability and has facilitated multiple internal and external evaluations to verify its impact. A longitudinal study completed by Policy Studies Associates in 2010 and an ongoing evaluation to be



completed in 2016 by Abt Associates show that Citizen Schools' programming results in accelerated academic gains and a clearer path to real-world skills and economic opportunity. Our participants are:

- Gaining three additional months of learning in math for each year of Citizen Schools participation
- 2x more likely to participate in college and career activities than matched peers
- 2.5x more likely to express interest in STEM careers than students nationally
- 2x more likely to select a college-track high school than matched peers
- Mastering 21st-century skills at the rate of 68% of students (in the 2014–2015 school year)
- Graduating from high school on time at a rate of 71%, compared to 59% of matched peers
- Enrolling in college at a rate of 67%, compared to 45% of low-income students nationally

Sustainability

Citizen Schools is always striving to receive funding from diverse sources including government, corporations, individual donors, and foundations. Citizen Schools Massachusetts is fortunate to be the recipient of many national grants in addition to our regional support. Our top funders include but are not limited to AmeriCorps, the Edna McConnell Clark Foundation, Atlantic Philanthropies, Boston Public Schools, Fidelity Investments, the Wallace Foundation, and the John S. and James L. Knight Foundation. Currently, approximately 10% of our budget is funded by individuals. In order to further ensure sustainability, Citizen Schools' Chief Growth Officer, Pat Kirby, along with other members of our national leadership team have developed a set of targeted strategies to reduce our per pupil expenditures. The effort focuses on leveraging funding that Citizen Schools garners from public resources while simultaneously containing programmatic costs. In 2006-07, the first year we supported an Extended Learning Time model comparable to today's, our program cost approximately \$3,800 per student. This year, our cost per enrollment (CPE) equaled \$2,220, a dramatic reduction. Through the sustainability plan, Citizen Schools will reduce the CPE to approximately \$2,000 by the 2016-17 school year.

Citizen Schools has a record of growth with quality, having increased national enrollment by 20% annually since 2006 while replicating core program elements with fidelity (according to a 2010 study) and maintaining impact. Next year, Citizen Schools Massachusetts will expand to serve 27% more students and offer 35% more apprenticeships. In partnership with the Chelsea Public School district and Superintendent Mary Bourque, Citizen Schools will significantly scale Expanded Learning Time in Chelsea over the next three years with a goal to ultimately serve ***all*** three middle schools in the district. In just the third year of our partnership with Chelsea Public Schools, we are serving over a third of all middle school students in the district. Additionally, in the next four years, Citizen Schools will continue to implement BoSTEM, an innovative partnership to provide all Boston public middle school students with a meaningful STEM learning experience by 2020. We expect to reach at least 7,000 students with a district-wide "STEM Week" in October 2016. Citizen Schools will leverage the partnerships we have with STEM-based corporations to recruit educators and mentors for this week of programming. Citizen Schools is thrilled to be a collaborator in BoSTEM alongside Boston Mayor Martin J. Walsh, Boston Public Schools Superintendent Dr. Tommy Chang, Vertex Pharmaceuticals, United Way of Massachusetts Bay and Merrimack Valley, and Boston After School & Beyond.



Program Goals and Impact Measurement

Citizen Schools has established a robust monitoring and evaluation infrastructure reflecting our commitment to achieving a significant, measurable, and long-term impact on students’ skills, attitudes, and beliefs. Our Core Program Profile captures key implementation best practices, dosage, and short-term student outcomes. Data collected through program observations, surveys, data sharing agreements with our school partners, and performance assessments that evaluate students’ mastery of 21st century skills are stored in a secure online database that supports flexible, on-demand reporting. Staff at each site and on our national Research & Evaluation team analyze data to inform program improvement and establish impact. The metrics that we have selected to measure the success of our STEM programming in 2015-16 include:

- *Student Attendance*: Objective – Students attend at high rates. Target – 90% student attendance rate in grades served by Citizen Schools.
- *Teaching Staff Excellence*: Objective: Citizen Schools teaching staff develop excellent core teaching skills. Target: 80% of rows on the Instructional Quality Rubric will be rated “Developing Proficiency” or above.
- *Apprenticeship Quality*: Objective: Citizen Schools’ apprenticeships and volunteer experiences are high quality. Target: 80% of apprenticeship experiences are rated healthy by Citizen Teachers through the Citizen Teacher Partnership Health Rubric.
- *Effective School Partnerships*: Objective: School partnerships are functioning effectively. Target: 80% of school partnerships are rated healthy by Citizen Schools campus leaders and school partners.
- *Student Growth in Proficiency*: Objective – Students show improvement in Math. Target – Obtain a Student Growth Percentile of 60+ or increase by 15 percentile points on math proficiency assessment.
- *Student Mastery of 21st Century Skills*: Objective – Students master targeted 21st century skills. Target – 70% percent of students will demonstrate mastery of 21st century skills through performance tasks related to their Apprenticeships.
- *Student Interest in STEM*: Objective – Inspire student interest in science, technology, engineering, and math through STEM-focused apprenticeships. Target – 80% of students completing one or more STEM apprenticeships report interest in a STEM career.

Conclusion

Young people who are cut off from STEM career opportunities are also cut off from an important route to economic mobility. Because of the exceptional economic potential of STEM careers, differentials in pursuit of those careers along family income and racial and ethnic lines compound persistent and broad disparities in high school graduation and post-secondary matriculation and completion. Offering every child the opportunity to explore a future in STEM is one critical strategy for addressing concerns about social mobility, inequality, and access to the American Dream.

An investment of \$10,000 would provide key support to Citizen Schools’ efforts to erase the cyclical economic opportunity gap, starting in middle school. Citizen Schools is deeply grateful for the consideration of Framingham State University’s Nonprofit Giving Course and we welcome the opportunity to answer questions and provide additional information upon request.

