

Students from Enroot, a STAR grantee, visit Biogen's community lab.



# STAR Initiative

## YEAR 1 REPORT

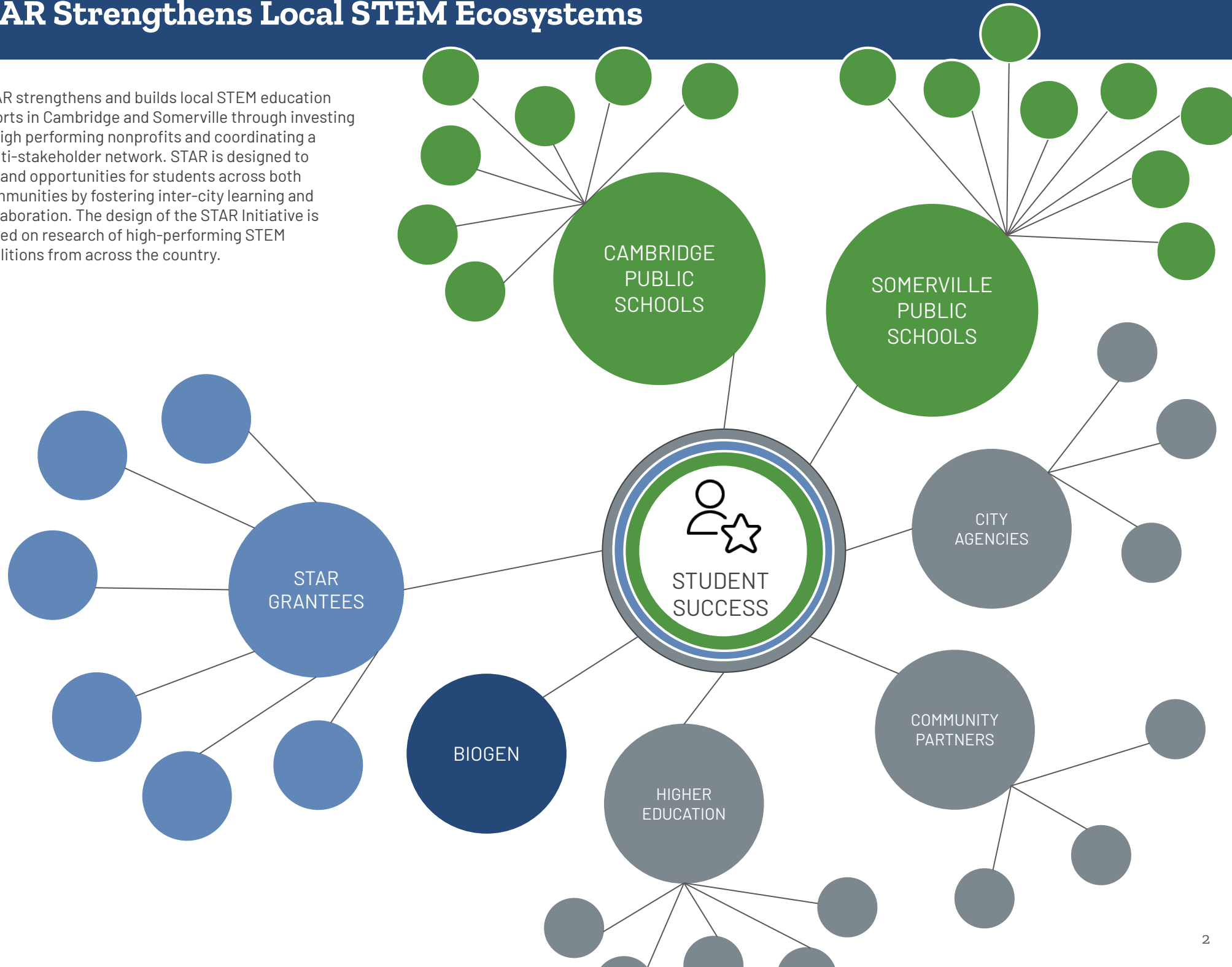
In 2018 the Biogen Foundation began a four-year, \$10M commitment to create the STAR Initiative (Science, Teacher Support, Access & Readiness).

STAR's mission is to strengthen the STEM (Science, Technology, Engineering, Math) education ecosystems for public school students in Cambridge and Somerville.

In its first year the initiative partnered with six high-performing nonprofit organizations to help them work together to expand and strengthen STEM learning opportunities for students, with a focus on serving students historically underrepresented in STEM – notably, students of color. STAR grantees launched new pilot programs, expanded their services to reach additional students, and enhanced and deepened existing programming. The STAR Initiative also established connections with local projects and programs to further grow the quality and capacity of STEM learning in the community.

# STAR Strengthens Local STEM Ecosystems

STAR strengthens and builds local STEM education efforts in Cambridge and Somerville through investing in high performing nonprofits and coordinating a multi-stakeholder network. STAR is designed to expand opportunities for students across both communities by fostering inter-city learning and collaboration. The design of the STAR Initiative is based on research of high-performing STEM coalitions from across the country.



# STAR Initiative Grantees

STAR grantees deliver programs that help prepare students for STEM education and career paths, and support STEM teacher training and curriculum development. Collectively, these six organizations serve students in middle and high schools across Cambridge and Somerville.

## GRANTEE FOCUS



TEACHER TRAINING



ACADEMIC SKILLS



YOUTH DEVELOPMENT



COLLEGE SUCCESS



CAREER SUCCESS

## ORGANIZATION

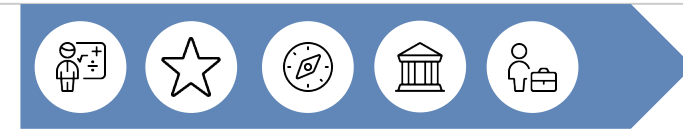
## MIDDLE SCHOOL

## HIGH SCHOOL

## COLLEGE



Breakthrough Greater Boston prepares students for success in college by providing them with academic support, including STEM subjects, from middle school through high school.



Citizen Schools closes opportunity and achievement gaps for students by expanding the school day with project-based learning; 21<sup>st</sup> century, social-emotional, and STEM skill-building; and high school, college and career preparation.



Enroot empowers immigrant youth by providing academic support, including STEM subjects, and inspiring out-of-school experiences such as internships in STEM-related businesses.



Lesley University trains teachers to increase student engagement, particularly in STEM subjects, by designing and using more hands-on learning activities with students.



uAspire ensures that all young people have the financial information and resources necessary to find an affordable path to and through college. Being in the STAR grantee network enables uAspire to better connect with and serve students interested in STEM education and career pathways.

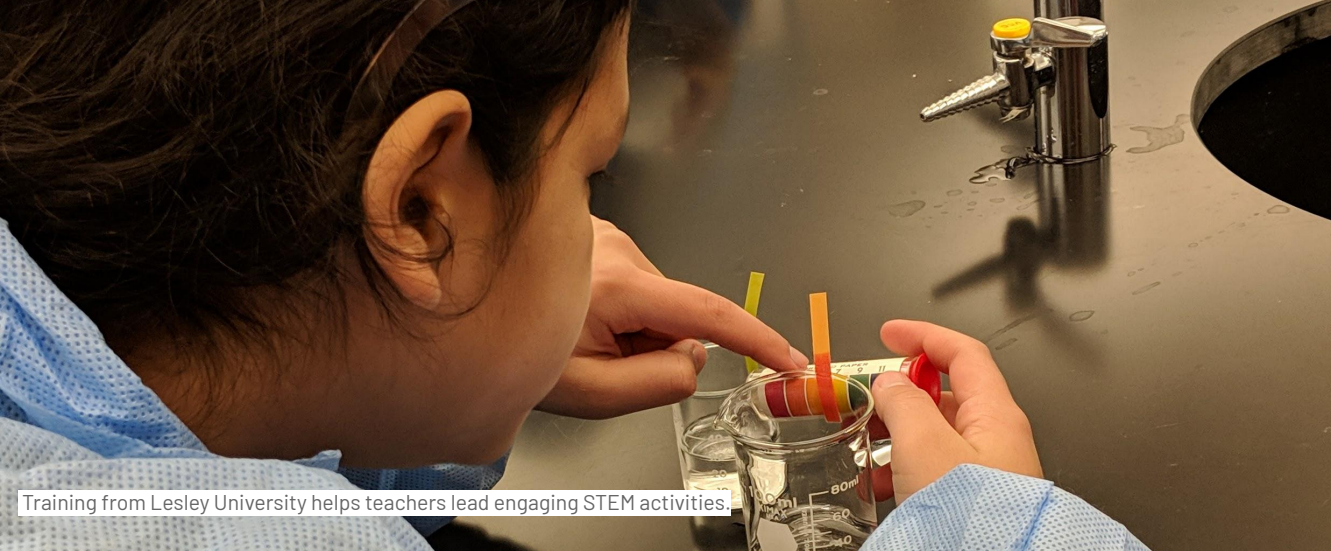


The Young People's Project uses Math Literacy Work to develop the abilities of elementary through high school students to succeed in school and in life, and in doing so involves them in efforts to eliminate institutional obstacles to their success.



\*The grantee summaries above represent portions of each grantee's work. For fuller details on their program models, please visit their websites.





Training from Lesley University helps teachers lead engaging STEM activities.

An Enroot student practices diagnosing a patient with a lung infection at the Museum of Medical History & Innovation during the Cambridge Science Festival.

## STAR Goals

## Year 1 Outcomes



- More students engage in STEM learning & activities.
- More students express an interest in pursuing STEM career pathways.



- More students are prepared to pursue a degree in STEM.
- Teachers are more confident in teaching STEM.



- Teachers lead more hands-on & experiential STEM activities.
- STAR organizations communicate & coordinate to strengthen student & teacher outcomes.
- STAR organizations align with & complement school districts' goals.

- **729 additional students** served by grantees.

- **1,541 total students** benefited from improved program quality & experiential learning.

- **Teachers** throughout Cambridge and Somerville Public Schools learned how to deploy new and enhanced STEM curricula.

- **Math teachers** in Somerville are working with Lesley University to create hands on classroom activities that support the district's new curriculum.

- STAR grantees launched **new programs** and opened **new program sites**.

- STAR grantees developed **common goals** for students and teachers participating in the STAR Initiative.

*"When we saw ... that Biogen was making such a deep investment in such an important area, we were thrilled that Somerville and Cambridge would both benefit. This really is going to help us prepare our students for a future, that we don't even know what looks like, but we do know that STEM is going to be at the center of it."*

- Mary Skipper, Superintendent, Somerville Public Schools

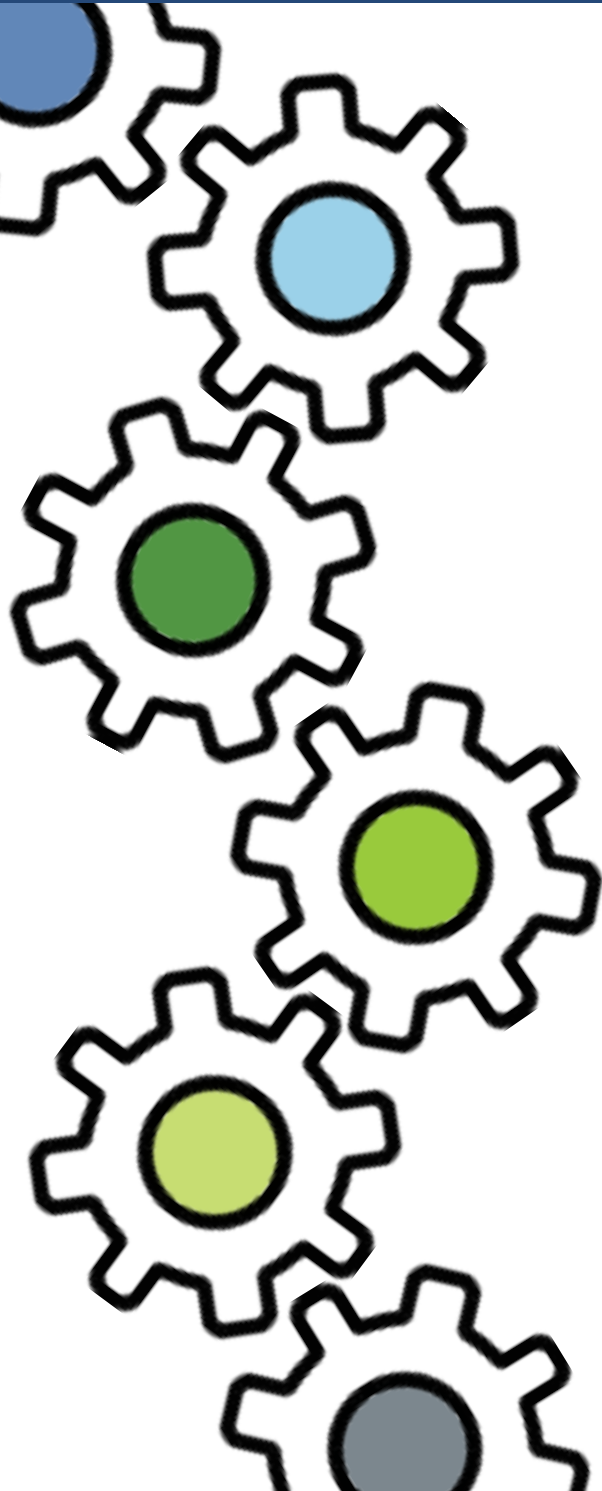
*"The investment has allowed us to have a greater impact on ... students both in number of students served as well as depth of exposure to and interest in STEM fields."*

- STAR Grantee

*"The STAR Initiative has provided us with the platform to significantly extend the reach our work and effect change...that will positively impact youth in Cambridge and Somerville."*

- STAR Grantee

# Year 1 Activities



1. Ensure all key stakeholders in the STAR Initiative clearly understand and value STAR's primary goals as well as each other's programs, strategic priorities and function within STAR.
2. Identify and map overlaps, gaps, and opportunities amongst grantee network programs to better streamline and coordinate services.
3. Ensure STAR grantees' work aligns with and complements the strategic priorities of school districts and associated initiatives.
4. Establish clear communication protocol for the STAR network.
5. Begin to develop plan to engage students as active stakeholders in STAR Initiative.
6. Clarify and map STAR grantees' outcomes & methods for tracking and reporting data to inform the identification of STAR-wide student outcomes determined in partnership with districts (to be measured beginning Year 2).
7. Begin to establish a data-sharing protocol amongst STAR network (including access to school data). In Year 1, student outcomes measurement was limited to each organization's progress in achieving their proposed STAR outcomes.
8. Begin to develop common definition(s) and goals for "sustainability" (e.g., diversifying financial support, shifting mindsets, envisioning long term evolution of the work started in the STAR Initiative) as basis for first draft of sustainability plan.



Students participate in a field trip to Microsoft as part of the Enroot program.

## Promising Practices

- The STAR Initiative had full & consistent buy-in & participation from all the stakeholders, including Cambridge & Somerville public school districts & teachers.
- All six of the STAR grantees increased and/or deepened the level of services they provided & achieved positive outcomes as outlined in their original proposals.
- All six STAR grantees expressed that they find value in meeting & working together towards common goals.
- STAR stakeholders were able to participate in collectively developing initiative-wide goals & outcomes measures, which has given them a sense of ownership & commitment they would not have if outcomes had been predetermined by Biogen Foundation or any external constituent.
- Biogen Foundation board members had several opportunities, most notably at the end-of-year showcase held at Lesley, to see & hear how their investment impacts students & teachers.





Students conduct an experiment in the Breakthrough Greater Boston program.

## Goals for Year 2

- Continuously engage STAR students in assessing and refining the STAR model, starting with a youth-led documentary.
- Build connections with other STEM ecosystems across the state and nationally to deepen our understanding and implementation of best practices.
- Demonstrate the STAR model by creating methods for measuring STAR outcomes, sharing data and beginning to track outcomes.
- Ensure the growth and development of STEM ecosystems in Cambridge and Somerville by developing a sustainability plan for STAR.
- Continuously assess and strengthen the network in order to maximize the STEM opportunities for historically underrepresented students across Cambridge and Somerville.



Biogen, one of the oldest biotechnology companies, founded in 1978, specializes in complex neurological and neuro-degenerative conditions. Biogen contributes to its focus communities through three primary vehicles: the Biogen Foundation; Community Labs in the company's host cities of Cambridge, MA and Durham, NC; and an employee volunteer program which engages thousands of employees annually in community service and mentorship.

The Biogen Foundation supports access to science education and to essential human services for children and their families in the communities in which Biogen facilities are located. The Biogen Foundation is committed to sparking a passion for science and discovery, supporting effective science education initiatives, and strengthening efforts to make science education and science careers accessible to diverse populations.



Root Cause is a purpose-driven consulting group that exists to enable more people and families to achieve lifelong success. Root Cause partners with foundations, nonprofit organizations, businesses, school districts, and public agencies to develop, implement, and measure strategies that improve people's lives.

Since 2004, the Root Cause team has pioneered evidence-driven approaches to strategy, measurement, learning and improvement, and collective action to ensure more people achieve lifelong success. We have helped more than 200 partners improve people's health and well-being, increase education and youth development outcomes, and strengthen the economic security of people and families nationwide. Learn more at [rootcause.org](http://rootcause.org).