

# YEAR 4 ANNUAL REPORT



A Biogen Foundation Initiative

Science / Teacher Support / Access / Readiness

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Photo: YPP



Photo: BTGB



**A Biogen Foundation Initiative** Science / Teacher Support / Access / Readiness

## OVERVIEW: Strengthening and Diversifying the Future STEM Workforce

In 2017, Biogen, an industry leader in Kendall Square—one of the world’s most powerful life sciences and technology hubs—initiated a new philanthropic approach to strengthening and diversifying the STEM workforce pipeline. Employment in STEM fields is projected to continue growing: **between 2020 and 2030 there will be an estimated 10.7 million additional STEM jobs in the US**, an increase of 10.7%, compared with 7.5% for all other occupations. In Massachusetts, STEM jobs will account for 40% of total employment growth through 2028. Yet students from under-resourced communities are disproportionately unexposed to and unprepared for STEM careers. More than a third of Black (40%) and Latino (37%) students drop STEM majors before earning a degree, compared with 29% of white STEM students. Locally, **in Cambridge, Massachusetts just 33% of Black 8th graders and 15% of Latinx 8th graders are meeting expectations in math** compared to 53% of White and 56% of Asian peers. **In Somerville just 31% of Black and 12% of Latinx 8th graders are meeting expectations in math** compared to 56% of White and 77% of Asian peers.

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**The Biogen Foundation’s STAR (Science, Teacher support, Access & Readiness) Initiative is a \$12 million, five-year investment that addresses these disparities by bringing together six high-performing nonprofits and two school districts in a coordinated network to serve students grades 6-14 who have been historically underrepresented in STEM college and career pathways, including students of color, economically disadvantaged students and English language learners.**

# BECAUSE OF STAR...

Science / Teacher Support / Access / Readiness



Over  
**4000**  
Students Served 

**151** Out-of-school-time Educators Served 

**485** Teachers Supported 

**21**   
New Programs Established

**17**   
Programs Expanded or Deepened

**15**   
Schools Served

**6**   
Nonprofit Grantees

**2**   
School Districts

## REFLECTING ON 4 YEARS OF IMPACT

STAR has enabled grantee organizations to increase and deepen their capacity to help students of color, economically disadvantaged students and English language learners develop and sustain their interest in STEM, gain necessary STEM exposure and enrichment opportunities, and successfully transition into postsecondary education in pursuit of STEM careers.

One of the most important and unique aspects of the STAR Initiative that stands out in the national landscape of STEM education ecosystems is the engagement of both the Cambridge and Somerville public school districts in the network. STAR liaisons from each grantee organization and each school district have met monthly and worked collaboratively for four years with the shared goal of advancing STEM education equity. In order to strengthen the partnerships between out-of-school-time programs and schools, and maximize the potential to measure STAR's impact, the Biogen Foundation began supporting STAR Data Specialist positions in each school district in 2020. Analysis by the Data Specialists is showing that STAR is making a positive impact on student engagement and performance in STEM subjects. For example, in Somerville, over the last 4 years there has been a 51% increase in STAR students taking more advanced math courses in 9th grade compared to peers not in STAR. And in Cambridge, Black and economically disadvantaged STAR high school students are enrolling in honors level science classes at higher rates - ranging from 13-20% - than peers not in STAR.

**This report highlights the STAR Initiative's accomplishments in Year 4 (2021-2022 school year) as well as the impact achieved over the course of STAR's first four years.**



## BECAUSE OF STAR

100% of grantees have expressed...

Science / Teacher Support / Access / Readiness



That STAR provides a valuable space for reflection, connection and collaboration



That they have been inspired by their fellow grantees as a result of participation in STAR



They have made new connections and explored and implemented new partnerships as a result of participation in STAR



They are better able to serve their communities, particularly students underrepresented in STEM, as a result of STAR



They have strengthened existing programming as a result of their participation in STAR



That they now have a shared belief in the urgency and importance of STAR's mission

*"I started YPP in 7th grade and I love the community that is built there. My love for math and my confidence in math started to grow because each year YPP has helped me."*

11TH GRADE YPP STUDENT

# COLLECTIVE ACTION

# COLLECTIVE ACTION

## STAR HAS STRENGTHENED RELATIONSHIPS AMONGST OUT-OF-SCHOOL-TIME PROGRAMS AND SCHOOL DISTRICTS

*“From the start we’ve approached this as a way to disrupt both policy and practice... and that’s exactly what the data has shown...Over the course of our partnership in STAR, about 35% of our students grades 6-12 have been impacted from being part of one of the partners...When we look at outcomes for students, we know that because of the programming we’re doing (we’re) increasing access and helping students gain confidence and see themselves as ready for STEM careers. We see this wonderful reversal of who’s taking geometry and geometry honors at the high school and gaining traction to higher level mathematics.”*

— MARY SKIPPER, FORMER SUPERINTENDENT, SOMERVILLE PUBLIC SCHOOLS

*“The ability to bring in high quality programs...to support young people’s learning year round in out of school spaces has been meaningful to the students who are able to access those programs.”*

—SPS DISTRICT LIAISON

*“We need to work differently to disrupt [traditional ways of working]. In the innovation economy, companies will not reach their full potential without a diverse workforce.”*

—CPS DISTRICT LIAISON

The Biogen Foundation’s sustained commitment to STAR has given grantees and school districts the time and space to work in dynamic collaboration to share resources and information, serve more students, design new programming and innovative partnerships, and drive systemic change. This relationship-driven approach has provided great support across the network throughout the COVID-19 pandemic while student, educator and family needs continue to change rapidly.

*“Investing in one or two organizations is not enough. Even scaling them alone is not enough. Investing in an ecosystem with organizations doing work in school...investing in students as leaders and including them as equal partners, and doing it in deep partnership with the districts is really powerful.”*

—STAR GRANTEE

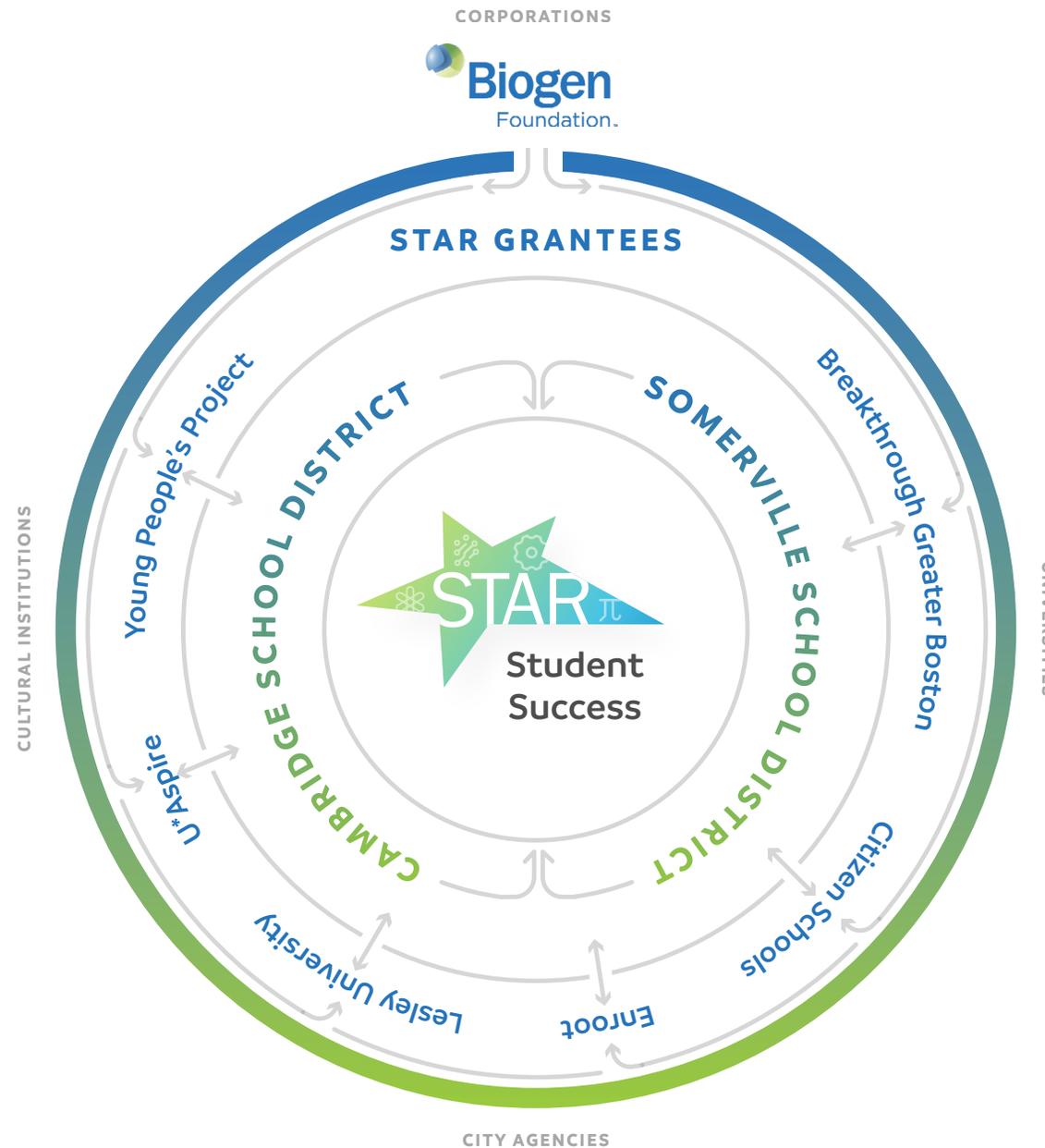


# COLLECTIVE ACTION

**THE BIOGEN FOUNDATION'S STAR MODEL** was designed based on research of what's working in STEM education and is part of a national movement of STEM ecosystems working to effect systemic

change in STEM education. STEM ecosystems cultivate relationships across stakeholders and maximize each stakeholder's unique contribution. Typically, these networks have one backbone organization, or network manager (Root Cause in the case of STAR), that facilitates collective action amongst stakeholders, which can include: schools and districts, out-of-school-time programs, leading STEM institutions (i.e. higher education, industry leaders, science centers, etc.), the private sector, other community-based organizations, young people and their families. A highly functioning coordinated network has the potential to provide a seamless pathway for ALL students to have equitable access to STEM learning opportunities that prepare them for STEM careers—something that is virtually impossible to achieve when stakeholders work independently from one another. The Biogen Foundation has made a visionary investment through STAR. There is no better place poised to lead the way in building a strong local STEM education ecosystem than the Kendall Square area in Greater Boston.

**ROOT CAUSE** has served as the backbone organization for the STAR initiative since its inception, co-designing the initiative with the Biogen Foundation, and subsequently acting as the coordinator, facilitator and data manager of the initiative. Root Cause works with the Biogen Foundation to determine the initiative's strategic goals, and manages the logistical aspects of the network. This includes ensuring all stakeholders are well-aligned and working towards the common purpose and that decision-making is shared, strategic, and reflective of the network's needs while promoting a culture of trust and accountability among stakeholders.





*"...I have Breakthrough to thank for my intro[duction] and interest in STEM fields. It helps me understand why certain things function the way they do. Without it, I wouldn't understand how the COVID vaccine works or how we could fend off superbugs."*

**10TH GRADE BREAKTHROUGH GREATER BOSTON STUDENT**

# GRANTEES

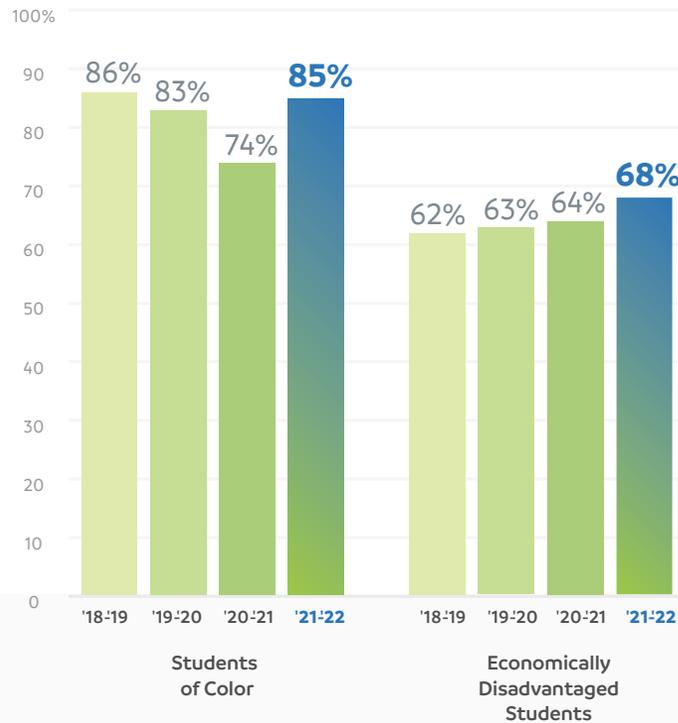
# GRANTEES' YEAR 4 ACHIEVEMENTS

**IN YEAR 4, STAR GRANTEES FACED ONGOING CHALLENGES RELATED TO COVID-19**, including frequent pivots between in-person and remote programming.

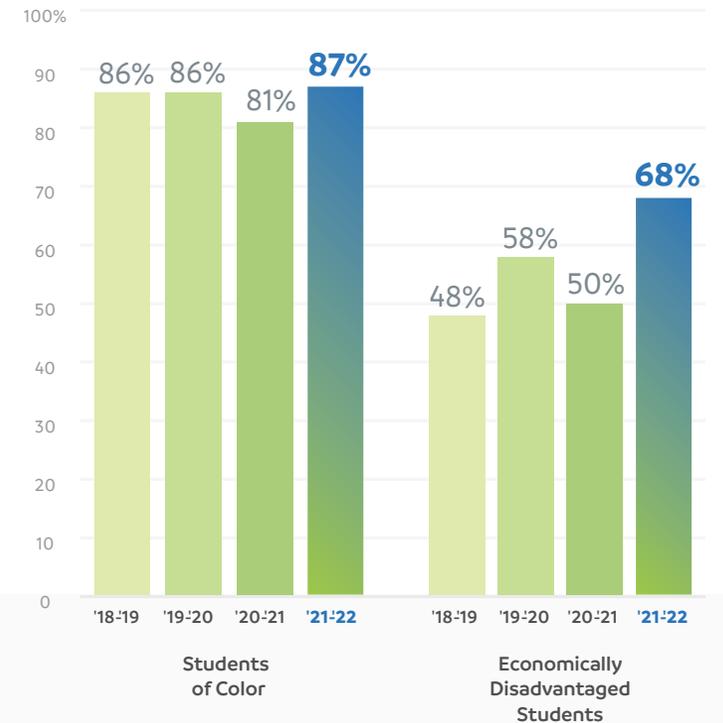
Nevertheless, STAR grantees served **1,077** students and **110** educators across Cambridge and Somerville in the 2021-2022 school year.

In Year 4, STAR programs continued to serve predominantly students of color and economically disadvantaged students.

**SOMERVILLE STAR STUDENTS**



**CAMBRIDGE STAR STUDENTS**





**BREAKTHROUGH GREATER BOSTON (BTGB)** prepares low-income students for success in college by providing them with academic support—including in STEM subjects—and college preparation and application support, from middle school through high school. Additionally, it trains the next generation of urban teachers using a unique Students Teaching Students model.

**STAR has supported Breakthrough in dramatically increasing their impact as they pursue two areas of growth—geographic expansion and programmatic development with a focus on hands-on, inquiry based learning and career development.**

## IN YEAR 4

**BTGB SERVED over 450 low-income, high-need 6th-12th grade students across Cambridge and Somerville**

» **BTGB's** daily average student attendance for the remote summer program was **94%**, which is in line with a typical in-person program.

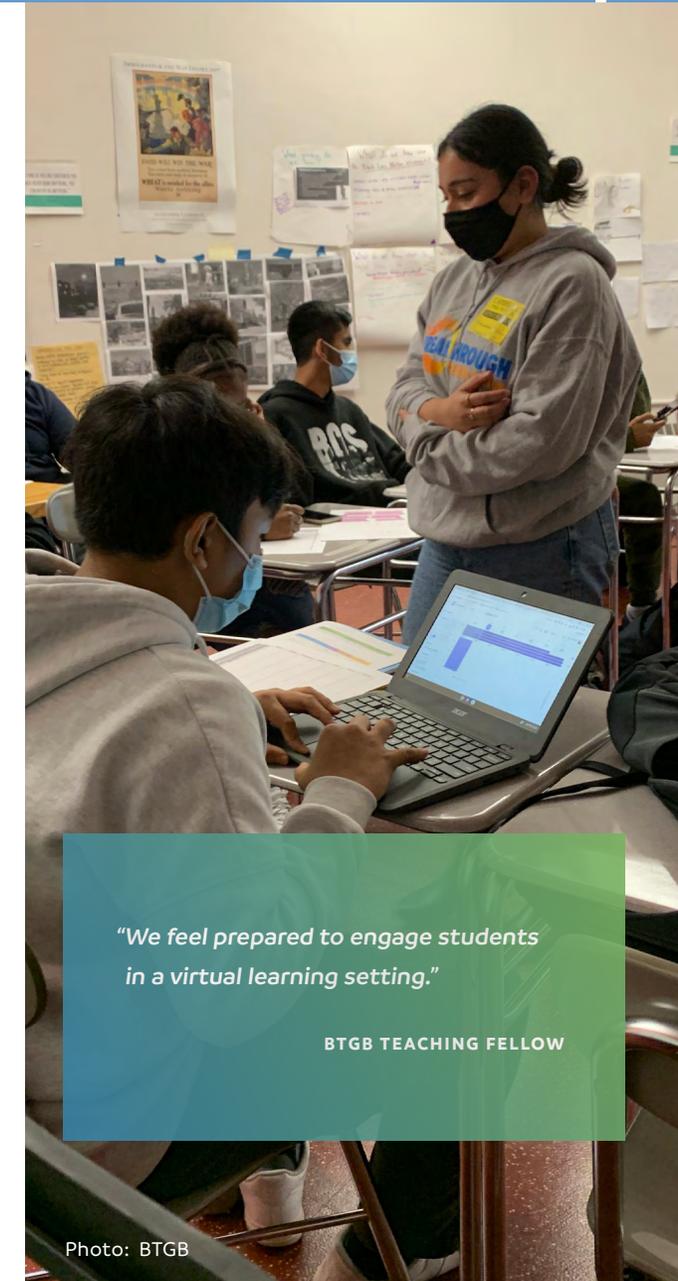
**62%** of students made significant growth in math during the summer program

**100%** of BTGB students who applied to college were accepted

» **BTGB** provided over **500** hours of training to a diverse cohort of **50** Teaching Fellows during the summer of 2021

**78%** of Teaching Fellows agreed that they “feel prepared to engage students in a virtual learning setting”

» **STAR FUNDING** enabled BTGB to establish a permanent campus office in Somerville High School, which allows high school participants daily access to BTGB staff, and provides middle school participants with early exposure to the high school.



*“We feel prepared to engage students in a virtual learning setting.”*

BTGB TEACHING FELLOW

Photo: BTGB



**CITIZEN SCHOOLS** closes the opportunity and achievement gaps for students with hands-on STEM experiential learning and career mentorship. Through its Expanded Learning Time program, Citizen Schools offers targeted academic support and afterschool STEM apprenticeships taught by diverse career mentors and supported by Americorps members, to support the development of students' social-emotional skills and their interest in future college and STEM career pathways. Additionally, to foster a more sustainable way to embed experiential STEM learning with volunteers into schools, Citizen Schools provides professional development, coaching, assessments and standards-aligned curricular units to middle-school teachers through The Catalyst Program.

## IN YEAR 4

**Citizen Schools served 441 students in the Expanded Learning Time (ELT) and Catalyst (CAT) programs at 4 Somerville schools, and engaged 200 volunteers.**

» **THE CATALYST PROGRAM** engages diverse STEM professionals to serve as career mentors, creating real-world connections and exposing students to new career pathways. With STAR, Citizen Schools was able to expand their educator and student impact in Somerville and foster a more sustainable way to embed project-based STEM learning by leveraging a diverse group of STEM professional volunteers through their Catalyst model.

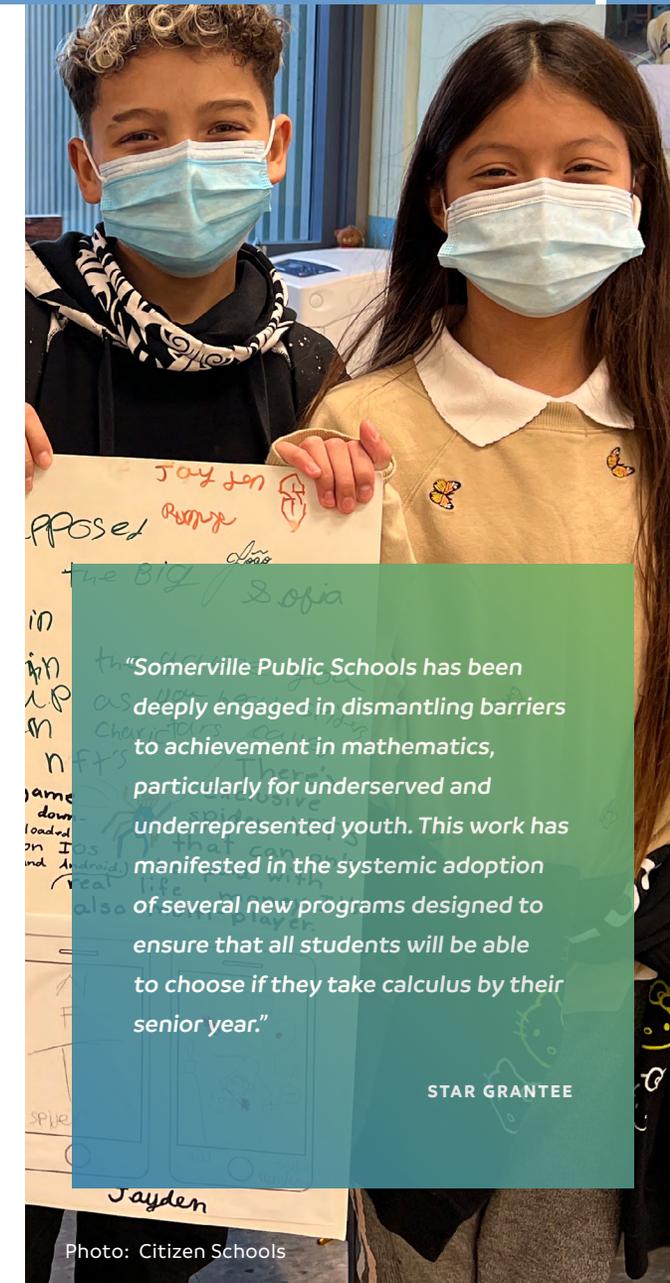
» **CITIZEN SCHOOLS' programs led to increased student interest in STEM education and careers:**

**56%** of students participated in at least one STEM Apprenticeship in the 2021-22 school year

**86%** of students indicated an interest in pursuing a STEM career, and **93%** expressed an interest in pursuing advanced education.

» **CITIZEN SCHOOLS' programs** led to improved social-emotional skills

**60%** of students demonstrated social emotional competencies of self-efficacy, self-management, and social awareness.



"Somerville Public Schools has been deeply engaged in dismantling barriers to achievement in mathematics, particularly for underserved and underrepresented youth. This work has manifested in the systemic adoption of several new programs designed to ensure that all students will be able to choose if they take calculus by their senior year."

STAR GRANTEE

Photo: Citizen Schools



**ENROOT** empowers immigrant youth in high school by providing academic support, including STEM subjects, and inspiring out-of-school experiences such as internships in STEM-related businesses. **STAR funding has helped Enroot grow the number of students it serves by more than 30% already and build capacity to support more students in the future.**

## IN YEAR 4

**Enroot served 191 English-language learner (ELL) high school students across Cambridge and Somerville**

» **ENROOT'S partnerships with STEM related companies** that provide opportunities for students continued to strengthen despite the challenges presented by the pandemic. Enroot continues to connect students to virtual internships, job shadowing, career fairs and STEM career panels:

» **ENROOT provided students** with various STEM internship opportunities, STEM oriented seminars, STEM company visits and STEM career panels/fairs. 19 Enroot students participated in STEM related internships this year.

» **ENROOT supported students in pursuing and financing postsecondary education**

Enroot students submitted **150** college applications, with **3-5** applications per student

Enroot students applied for over **100** scholarships. Each student received an average of \$78,000 and in total, Enroot students received over \$620k in funding.

» **ENROOT supported students directly entering the workforce from high school** by helping them to build a career plan, and by connecting them with city resources and jobs.

*"It's breaking that barrier to accessing the types of math and science courses that will put students on that competitive trajectory for STEM careers...one of the key differences for our students here in Somerville."*

SOMERVILLE EDUCATOR

Photo: Enroot



**LESLEY UNIVERSITY** contributes to the “Teacher Support” component of the STAR Initiative. Lesley supports teachers to increase student engagement, particularly in STEM subjects, through formal and informal professional development and by co-designing and using more hands-on, student-centered learning activities. In Year 4 of STAR, Lesley University helped teachers and districts plan for a year’s worth of instructional units and develop whole courses, and supported professional development workshops for educators in both districts. They connected educators to resources and networks, and supported collaborative curriculum development efforts with math and science teachers.

**THE STAR INITIATIVE** has enabled Lesley to engage in more collaborative, transdisciplinary, STEAM-focused activities, including teaching, curriculum development, collaboration with community partners to enhance teaching and learning, and community activism—all in service of advancing the achievement of youth, particularly students who are underrepresented in STEM.

## IN YEAR 4

**Lesley supported systemic change work and policies to bolster equity-based math and science curricula:**

- » **LESLEY** has worked with **school district partners to promote Open Honors and de-tracking curricula** for science and math at both high schools, which helps provide greater access to rigorous courses for students underrepresented in STEM
- » **LESLEY** co-facilitated the **Somerville (Public Schools) Math Equity Working Group**, which worked to develop new equitable math pathways for students typically underrepresented in STEM

**Connected school partners to community resources** to help expand STEM instruction and professional development

**Supported professional development workshops** for Cambridge and Somerville educators that help them gain confidence in their skills and abilities as STEM educators and reinforce the importance of authentic and real-world connections to ensure meaningful learning experiences

- » “[Lesley’s workshops] helped me better visualize how I will bring this information down to the kids and teach them about it,” shared one educator

**LESLEY** created **35** separate interdisciplinary and science activities on Instructables.com, which have garnered over **77,000** views to date

*“The level of focus, interest, and engagement was tremendous.”*

CAMBRIDGE EDUCATOR

Photo: Lesley University



**UASPIRE** ensures that low-income students have the financial information and resources necessary to find an affordable path to and through college. uAspire serves high school students in Cambridge and Somerville. **STAR funding has enabled uAspire to expand their services to include college persistence support. They now continue supporting students in their first two years of college.** Being in the STAR grantee network enables uAspire to better connect with and serve students interested in STEM education and career pathways.

## IN YEAR 4

**UASPIRE resumed its in-person programming during the 2021-2022 school year in Cambridge and Somerville while continuing to offer virtual financial aid curriculum to students.**

» **UASPIRE served 263 high school students and 193 college students** from Cambridge Rindge and Latin High School and Somerville High School

**Supported 200 seniors across both districts** in planning for financial aid, identifying safety schools and submitting their FAFSAs (federal student financial aid applications)

» **UASPIRE'S SUCCEED ADVISING program is now in its second year**, and uAspire continues to support students through their first 2 years of college with expanded financial advising

**91%** of Cambridge students and **88%** of Somerville students who received high school and postsecondary advising persisted to the fall of their second year of college

**112** Cambridge students and **65** Somerville students renewed their FAFSA for their second year of college

*"The dedicated space to collaborate and align with different organizations and the schools in such a challenging, rapidly changing environment is so valuable. We are not just continuing our own programming, but also understanding how other organizations are operating."*

CAMBRIDGE EDUCATOR

Photo: uAspire



## Young People's Project

**THE YOUNG PEOPLE'S PROJECT (YPP)** 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. In Year 4, COVID-related delays to in-person after-school programming in partner schools reduced the number of schools and students YPP was able to serve this year, particularly in its Flagway program. However, **STAR funding is helping YPP expand their student-driven math literacy programs from Cambridge into Somerville.**

### IN YEAR 4

**At the district level, YPP collaborated with Cambridge Public Schools to develop a YPP math elective class, which gives high school students the opportunity to earn credit by teaching their middle school peers. The YPP math elective will go live in the 2022-2023 school year.**

» **YPP** enrolled **40 middle school students** from Cambridge and Somerville and hired 4 Math Literacy Workers from Cambridge Rindge and Latin High school in its Flagway program this year

» **YPP's** Computational Thinking Lab employed **22 High School Math Literacy Workers and 9 College Math Literacy Workers** from Boston and Cambridge

Pre/post assessment results indicated an increase in students discussing future plans with YPP staff, enjoying

and feeling positive about math and computer science.

» **YPP's Playbook program** continued in a hybrid out-of-school-time format, during which students brainstormed creative ways to learn and teach math

**One participant shared,** "I want students to walk away with a possible interest in a new career, a new outlook on how math class could look, and a less stressful way to do math in class."

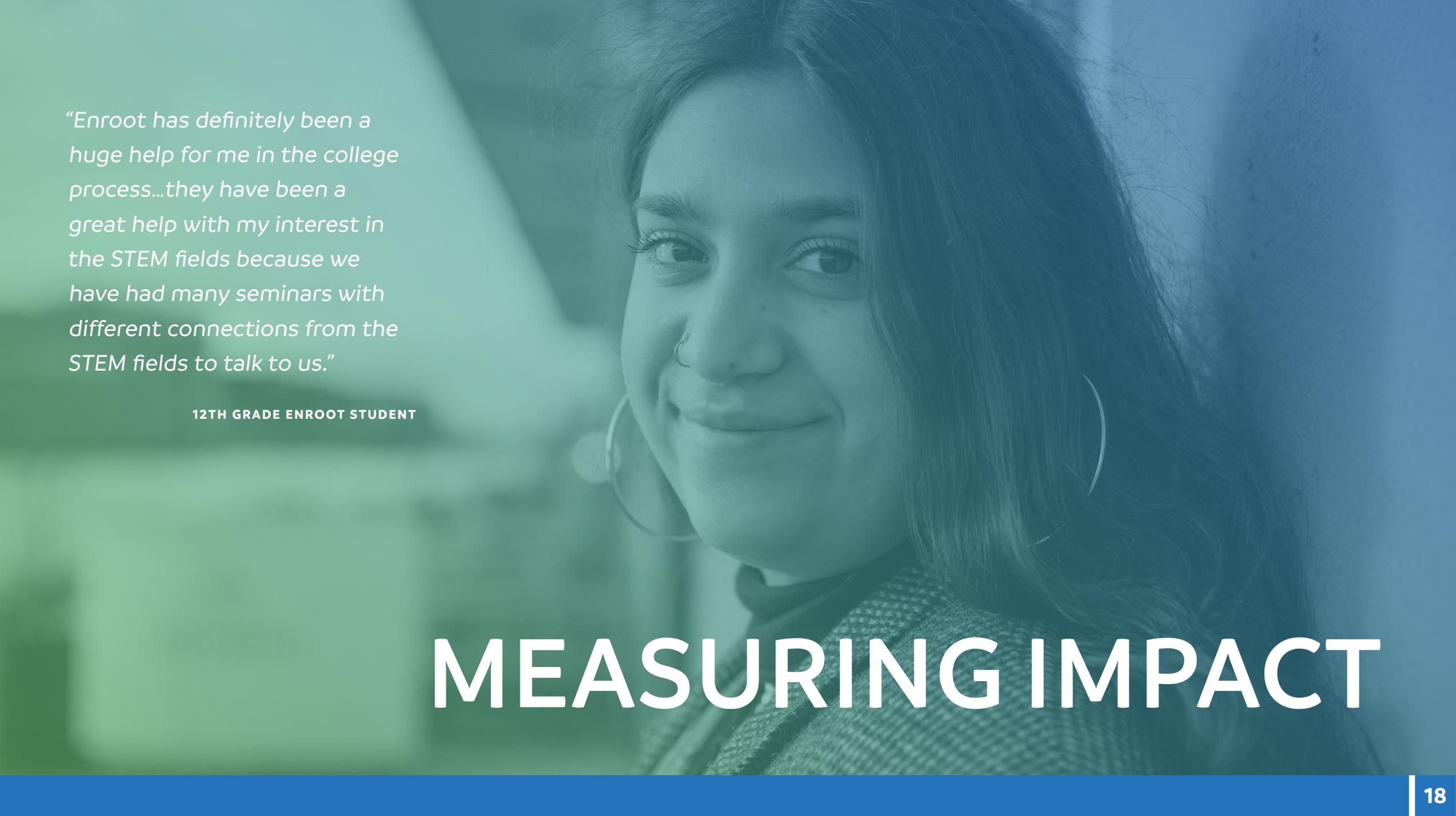
» **YPP** hosted its annual **Flagway Tournament** in June 2021 and May 2022, where students participate in online games to help them master earlier grade math content necessary for success

» **YPP** developed a **new learning module focused on ratios and proportions**, with plans to roll out to greater Boston sites next school year.

*"We have been able to think more purposefully about STEM OST and in-school impacts on our students and we hope to build on this more in the future. YPP (Maisha in particular) has been an active partner with CRLS's math dean to think about non-honors pathways in math and we are co-creating a course on math teaching and social justice."*

CPS DISTRICT LIAISON

Photo: YPP



*“Enroot has definitely been a huge help for me in the college process...they have been a great help with my interest in the STEM fields because we have had many seminars with different connections from the STEM fields to talk to us.”*

**12TH GRADE ENROOT STUDENT**

# MEASURING IMPACT

# LEADING INNOVATIVE IMPACT MEASUREMENT OF STEM ECOSYSTEM WORK

One of the most important and unique aspects of the STAR collective action initiative is **the engagement of both school districts in the network**. STAR liaisons from each grantee organization and each school district have met monthly and worked collaboratively for four years with the shared goal of advancing STEM education equity.

The myriad challenges the pandemic has posed for students and families has highlighted the critical role that out-of-school-time organizations play in leveling the playing field for students who typically do not have equal access to STEM exposure and enrichment opportunities.

The Biogen Foundation's investment in **supporting STAR Data Specialist positions** in each school district is helping to optimize the work of grantee organizations and schools by analyzing STAR's impact.

The alignment of data collection and analysis between STAR and the school districts STAR serves helps organizations better understand:

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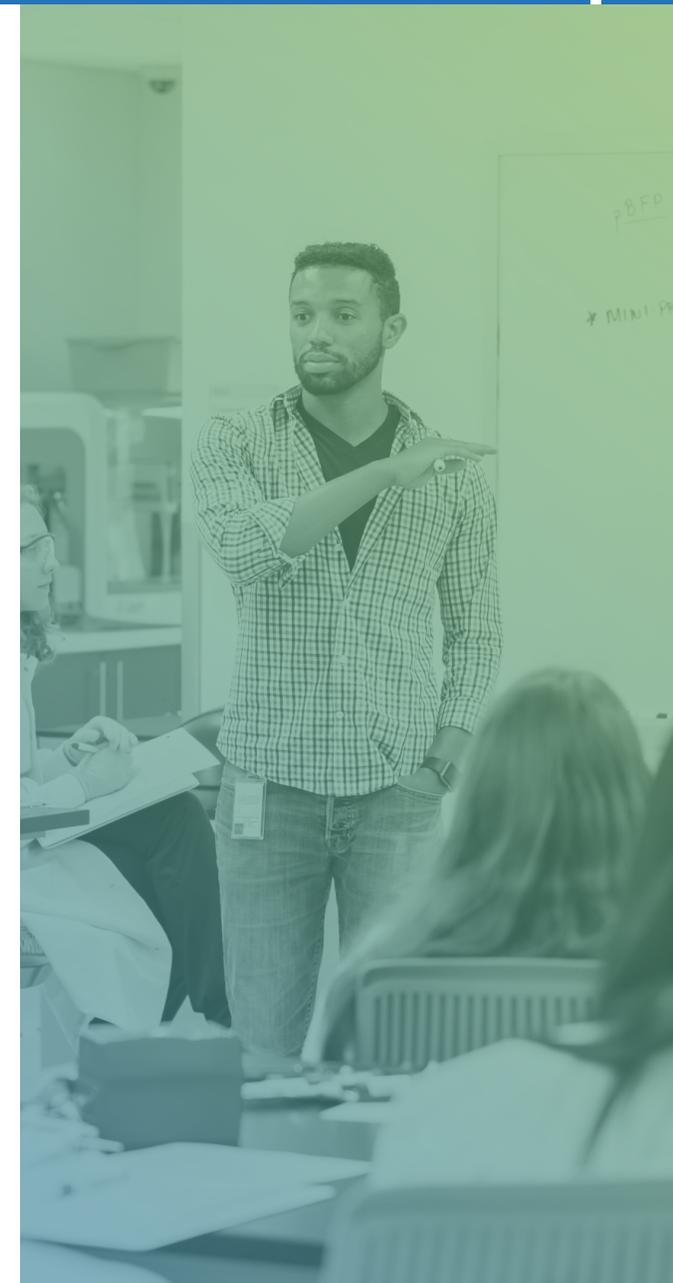
## » **WHO THEY SERVE**

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» **HOW STUDENTS EXPERIENCE STEM EDUCATION** in middle and high school, and

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» **HOW STAR AS A NETWORK CAN STRENGTHEN INDIVIDUAL AND COLLECTIVE PRACTICES TO HELP MORE STUDENTS** — specifically students of color, low-income students, and English language learners—become better prepared to pursue STEM education and career pathways.

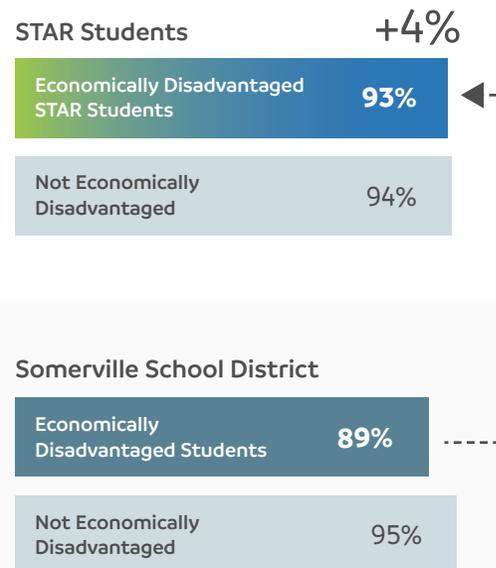


## A larger proportion of economically disadvantaged students participating in STAR pass 9th grade science compared to economically disadvantaged peers in both Cambridge and Somerville.

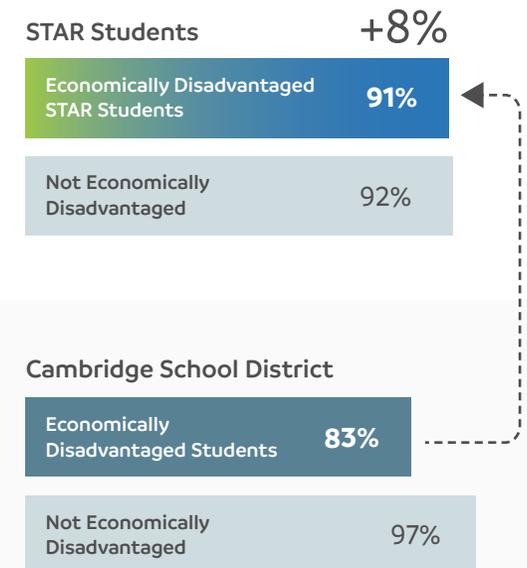
The measurement work the STAR Data Specialists have done in the last year has shown that STAR is fulfilling its mission of increasing the number of underrepresented students getting access to the opportunities, support and resources necessary for them to pursue STEM college and career pathways.

The STAR Data Specialists' approach to measuring impact is informed by a Data & Evaluation committee composed of school district stake-holders, Root Cause, and STAR grantee liaisons. **Over the past year the STAR Data Specialists have honed in on how students enrolled in STAR programs have been doing in math and science over the first four years of STAR. Their analyses have shown promising, positive results in both STEM subject areas.**

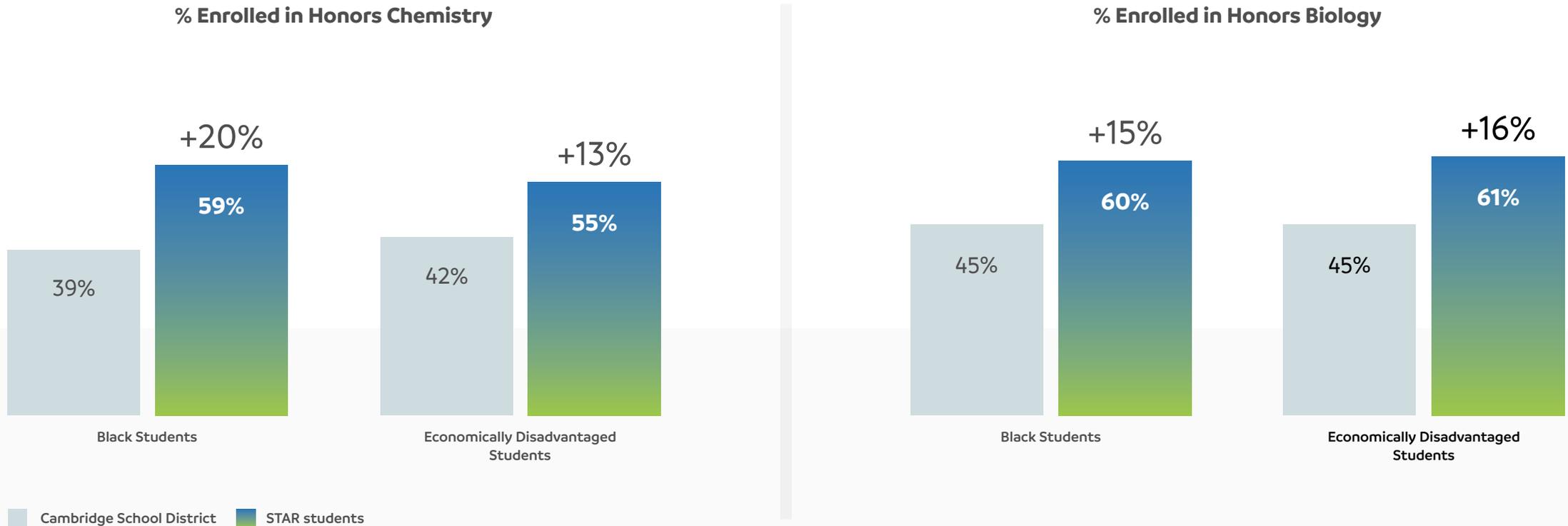
### % of 9th Graders Passing Science in Somerville



### % of 9th Graders Passing Science in Cambridge



**In Cambridge, enrollment in honors level science is higher for Black and economically disadvantaged students in STAR programs compared to their peers across the school district.**



In Somerville STAR programs that provide academic support for students have thus far served mostly middle school students. Comparable data on how STAR students do in advanced science classes in high school will be available in the next few years.

A photograph of a female scientist in a white lab coat with a 'Biogen' logo, wearing safety goggles and gloves, working in a laboratory. She is using a pipette to transfer liquid into a multi-well plate. The background is slightly blurred, showing laboratory equipment. The entire image has a light green overlay.

# ADVANCING STEM EDUCATION EQUITY

# IMPROVING STUDENT ENGAGEMENT AND OUTCOMES IN MATH

Competency in math is foundational for students to be able to successfully move into STEM college or career paths. And yet, Black and Latinx students are typically less prepared to pursue STEM course pathways.

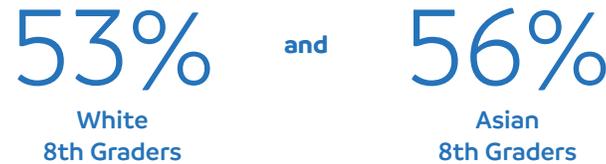
In Cambridge, just



In Somerville, just



Are meeting or exceeding expectations in math vs....



# IMPROVING STUDENT ENGAGEMENT AND OUTCOMES IN MATH: **STARLIGHT**

In order for students to be successful in STEM subjects, they need to believe they are capable of succeeding and thriving in them.

*"I started YPP in 7th grade and I love the community that is built there. My love for math and my confidence in math started to grow because each year YPP has helped me."*

11TH GRADE YPP STUDENT

## STAR helps students see themselves as mathematicians.

In November 2020, STAR grantees Enroot and Lesley University partnered to design and run an interactive workshop for newly immigrated, English language learning high school students to help them see themselves as mathematicians by identifying math in everyday life. The "Math Circles" workshops focused on analyzing polling data from the November 2020 presidential election and reviewing the presentations of this data on various news sites. Students discussed the logistical, legal and operational aspects of elections, clarifying things like what role individuals can play in voting and the qualifications to hold office (citizenship, age, etc). Students examined how to access voting data, the voting process and the stories and perspectives that are hidden in data projections. Thinking as mathematicians, students looked beyond the data with a critical lens.

# IMPROVING STUDENT ENGAGEMENT AND OUTCOMES IN MATH: **STARLIGHT**



In order for students to be successful in STEM subjects, they need to believe they are capable of succeeding and thriving in them.

*“(There’s a) lack of career based education (in) middle school (so) we addressed (it) creatively by creating the Math Identity kits...illustrating a possible future for students in a new and engaging way.”*

YPP STUDENT SCHOLAR

## STAR helps students see themselves as mathematicians.

STAR grantee YPP (Young People’s Project), geared towards students in the lowest academic quartile in school, helps young people develop confidence as a foundation for math literacy. YPP’s unique approach to helping students—predominantly students of color—see themselves as mathematicians has led to the Cambridge school district creating a YPP math elective class at the public high school for the 2022-23 school year. As part of the course, entitled “Math is What You Make It: Math for Teaching and Social Change,” high school students will help teach middle school students math during the school day.

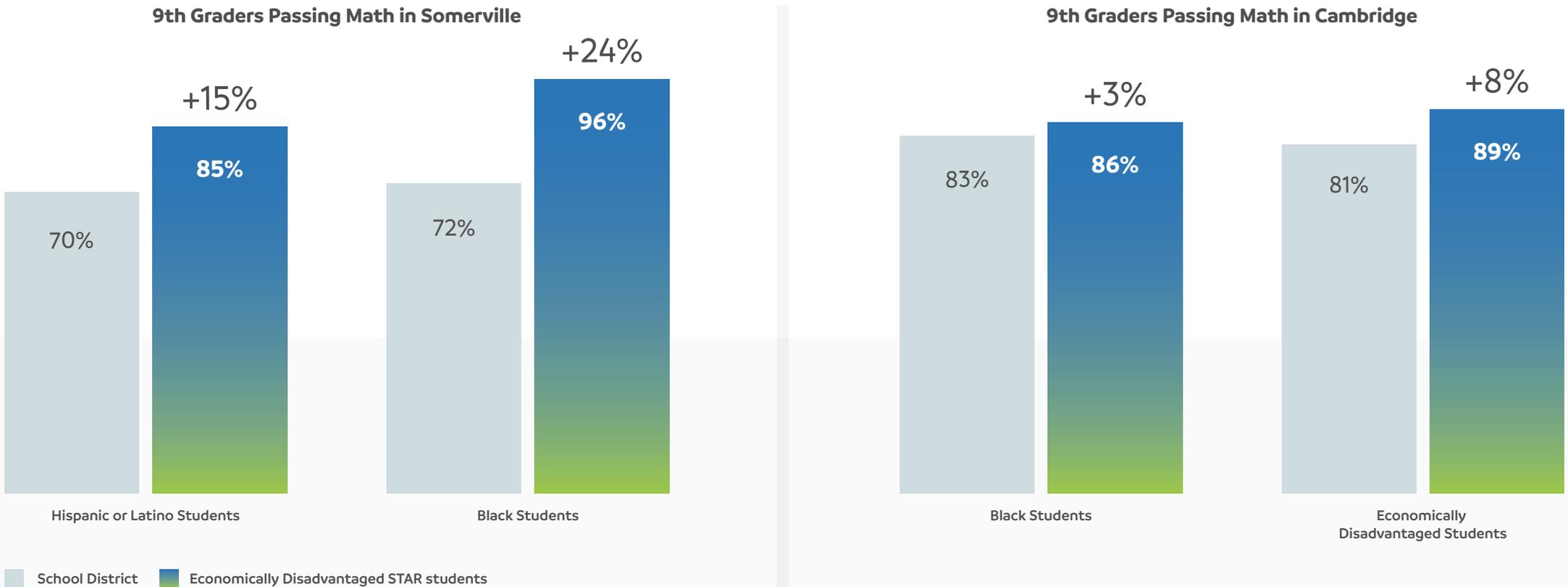
*The course description captures YPP’s transformative approach to engaging students in math:*

### NEW COURSE DESCRIPTION

Have you ever wondered why math matters? Have you ever sat in math class feeling like you don’t belong there? Have you ever looked around and wished you saw more students who looked like you? Have you ever considered what math has to do with civil rights? What if you could change math learning and simultaneously make a difference in your schools and community and make a positive impact on how younger students learn math? If you answered, “YES!” then this is the class for you!

# IMPROVING STUDENT ENGAGEMENT AND OUTCOMES IN MATH

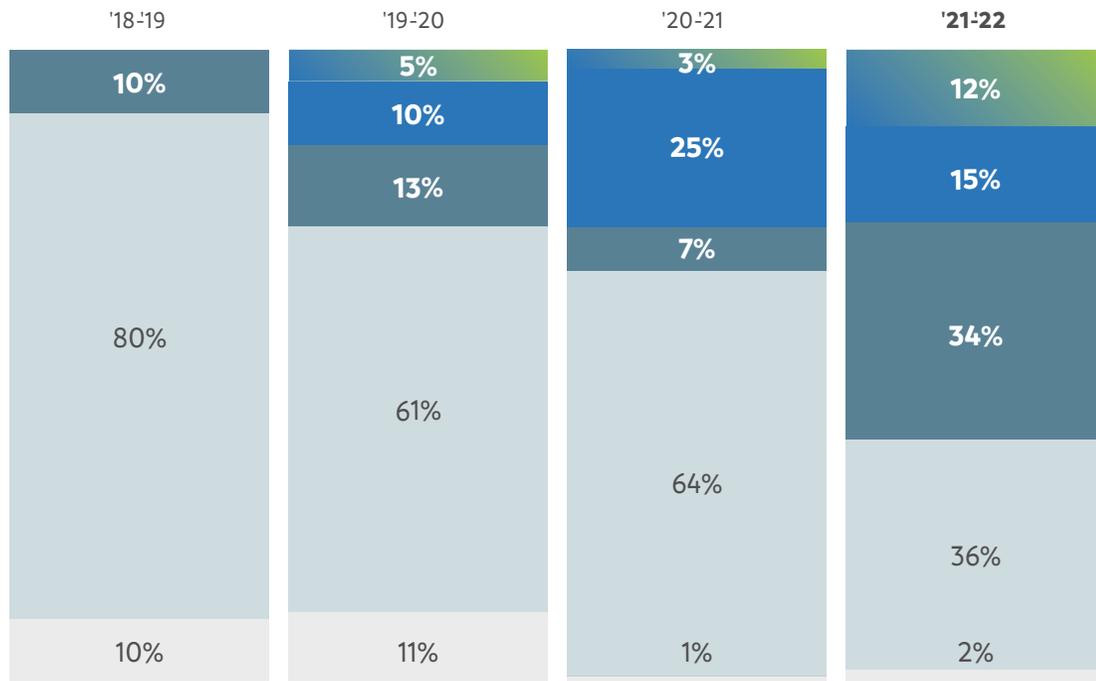
Whether through helping students develop “math identities,” or providing them with academic support, STAR programs help students make gains in math.



# IMPROVING STUDENT ENGAGEMENT AND OUTCOMES IN MATH

Whether through helping students develop “math identities”, or providing them with academic support, STAR programs help students make gains in math.

STAR 9th graders in Somerville are taking more advanced math than ever before



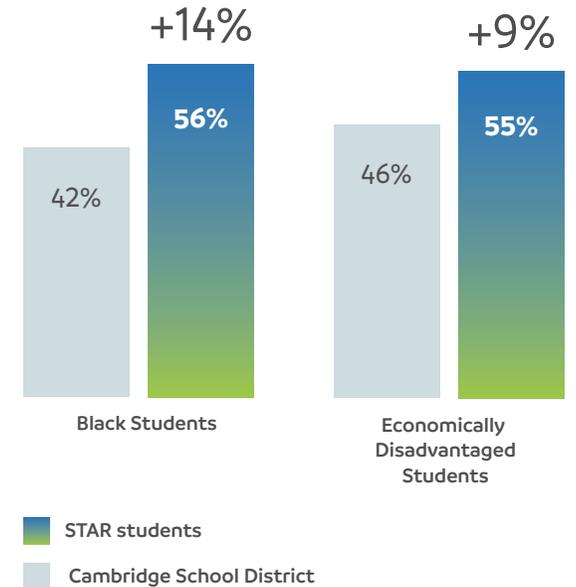
+51%

Increase in Somerville STAR students taking more advanced math courses in 9th grade over 4 last years

\*Darker colors represent more advanced math courses

- Algebra II: Honors\*
- Geometry: Honors\*
- Geometry\*
- Algebra I
- Other

In Cambridge higher percentages of STAR students are taking Algebra II Honors than their peers



# IMPROVING STUDENT ENGAGEMENT AND OUTCOMES IN MATH

STAR's collective action helps empower students. In addition to helping students gain confidence in math and strengthen their academic skills, the STAR Initiative is empowering students to contribute to systemic change.

During the 2020-2021 school year, STAR grantee organizations YPP, Breakthrough Greater Boston and Citizen Schools worked with Somerville Public Schools (SPS) to launch a new project called the 'Math Ambassadors.' The project provided an opportunity for students grades 5-11 to participate in experiential learning around equity in mathematics by engaging in analysis and decision-making processes with SPS teachers and administrators. The idea for this program came from students themselves who, in providing feedback to the district, noticed a discrepancy between 8th grade math performance and 9th grade placement.

The goal of the Math Ambassadors project was to ensure that students were integral to every step of the decision-making process at the district level. Students met weekly to engage in conversations around equity in mathematics – what it looks like, feels like, and how it shows up in outcome data. They reviewed data on class placement, differences in failure rates and the relationships between math performance in 8th grade and 9th grade placement. They also met with a group of SPS math teachers and administrators to push staff to grapple with issues of bias and racism and encourage them to think more creatively and equitably about proposed solutions.

## Students at the Center

1. STAR students are gaining confidence in STEM subjects
2. STAR students are increasingly excelling in STEM subjects and enrolling in higher level courses
3. STAR students are contributing to district-wide equity-informed analysis and systems change





# WHAT'S NEXT



**The Biogen Foundation is committed to supporting the continued growth and impact of STAR's work.**



**A Biogen Foundation Initiative**

Science / Teacher Support / Access / Readiness

STAR launched in 2018 as a  
**\$10 Million**  
 Investment over 4 years

In 2021, the Biogen Foundation committed to extending  
 STAR funding through Year 5 (June 2023), for a total of a  
**\$12 million investment.**

Sustainability has been at the center of STAR's strategic decision making and planning since the launch of the initiative. The Biogen Foundation originally conceived STAR as a 4-year, \$10 million effort to build a local STEM education ecosystem. In 2021, the Foundation pledged to extend its funding beyond four years and to lay the framework for STAR to be a permanent pillar in the Cambridge and Somerville community.

The Biogen Foundation is excited to share that we are partnering with [Lab Central's Ignite initiative](#) this year to transfer ownership of the STAR Initiative beginning in Year 6 (July 2023). While the Biogen Foundation will remain a major funder, this partnership will enable STAR to transition from being solely funded by the Biogen Foundation to becoming part of local STEM ecosystem building work that's supported by multiple companies. STAR will become part of Lab Central's broad K-boardroom strategy for diversifying STEM profession pipelines.

**The Biogen Foundation is proud to be supporting innovative STEM education ecosystem-building work in the communities closest to our headquarters. We know we have just scratched the surface in terms of the impact we can have through a collective action approach to advancing STEM education equity. We're excited for new partners to join us in expanding and deepening STAR's reach in its next chapter.**



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.

Through STAR the Biogen Foundation is supporting the development of an equitable STEM education ecosystem that bridges the gap between the area's most marginalized students and the science and tech capital of the East Coast in Cambridge, Massachusetts.



To learn more about STAR and learn about upcoming events with our partners, [please sign up for our listserv](#)



**Root Cause** is a nonprofit consulting team that helps drive transformative social change. Our mission is to empower communities to build, improve, and sustain social change initiatives that enable all people to thrive. Since 2004, we've helped over 400 nonprofits, public agencies, philanthropists, and other funders achieve their goals while advancing racial and economic equity and justice.

Root Cause supports our partners in creating strategies, structures, and processes that level-up their work and drive greater mission achievement. We do so through a web of services — strategy, design, and implementation; collective action; and continuous learning and improvement — each of which can stand alone or be combined with others to create a holistic approach to the challenge at hand. Our team has decades of professional and lived experience in many social issue areas, including: health and well-being; education and youth development; and economic mobility.

[Learn more at rootcause.org](https://www.rootcause.org)

This report was produced by Root Cause in collaboration with the Biogen Foundation.