

PROJECT Scientist™

DIVERSITY. EQUITY. STEAM.

2023 IMPACT REPORT

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Reading the Report

Annual Comparisons

- Results from 2023 are compared to 2022 when possible. When this comparison is not reflected, it is because the questions varied or the assessment is new.
- When demographics are compared from one year to another, the data represents an average across all surveys, whereas other sections (e.g., STEAM Interest and Understanding) reflect only post-survey results.

Sections

Across the different surveys, sections are used to group themes of questions around a particular area of impact. The different sections are described below along with how they are measured.

Perceptions of Project Scientist

Project Scientist aims to create a welcoming environment where a diverse range of participants feel confident and comfortable to explore STEAM. To understand if Project Scientist created the optimal environment for learning, participants are asked about their comfort levels during the program, if they felt they could make mistakes, and if they enjoyed the program overall. To contextualize the importance of Project Scientist, participants are asked if they are participating in similar STEAM programs.

STEAM Interest and Understanding

Early educational experiences have been found to have a positive effect on student's choice of mathematics and science courses, and later career aspirations ([UNESCO](#)). Through a high-quality curriculum and program, Project Scientist aims to increase awareness of, engagement with and ability to pursue STEAM regardless of adversity. To understand their current and future interest level, participants are asked if they enjoy certain aspects of STEAM like hands-on science, are curious about how tools like electronics work, what their favourite subjects are, and what jobs they are interested in exploring later in life. To explore their STEAM understanding, participants are asked to define STEAM, if they understand how STEAM is used in everyday life, and if they explain what they learned through Project Scientist with others.

Resilience and Growth Mindset

STEAM can be challenging; it requires confidence and resilience to grow beyond difficulty. Project Scientist aims to equip participants with the tools and mindset needed to overcome setbacks to achieve their goals. Children and youth with a growth mindset are more likely to choose activities that challenge them and learn new things ([Boys and Girls Club of America](#)). To understand their resiliency, participants are asked how they approach finishing a project if it's challenging and about their appetite for learning new things.

Diversity, Equity and Inclusion in STEAM

One of the best ways to address disparities in STEAM is by engaging girls and students from underrepresented backgrounds at a young age to challenge unhelpful stereotypes before they have time to take root ([Open Access Government](#)). Project Scientist creates an environment for participants to learn and challenge stereotypes to help them envision themselves in STEAM. To understand participant beliefs and views, they are asked about their own STEM capabilities and those of others from underrepresented groups.

Executive Summary

The findings of this impact report can be used to inform program design, new programming, improve evaluation participation, evaluate the target populations Project Scientist aims to serve, and improve program outcomes.

Programmatic Shifts from 2022 – 2023

In 2022, Project Scientist led programs in a hybrid format; in 2023 Project Scientist shifted to in-person programming for all students ages 4 – 12, with local teachers leading programs in their own schools. With this model, teachers led curriculum in their classes and had more autonomy to make adjustments. Project Scientist identified that teachers needed more support to deliver their programs with fidelity, and in response the Teaching Institute was added as a new program.

In 2022, Project Scientist welcomed students from economically diverse schools, including Title 1 schools. Some participants and schools paid for programming in 2022. In 2023, all students came from Title 1 schools, and no students paid for the program.

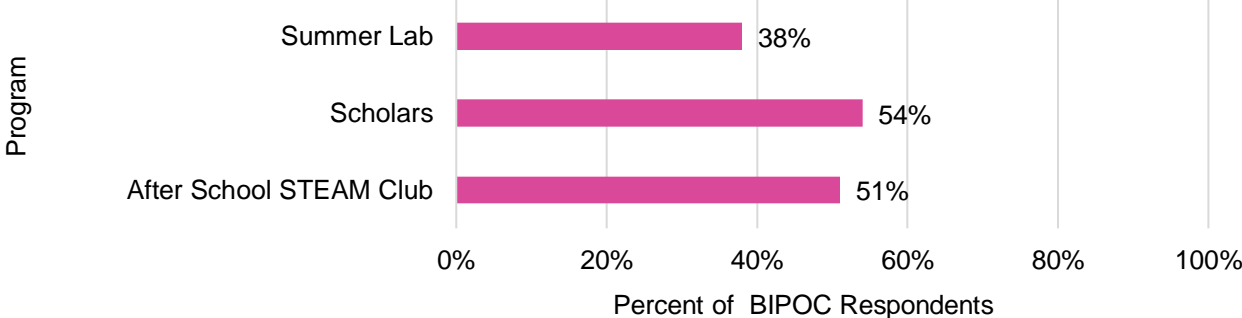
The strategic changes from 2022-2023 could contribute to a decrease in quality as local teachers take on the program for the first time. The new school partnerships could impact program schedules, participation and views of the program as educators, learners and Project Scientist adjust.

Participants

In 2023, Project Scientist welcomed parents, teachers, and girls from diverse backgrounds. Most participants had at least one parent or caregiver that completed high school. Parental or caregiver educational attainment can be a big driver of a child’s educational access and success.

71.4% of Project Scientist participants identified as Black, Indigenous or other People of Colour (BIPOC). This representation of BIPOC participants is greater than those surveyed through the impact evaluation. This comparison helps us contextualize how representative the impact results are to the greater population and hypothesize how we might increase participation from underrepresented groups.

Racial Identity Across Programs



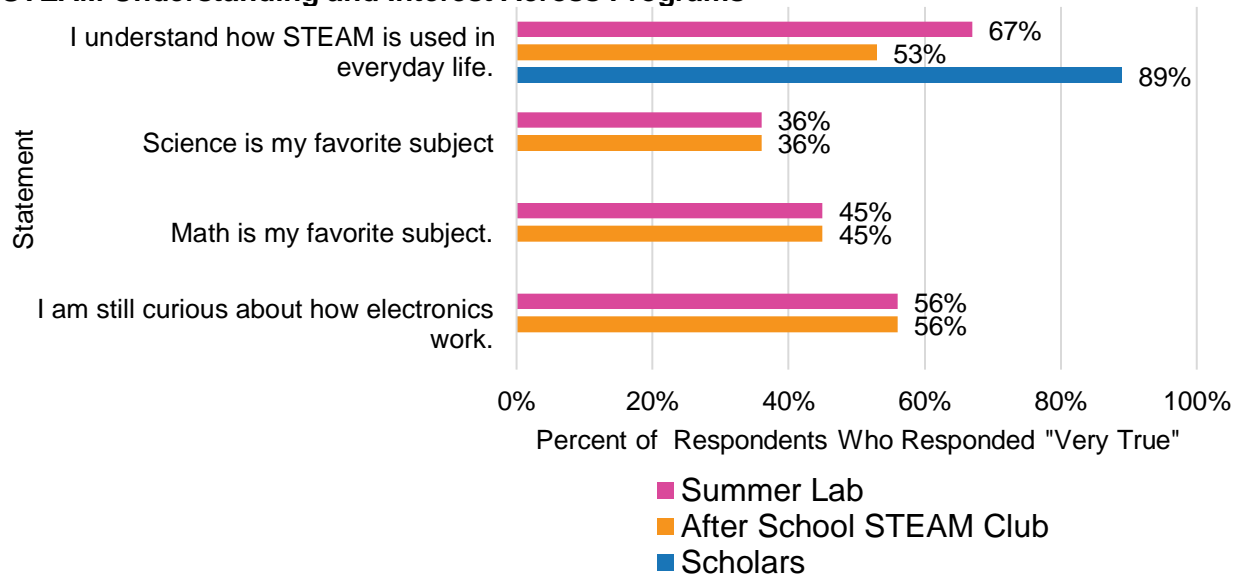
2023 Impact

External research suggests that female youth have lower levels of interest in STEM and are exposed less to STEM concepts in school than male youth ([Gallup](#)). Through Summer Lab, Scholars, and After School STEAM Club, girls enhanced their understanding of and interest in STEAM. Notably, across all programs, an average of 70% of girls agreed they understand how STEAM is used in their everyday life. In being surrounded by women educators and women in STEAM, and engaging in age-appropriate conversations about barriers that women can face in the industry, girls challenged stereotypes to improve their ability to envision themselves in STEAM. These results affirm that Project Scientist's current curriculum and programmatic design reflect the unique positions of young women and girls exploring STEAM.

While agreement to positive statements regarding STEAM increased from pre to post surveys overall, some programs saw slight decreases or minimal increases in certain areas, for example STEAM Understanding and Interest in the Scholars Program decreased. This presents an opportunity to target specific programs based on their unique participants and educators.

The Teaching Institute results suggests that while teachers are a great conduit for STEAM education, they need support to weave STEAM into their classrooms. There is an opportunity for Project Scientist to continue focusing on equipping educators to establish quality curriculum and teaching standards to support girls engaging with STEAM.

STEAM Understanding and Interest Across Programs



Looking Forward to 2024

Based on the 2023 results included in this report and internal reflections, Project Scientist aims to make a few key programmatic updates. To reflect a population which is growing in diversity, and unique needs, Project Scientist is shifting to a regional model where Regional Directors will be in contact with the communities served by Project Scientist Programs. In response to the need for support expressed by educators in the Title-1 Schools served through the Teaching Institute, Project Scientist plans to prioritize training for teachers at the schools they serve. This training will include a focus on culturally-responsive teaching methods and maintaining high standards for educators delivering Project Scientist programs.

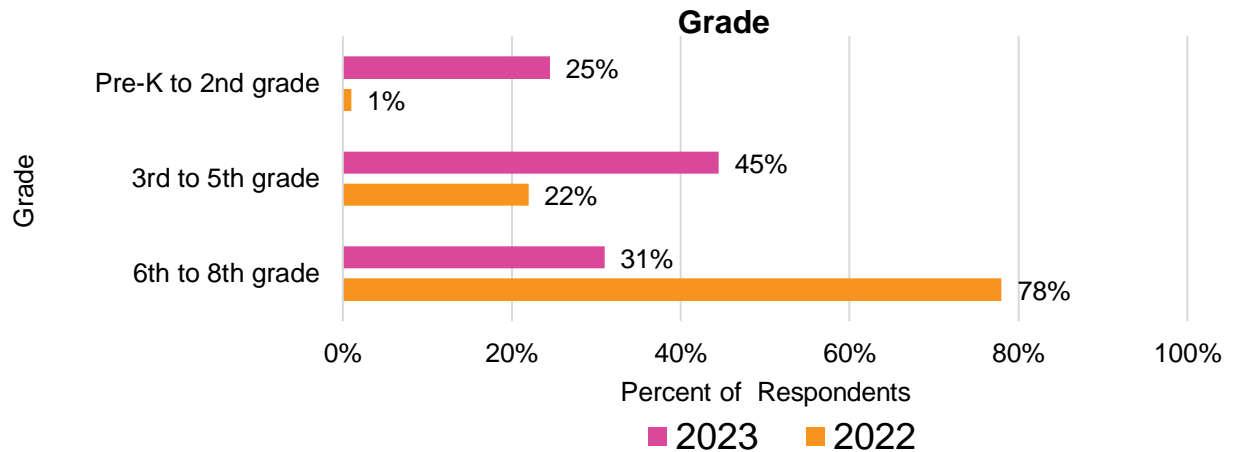
Summer Lab

Project Scientist’s Summer STEAM Lab is an immersive experience for girls ages 4-12. Through hands-on science experiments and activities, participants are challenged and inspired to be innovative scientists and problem solvers.

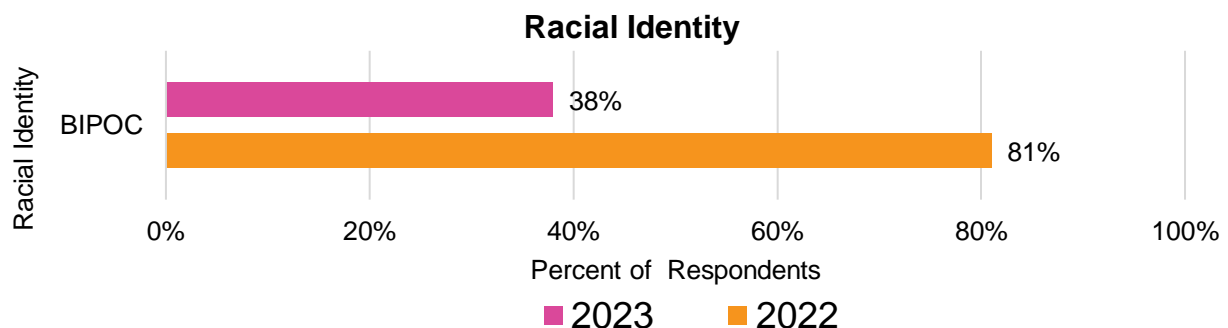
The 2023 Summer Lab attracted participants from a range of racial identities and ages. Project Scientist created a safe space where participants could make mistakes and ask questions. Through the program, participants increased their STEM understanding and confidence in solving problems and challenged traditional gender norms.



Respondent Overview

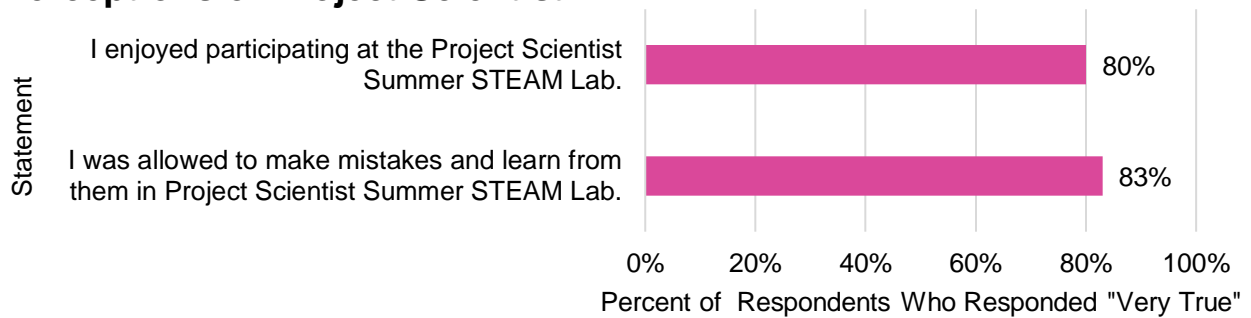


In 2022, most Summer Lab participants were in the 6th – 8th grade, while most participants in 2023 were in the 3rd – 8th grade. These results can be used to make inferences about changing participant demographics and better target recruitment efforts.



In 2022, most Summer Lab survey respondents were BIPOC while in 2023, most were not. This could be due to the lower ages of participants in the program, impacting response rates, varying locations, or varying participant access to online survey impacting rates.

Perceptions of Project Scientist

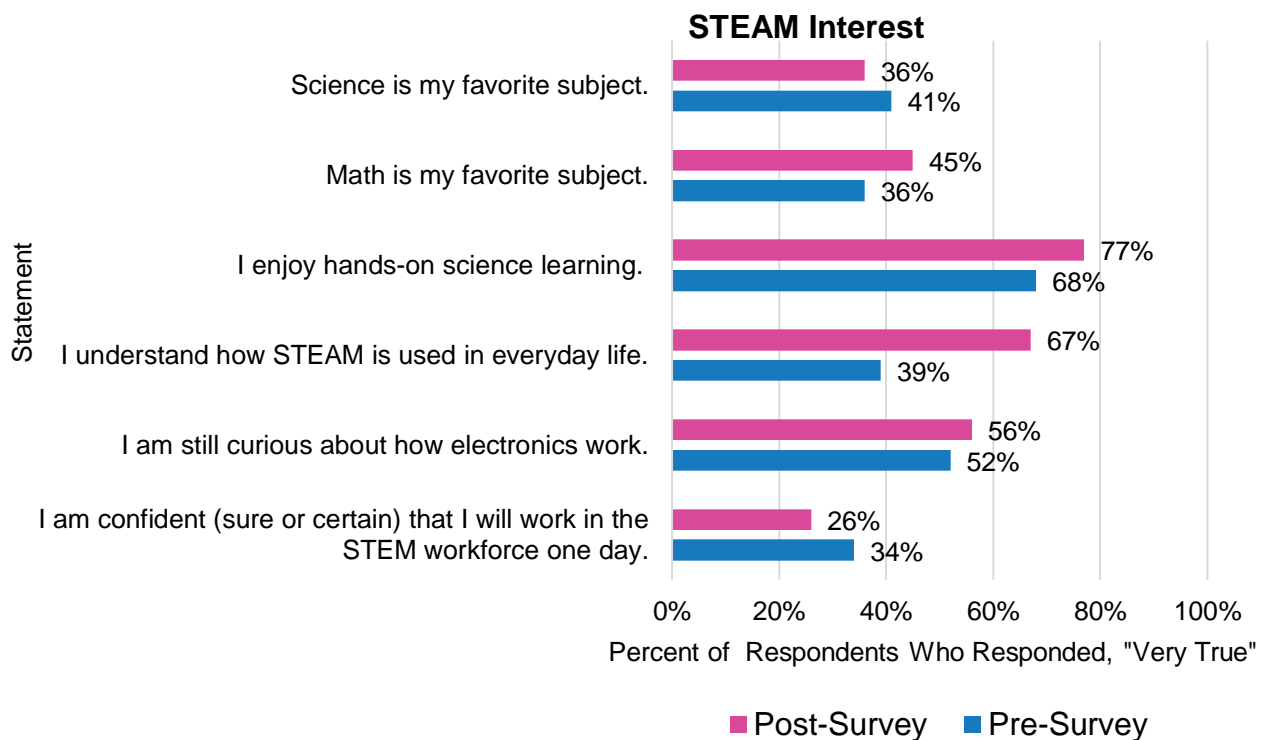


While in the pre-survey 14% of respondents reported being nervous to participate in Project Scientist Summer Lab, after the program respondents reported that they enjoyed participating, felt comfortable asking questions during the program, and were allowed to make mistakes and learn from them during the program.

These results suggest that Project Scientist is creating an optimal space for growth, where participants feel comfortable taking the interpersonal risks needed for learning.

70%
of girls felt **confident** and comfortable asking questions at the Project Scientist Summer STEAM Lab.

STEAM Interest and Understanding

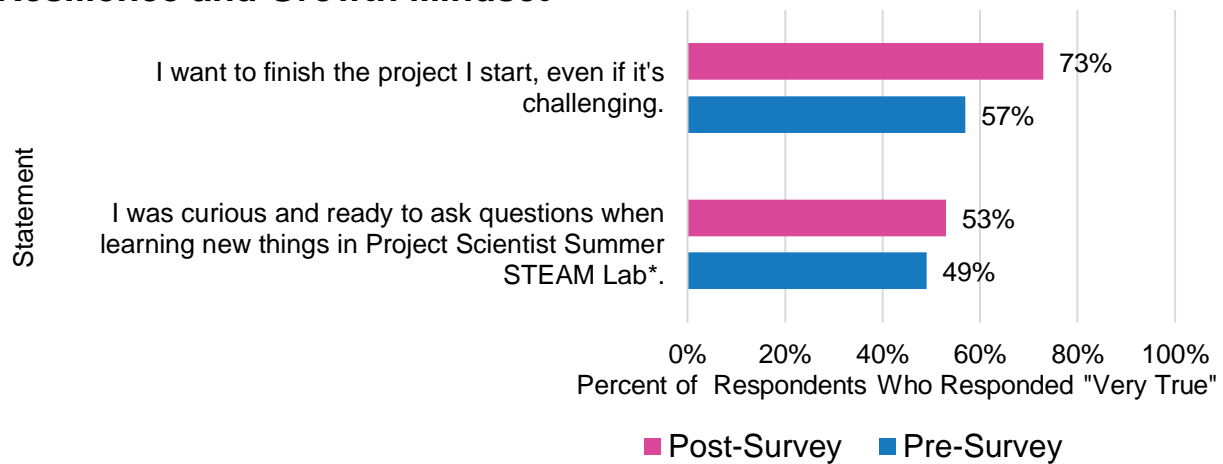


Through Project Scientist, educators nurtured participants' interest in STEM. A higher percentage of respondents agreed that math is their favorite subject, they enjoy hands-on science learning, understand how STEAM is used in everyday life, and they are still curious

about how electronics work in the post-survey in comparison to the pre-survey. This interest in and knowledge of STEAM is critical to support the continued engagement with the subject.

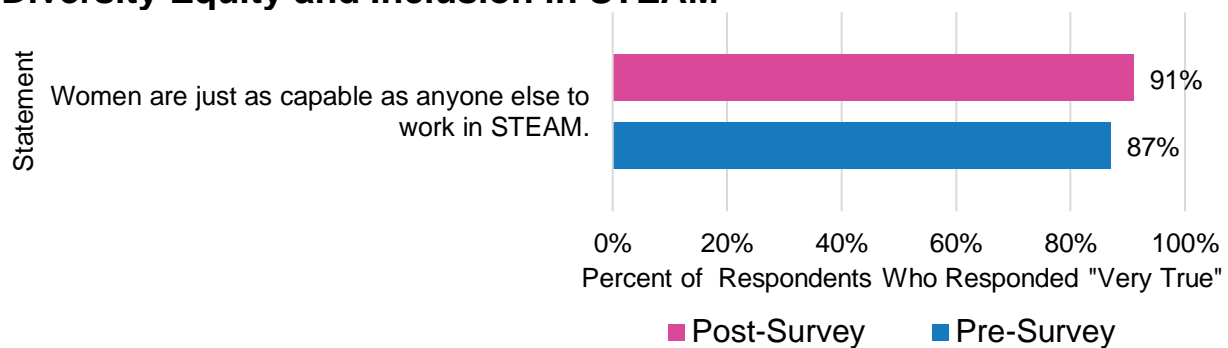
While most respondents in the pre and post-survey reported that they were not confident that they would work in the STEM workforce one day, 47% of respondents in the post-survey identified a STEAM career when asked what they want to be when they are older. These results suggest an opportunity for Project Scientist to continue to equip participants with the confidence and clarity to pursue a STEAM career, as well as ensure participants understand the variety of STEAM careers that exist.

Resilience and Growth Mindset



STEAM can be difficult, it requires learners to be open to challenging themselves. Through Project Scientist, participants improved their approach to challenging projects and learning new things.

Diversity Equity and Inclusion in STEAM



Project Scientist helps girls challenge stereotypes about STEAM to help them envision themselves in the industry. A higher percentage of respondents agreed that women are just as capable as anyone else to work in STEAM in the post-survey in comparison to the pre-survey. A higher percentage of respondents also indicated that they know a woman in their family who works in a STEAM field.

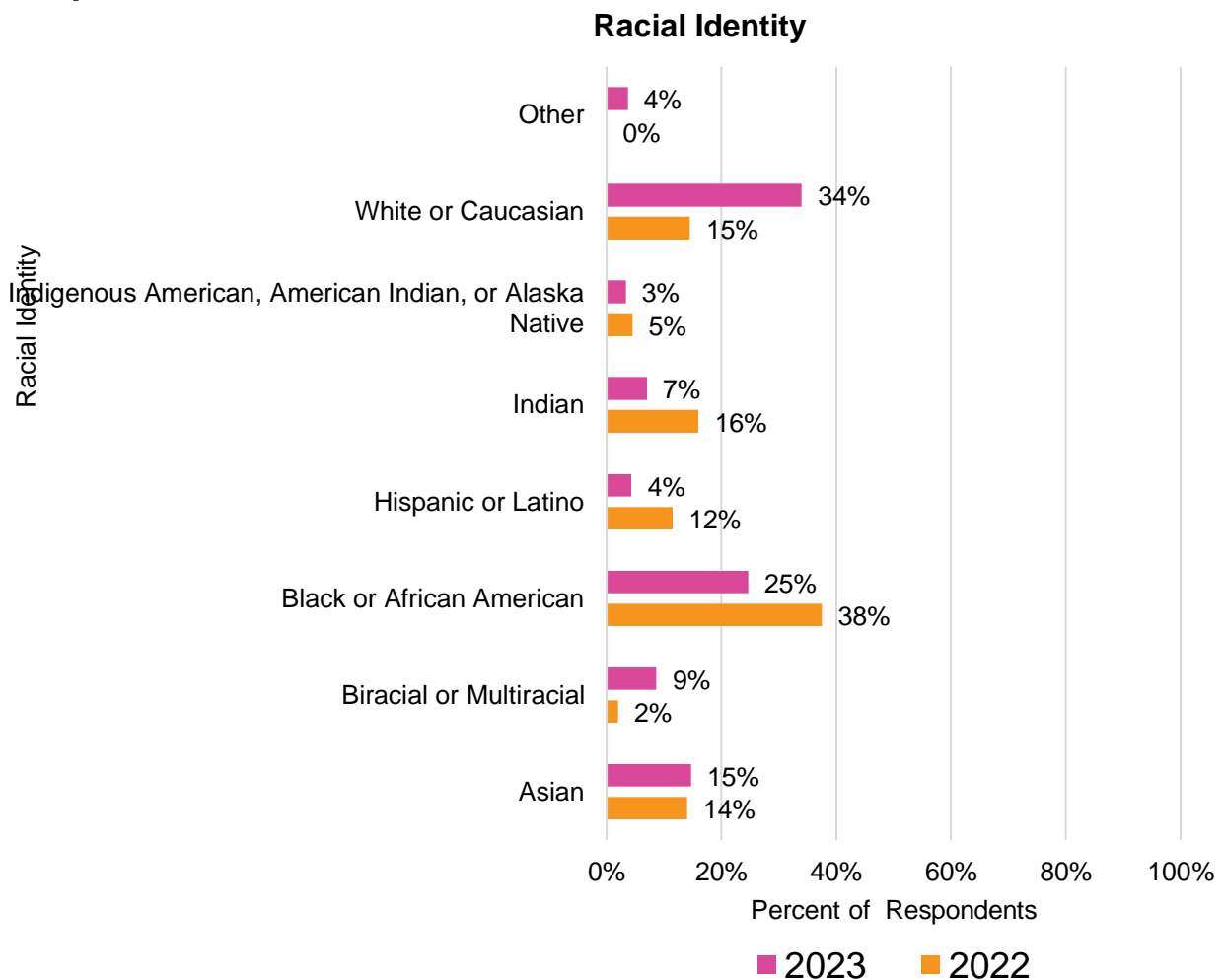
Scholars

Project Scientist’s Scholars is an interactive after-school program for girls ages 13-18 to build confidence, ignite curiosity and empower their STEAM career dreams.

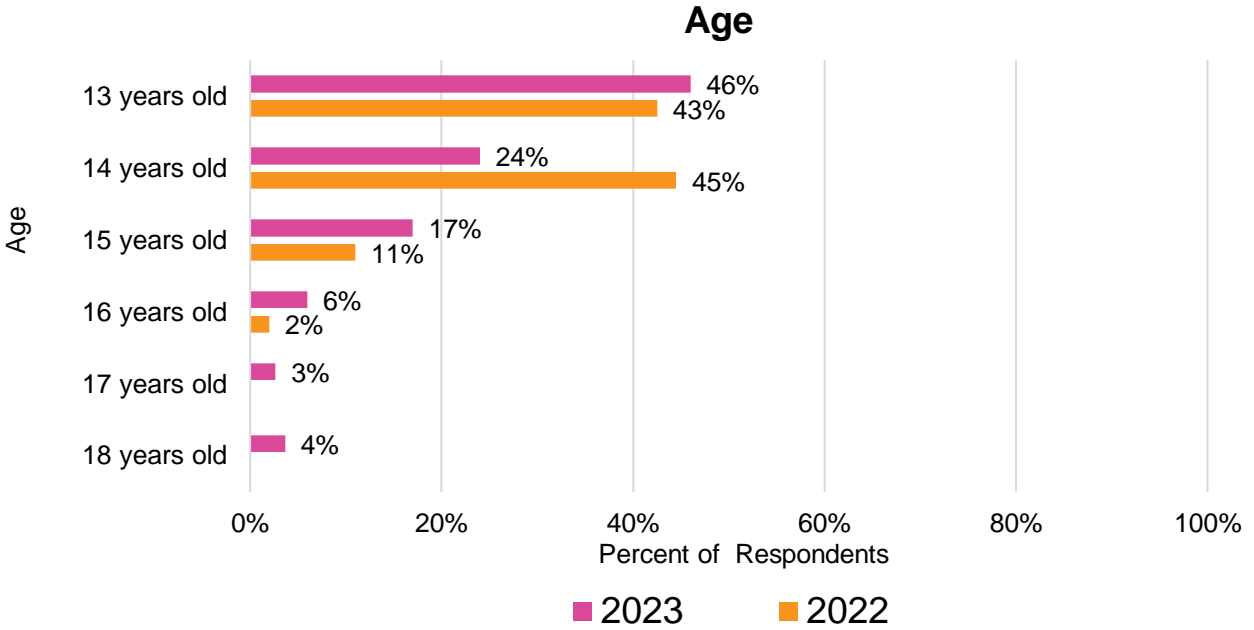
Through Scholars, Project Scientist created a space for girls to enhance their STEAM understanding and nurture their STEAM interest. Participants explored the future they could have in STEAM, harnessed their ability to navigate difficulty and challenged stereotypes.



Respondent Overview

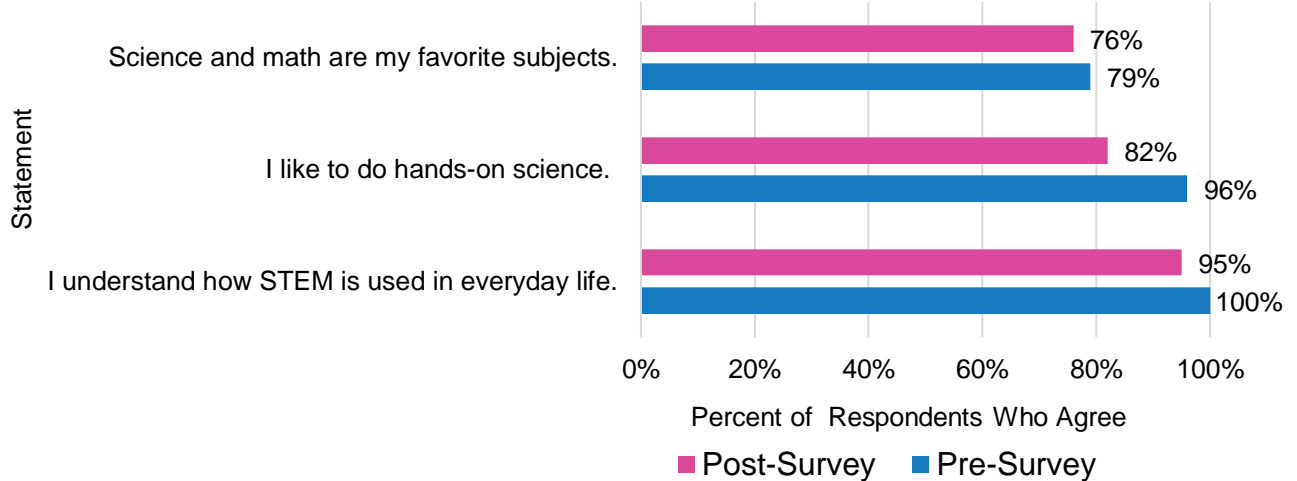


Most respondents in 2022 and 2023 were BIPOC, with a higher percentage of participants identifying as BIPOC in 2022 than in 2023. In 2022 Project Scientist partnered with Black SciGirls for the Scholars program which contributed to participant diversity.



Most respondents in 2022 and 2023 were 14 or 13 years old. In 2022 participants were younger than in 2023, which had participants ages 17 and 18.

STEAM Interest and Understanding

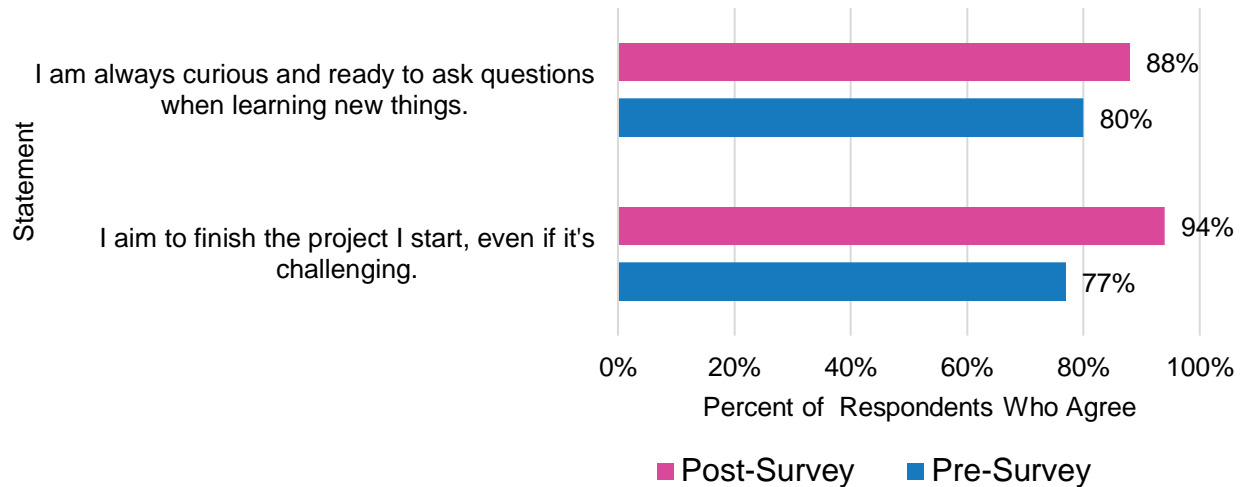


94% of respondents reported having something in common with a STEM superstar.

82% of respondents reported that they are excited to share what I have learned about STEAM with friends and family.

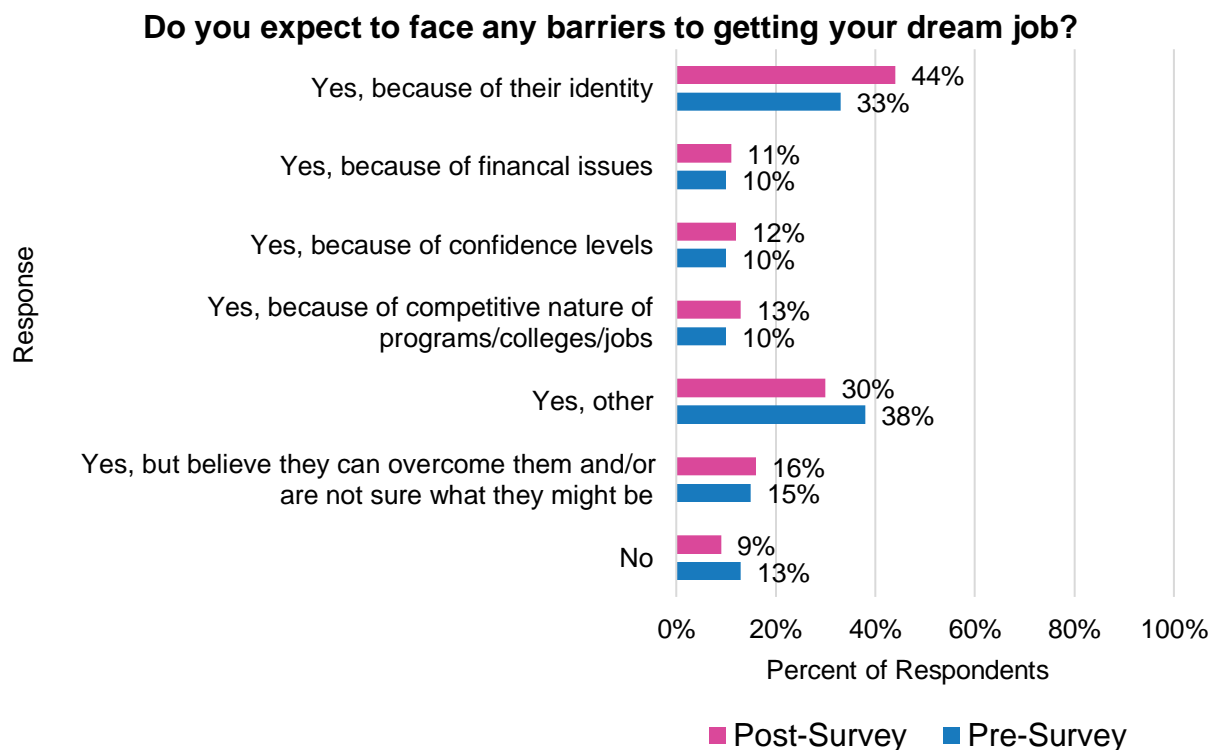
While respondents who agreed that science and math are their favorite subjects, that they are excited to learn more about STEAM, like to do hands-on science and understand how STEM is used in everyday life, agreement decreased from the pre-survey to the post-survey. However, the overall section score increased as a result of other responses.

Resilience and Growth Mindset



Project Scientist created a space for respondents to feed their curiosity, learn from their mistakes and finish challenging projects.

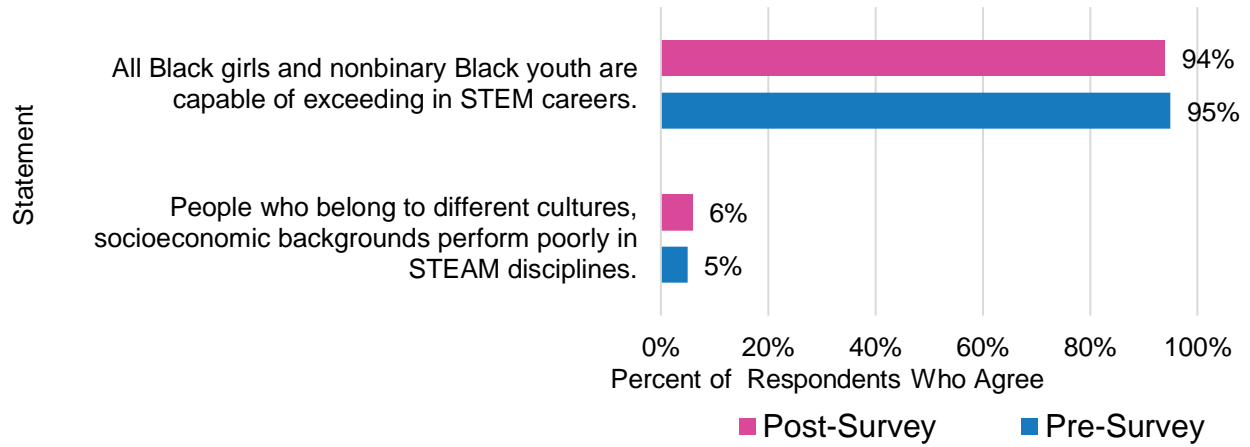
Education and Career



77% of respondents stated jobs in a STEAM field when asked what their dream job would be.

Project Scientist created a space for girls to speak candidly about barriers women face to entering STEAM careers, alongside the confidence to address and overcome them.

Diversity Equity and Inclusion in STEAM



17% of respondents shared that they have been excluded and not provided equal opportunities based on their gender as a girl or a non-binary youth. Through Project Scientist, participants challenged stereotypes about STEAM in positive ways.

After School STEAM Club

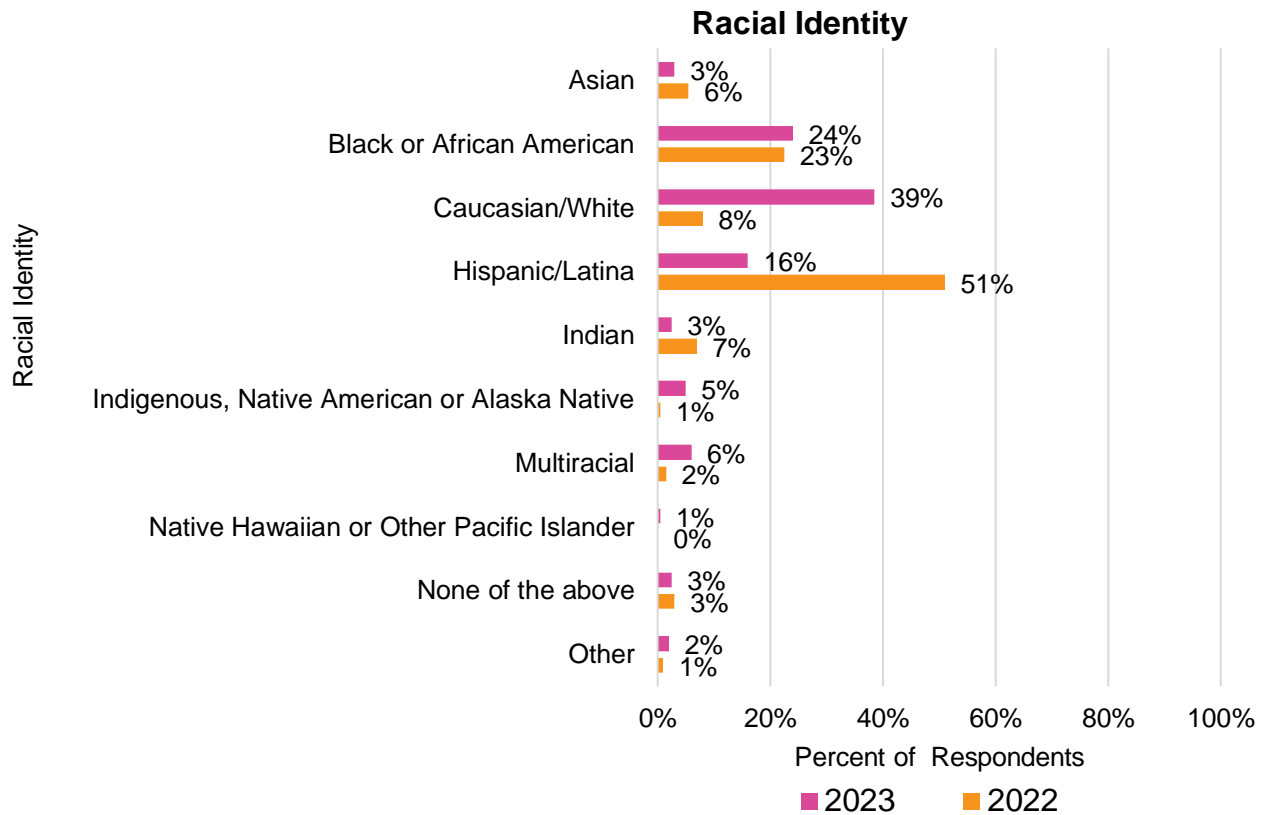
Project Scientist’s After-School STEAM Club is an interactive after-school program offering girls ages 4-12 from marginalized and underserved communities an opportunity to discover the joy of science, technology, engineering, arts, and math.

STEAM Club was an important part of many participants’ lives, representing the only after-school STEAM program for most. Project Scientist served participants across racial identities and ages, with most participants being Black, Indigenous, or other People of Colour.

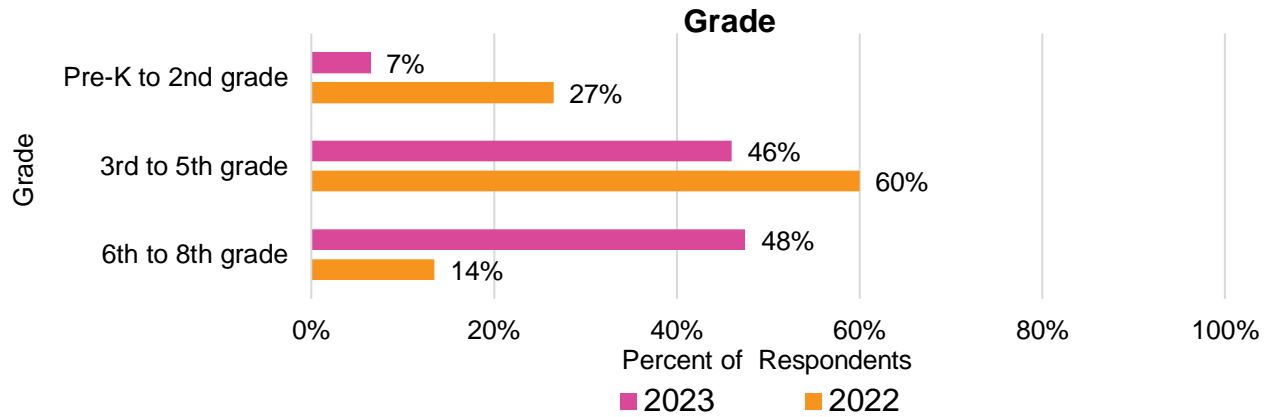
Through STEAM Club, Project Scientist created a space where participants learned about STEAM, increased their interest in STEAM, imagined themselves in STEAM careers, and challenged stereotypes about women in STEAM.



Respondent Overview

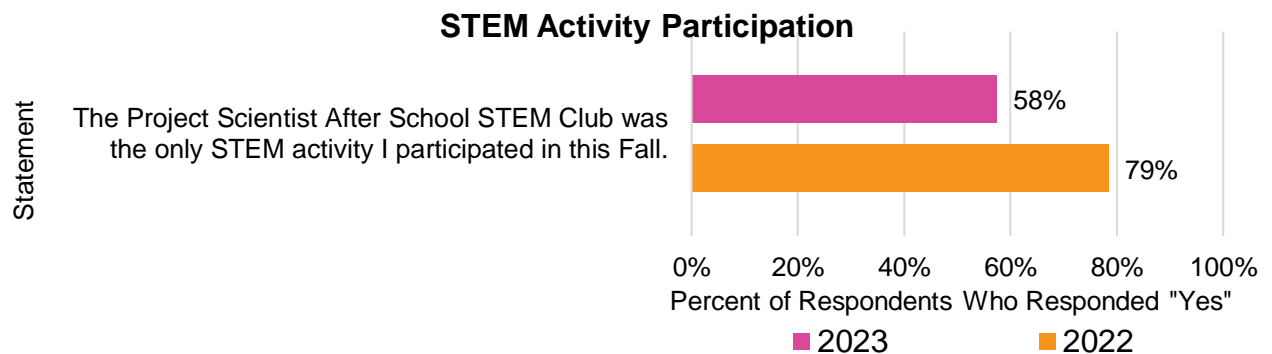


51% of respondents in 2023 identified as BIPOC, compared to 87% in 2022.

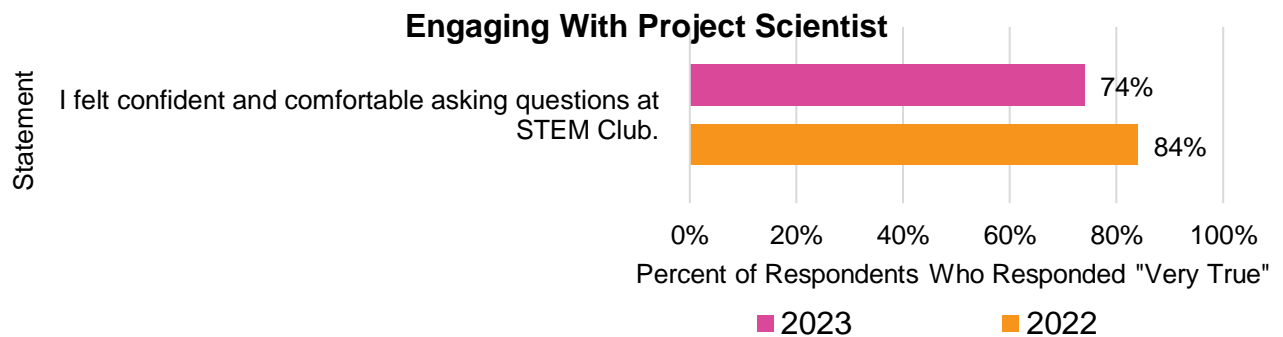


Most respondents in 2023 were 3rd – 8th grade, while most respondents in 2022 were in Pre-K – 5th grade.

Perceptions of Project Scientist

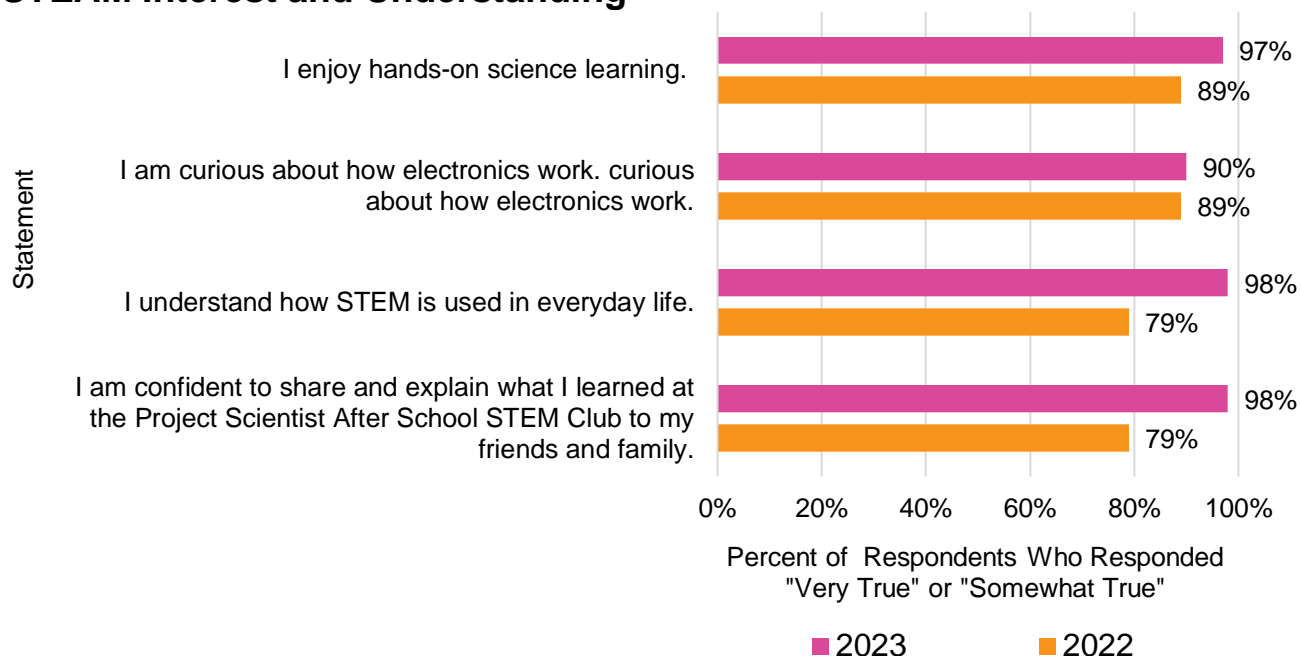


STEAM Club was an important part of participants' lives. Most participants, however slightly fewer than 2022, reported that After School STEAM Club was the only STEAM activity they participated in this fall. This could also suggest that students are becoming more interested in STEM and are seeking out additional opportunities.



Project Scientist created a space where participants felt comfortable and confident asking questions.

STEAM Interest and Understanding

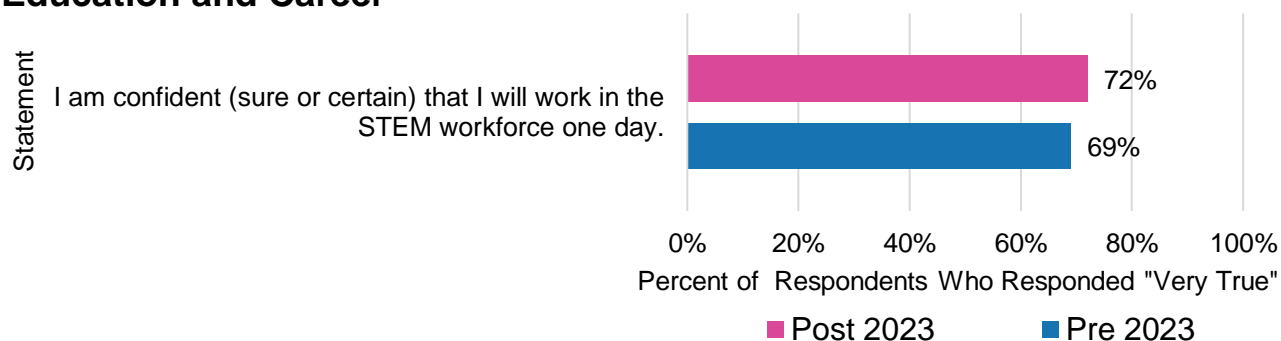


Through Project Scientist, participants increased their understanding of and interest in STEM, exhibited through their confidence in talking to others about STEM Club.

“Her level of confidence has increased significantly and has translated into a desire to participate in her first science fair this year. I believe that the hands-on, mind-on experiences on the STEAM club have helped to shape her confidence and has made her more scientifically poised in conversation and in her thought processes.”

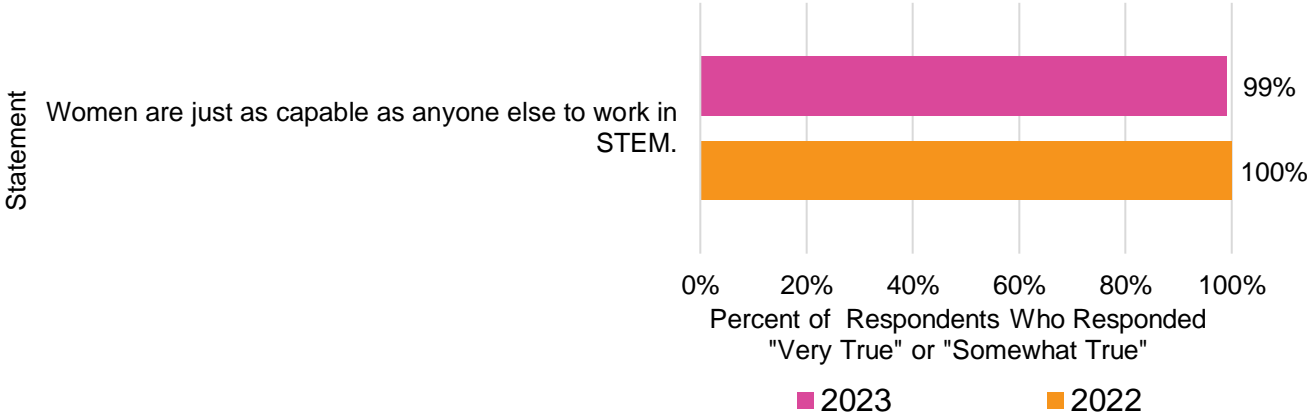
- STEM Club Parent

Education and Career



Through Project Scientist, participants increased their confidence and interest in working in STEM.

Diversity Equity and Inclusion in STEAM



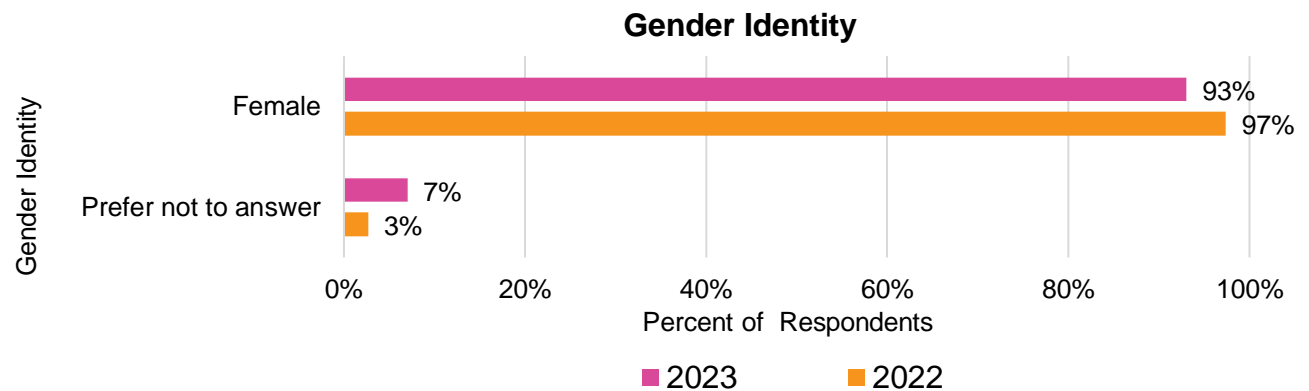
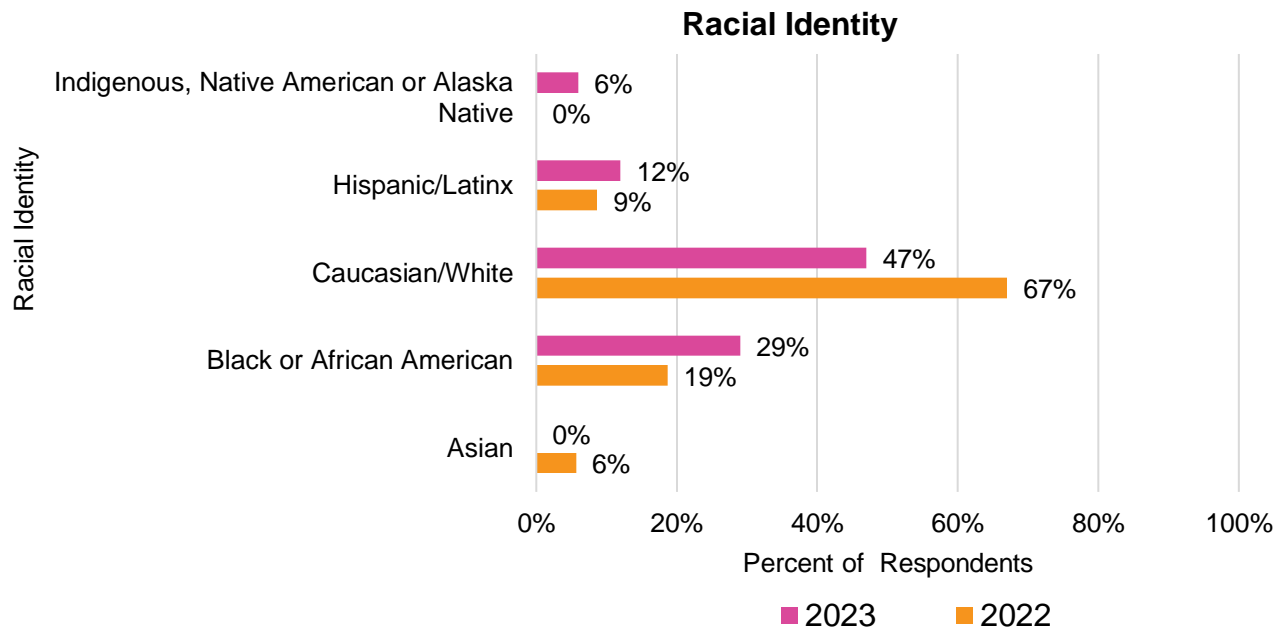
Through Project Scientist, participants challenged stereotypes and understanding of women in STEM, to support how they could imagine themselves in the industry.

Teaching Institute

Project Scientist attracted a diverse range of educators to the Teaching Institute, and equipped them with the tools, knowledge and supports needed to teach and guide students through STEM.

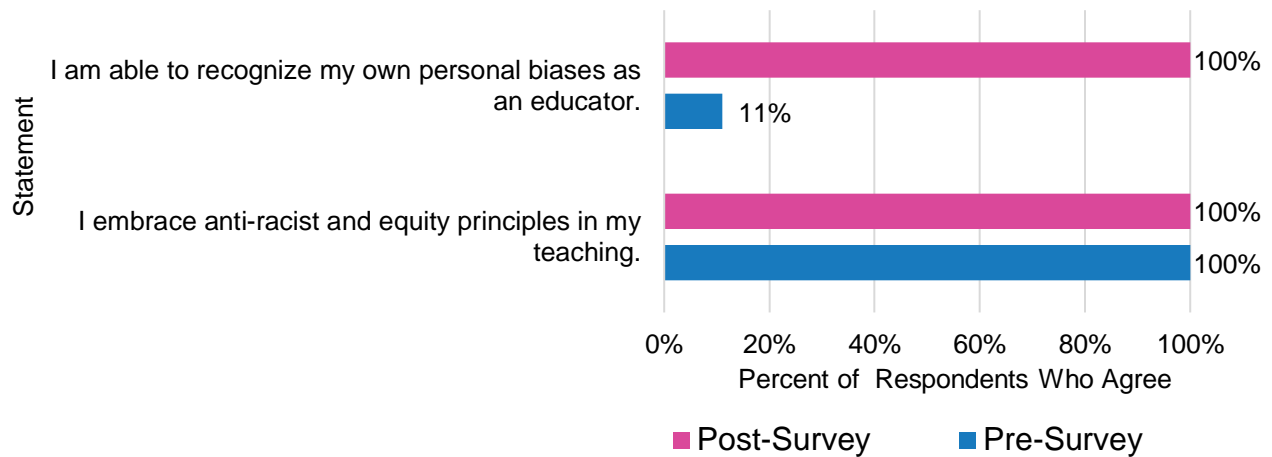


Respondent Overview



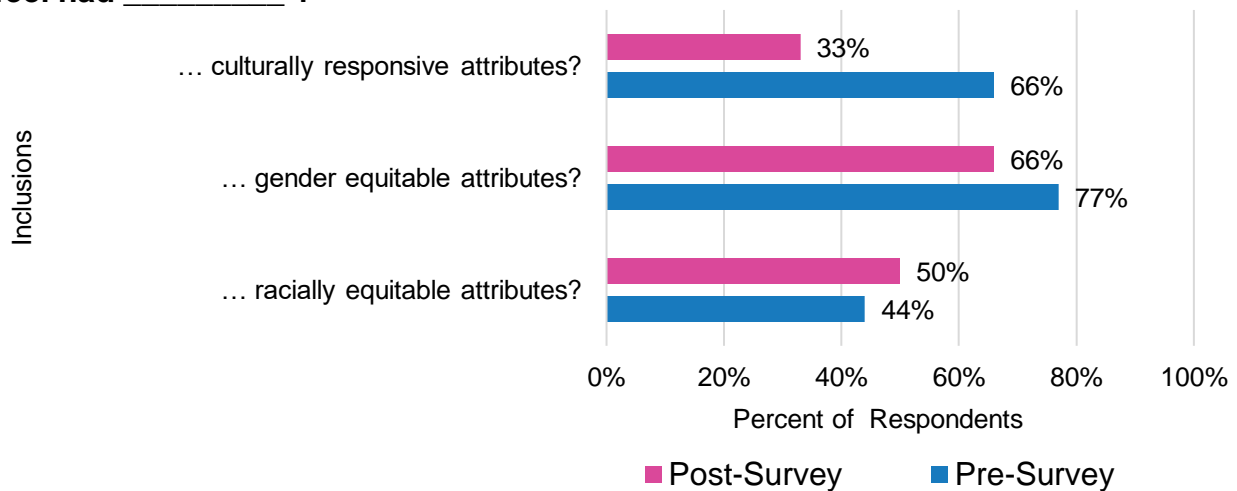
The Teaching Institute attracted teachers from a wide background, with most participants being women and a higher percentage of educators being BIPOC in 2023 in comparison to 2022.

Diversity, Equity and Inclusion in the Classroom



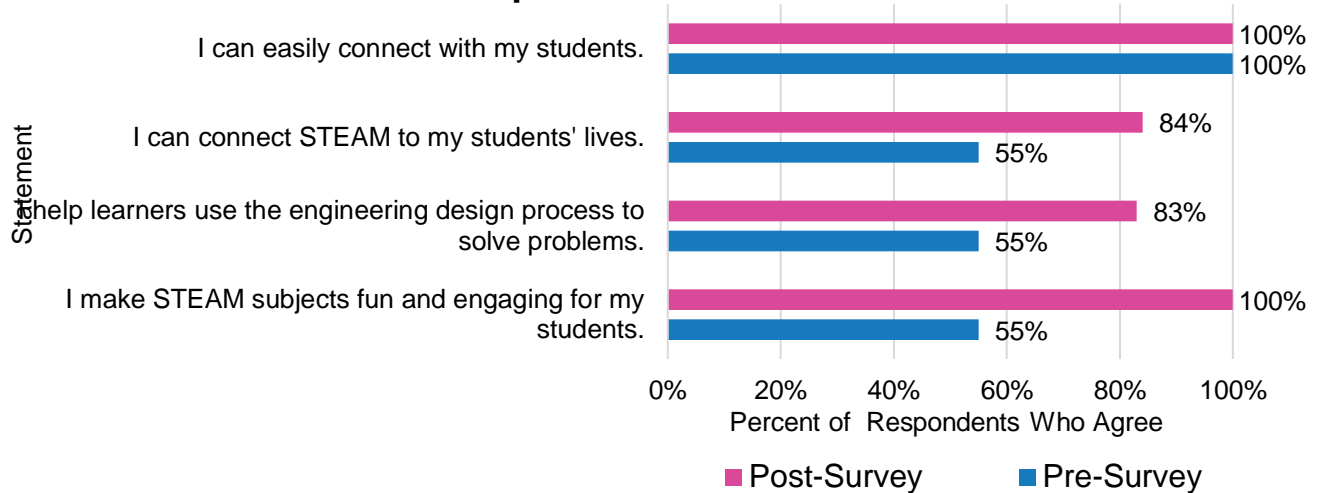
The Teaching Institute provided educators with the tools they needed to mitigate their biases, and apply anti-racist and equity principles into their teaching. Notably, while 11% of teachers agreed they can recognize their own personal biases as an educator in the pre-survey, 100% agreed in the post survey.

Approximately what percentage of your lesson plans from last semester do you feel had _____ ?



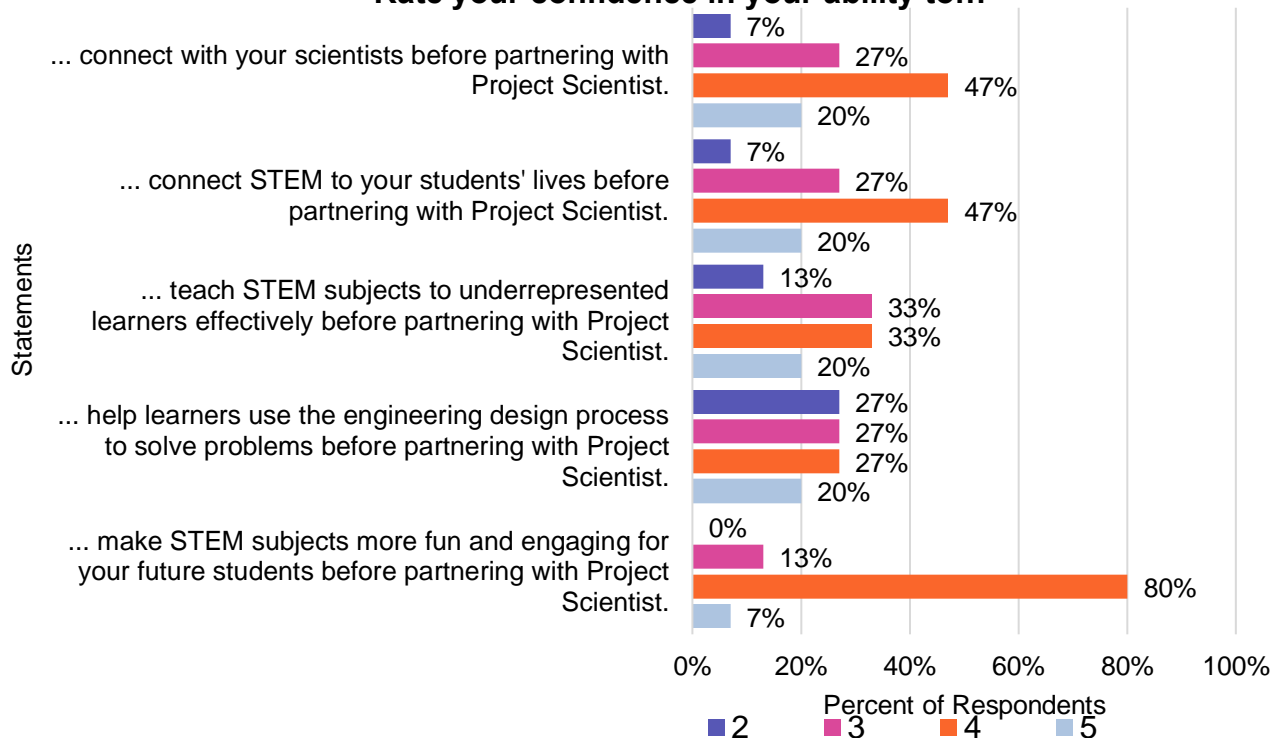
The Teaching Institute gave educators the tools to better understand the attributes needed to improve equity and inclusion in the classroom. A higher percentage of teachers reported applying racially equitable attributes in the classroom in the previous semester in the post-survey than in the pre-survey. A lower percentage of teachers reported implementing culturally responsive and gender equitable attributes in the post-survey than in the pre-survey. These variances could reflect the higher level of understanding of these attributes to better evaluate how and if they are including them in their lesson plans.

Educator Confidence and Capabilities



Project Scientist created an environment for educators to increase their confidence in their ability to making STEAM meaningful and engaging for students. Notably 100% of teachers in the post-survey agreed that they make STEAM subjects fun and engaging for their students, compared to 55% in the pre-survey

Rate your confidence in your ability to...



Teachers were asked to rate their confidence from 1 – 5 (1 = not confident; 5 = Very confident) regarding their abilities to teach STEAM, being able to connect with students, and their ability to teach and use the engineering design process. These results affirm the opportunity and need for programs like the Teaching Institute.