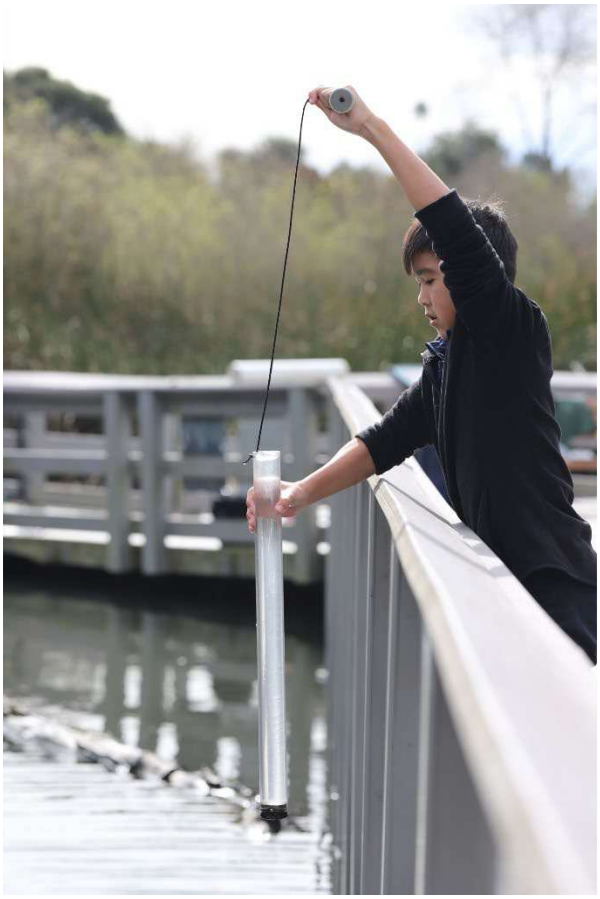
Voya STEM Futures

2024-2025



Prepared by ASTC Staff, March 2025

Program Summary

Voya STEM Futures, funded by Voya Foundation, supports science centers and museums in select locations across the United States to develop meaningful and innovative programs that inspire STEM learning and career interest for youth in grades 4-8. Research shows that at this critical age, youth are developing attitudes and interests that have a long-term effect on their future STEM career pathways. Informal science learning institutions, such as science centers and museums, are uniquely positioned to engage youth in ways that ignite or embolden an interest in STEM, while also providing the tools, connections, and skills needed to pursue a STEM career pathway. As anchors in their communities who serve broad and diverse youth—including those from identities underrepresented in STEM—science centers are playing a key role in building a 21st century STEM workforce that is skilled, inspired, diverse, and community-connected.

Since 2017, *Voya STEM Futures* has distributed over $500,000 of funding to support 49 projects in 38 different ASTC member museums, collectively engaging over 10,000 learners in the target grades of 4-8. The current funding period, 2024-2025, built on prior efforts by expanding into three new Voya market regions (see below) and investing in evaluation and capacity-building activities for grantees.

1. Atlanta, Georgia
2. Boston, Massachusetts
3. Charlotte, North Carolina (new market)
4. Houston, Texas (new market)
5. Iowa (new)
6. Jacksonville, Florida
7. Minneapolis, Minnesota
8. New York, New York
9. San Diego, California (new market)
10. San Francisco, California (new market)

Collectively, 2024-25 grantees engaged **4,364 youth in grades 4-8**, plus an additional **4,862 learners beyond the target age**, via projects that ranged from multi-day programs to one-day extravaganzas. Museum-based programs drew on STEM topics ranging from ecology, to art, to engineering, with a shared purpose of engaging youth in grades 4-8 in career-connected STEM learning. Across these varied projects, *Voya* funds were used to support critical aspects of program delivery, including staff time, hands-on materials, communication, and travel.

Community-Wide Events

The **Fleet Science Center** celebrated career connections with the **San Ysidro STEM Fair**, a large-scale, locally focused STEM festival developed in collaboration with the Fleet Science Center, South Bay Community Services, the San Ysidro School District, its Sci-Phy Teachers, and the San Ysidro STEM Committee. The goal of this community-wide event was to demystify "STEM" for the community through hands-on activities that spark "ah ha!" moments and center curiosity as part of the learning process. The San Ysidro STEM Fair incorporated opportunities for the community to connect to near-peer STEM role models, STEM professionals and STEM industry leaders to demonstrate viable career paths that are available and to inspire youth to connect closer to science, especially in a context outside of the formal classroom.

Voya market region: San Diego, CA
Youth aged 9-14: 840
Other learners: 1260

Catawba Science Center (CSC) utilized *Voya STEM Futures* funds to strengthen ongoing programs connecting learners with local STEM opportunities in the Carolina Foothills.

STEM Trek is an annual, one-day celebration of regional STEM careers presented in partnership with STEM West and the North Carolina Science Festival. At this free event, businesses shared the foundational science of their work in engaging, hands-on ways for youth and their families. Additionally, Voya funds supported 9 **SPARK: A STEM Career Showcase!** Events, offering engagement opportunities for visitors with local STEM professionals, who share the work they do and its relevance. Participating businesses, new to working with CSC, included Frye Regional Heart Center, Dental Health Concepts, and Catawba Valley Community College's Manufacturing Solutions Center.

Voya Market: North Carolina
Youth aged 9-14: 501
Other learners: 3,000

Through **Summer Sparks: Empowering Futures in STEM**, the **Long Island Explorium** offered a series of hands-on STEM experiences at public libraries in underserved communities. Four, one-day STEM events at public libraries—targeting students in grades 4-8 from diverse, low-income backgrounds—included pop-up exhibits, interactive workshops, and take-home kits, designed to inspire interest in STEM careers and provide access to STEM role models, with a particular focus on women and BIPOC professionals in the field.

Voya market region: New York, NY
Youth aged 9-14: 490
Other learners: 95

The **Fernbank Science Center** hosted the event **Leonardo da Vinci: An Evening of Art and Science** in collaboration with Georgia Public Broadcasting and DeKalb School of the Arts to highlight the intersection of science and the arts. This event, centered around the life and work of Leonardo da Vinci, coincided with the premiere of Ken Burns' new PBS series. The program introduced students and families to the connections between scientific and artistic innovation—connections that are central to many STEM careers. Additionally, Voya funding supported 16 **Afterschool STEM Club** sessions for grades 3-5 **and an Introduction to Coding and Robotics Outreach Class** for middle school.

Voya market region: Atlanta, GA
Youth aged 9-14: 200
Other learners: 400+

Camps and Classes

Discovery Museum of Acton, MA led 65 T**raveling Science Workshops** for 4th-8th-grade classrooms in local schools. Traveling Science Workshops encourage students to be real scientists right in their classrooms: by making observations, asking questions, and experimenting as they explore one of 23 curriculum-aligned topics. Hands-on workshops use low-tech, familiar materials, making STEM accessible to children, sparking ongoing interest in science, and building STEM self-confidence.

Voya market region: Boston, MA
Youth aged 9-14: 1,217
Other learners: 65

The **STEM Careers Program** at **Putnam Museum and Science Center** included multiple, connected activities designed to provide youth from populations underrepresented in STEM careers with no-cost opportunities to explore STEM careers and related topics. Activities included onsite week-long, half-day summer camps with partner STEAM on Wheels; summer and fall career workshops on topics such as space, biology, and computer science; and Girl Scout engineering days. Participating youth engaged in hands-on activities, explored relevant sections of museum exhibit halls, connected with adults in the featured career areas, and were immersed in on-topic educational Giant Screen films (e.g., Space: The New Frontier; Dream Big: Engineering Our World).

Voya market region: Iowa
Youth aged 9-14: 142
Other learners: N/A

The Works Museum's **Career Connections** program, developed in partnership with the Boys & Girls Club of the Twin Cities, sparked youth interest in STEM careers through hands-on engineering workshops brought into afterschool programs, a family engineering event, and a field trip to The Works Museum. Youth in grades 3-5 and their families also had the unique opportunity to engage with STEM professionals who volunteered in the programs and all families received free museum memberships, ensuring a lasting and impactful experience for everyone involved.

Voya market region: Minneapolis, MN
Youth aged 9-14: 335
Other learners: 35

Outdoor Field Experiences

The **Florida Museum of Natural History**'s **Museum in the Parks** program brought young community members, museum collections, and the scientists who study them together for shared learning in local spaces. By offering hands-on, experiential learning opportunities in outdoor spaces, Museum in the Parks is designed to spark students' interest in place-based STEM careers, while providing opportunities to practice real, career-connected STEM skills such as making observations, using scientific instruments, and handling specimens.

Voya market region: Jacksonville, Fl
Youth aged 9-14: 99
Other learners: 271

The **Santa Cruz Museum of Natural History** conducted field-based **Science in Nature Experiences** (SINE) for 4th and 5th grade students. These programs, which took place in Santa Cruz city parks, engaged students in hands-on science investigations of local habitats, using real tools to collect and interpret ecological data. By using scientific inquiry, and referencing practices used by STEM professionals, and connecting this learning to a local setting, students build an understanding of how they can be stewards of the natural world, both in their everyday lives and their future careers.

Voya market region: San Francisco, CA
Youth aged 9-14: 483
Other learners: 76

Mentorship Experiences

The **Girls STEM Pathway** initiative at **Space Center Houston** is a multi-year program dedicated to engaging thousands of girls in grades K-12 and beyond annually with 21st century skills to fuel their imaginations, increase their confidence, and provide authentic learning experiences in science, technology, engineering and mathematics (STEM) careers. Within this larger program, Voya funds specifically supported **STEM Mentoring Cafés**: a series of 10, hour-long virtual mentorship sessions for middle school girls. Volunteer female STEM professionals provide mentorship and support for participating youth, driving girls' motivation, confidence, and sense of representation in STEM.

Voya market region: Houston, TX
Youth aged 9-14: 57
Other learners: 40

Project Outcomes

The overall goal of *Voya STEM Futures* is to promote youth interest in STEM careers. In service of that broad goal, ASTC, Kera Collective, and museum grantee teams identified a set of specific target outcomes for youth, as well as the museum professionals designing programs for youth. (See Logic Model, attached).

Evaluation findings indicate that *Voya STEM Futures* programs were successful in driving many of these career-oriented outcomes. A full evaluation report is attached; below are highlights.

Youth Outcomes (Program Participants)

Youth who participated in the 10 museum-based programs were invited to complete surveys asking about their experiences. Key findings include:

- **Youth increased interest in STEM.** Of the 700+ youth who completed the survey, 72% agreed they were "more excited to study STEM after doing these activities."

- **Participating in STEM activities is positively correlated with STEM career interest.** On the survey, youth were also asked whether they participate in other STEM activities (beyond the Voya-funded programs they were participating in at the time). Youth who participated in more STEM activities were more likely to say that they learned something new; felt like a scientist or engineer while doing the Voya-funded activities; and c) that it would be fun to have a job that uses STEM. In considering the relationship between participating in STEM activities and developing STEM career interest, these data don't indicate the direction of causality; however, it is likely that the two variables are mutually reinforcing, with STEM participation driving STEM interest, and STEM interest driving further participation.

"I liked when we got to use the binoculars because I have never used them before." (8 years)

"I want to know more about science fields focused on marine biology - aquatics or biology." (14 years)

- **Experiential, hands-on STEM practices are most appealing to youth.** When asked what aspects of the program they enjoyed, youth most frequently cited experiential activities associated with real STEM practices, including:
  - Conducting experiments (water quality, color changing, dry ice, etc.)
  - Being outside/in nature/seeing animals
  - Building and creating

While youth reported strong interest in these career-oriented activities, overall agreement with the statement "I can see myself as a scientist or engineer when I am older" was relatively low. This suggests that, going forward, more can be done to help participants make the connection between the STEM activities they enjoyed and the future STEM careers where those activities would be used.

Professional Outcomes (Museum Grantees)

Evaluation also examined the effect of the program on grantees' professional practices and capacities. Kera Collective conducted qualitative interviews with staff from each grantee museum. Key findings include:

- **Grantees increased their awareness of the connection between program design and outcomes**, including the use of logic models to boost program quality. One museum staff member said: "I think that laying it all out [in a logic model] does have a value. It's worth it in the end, to really have a plan and have an understanding of what

you're trying to achieve and how you're going to achieve it –inputs, outputs, outcomes."

- **Grantees reflected on the design of future STEM programming.** When asked what worked best about their program's design, museum staff most commonly cited a) providing access to STEM opportunities that participants wouldn't otherwise have had access to, and b) including STEM professionals, both as content experts and representatives of the many different identities that can excel in STEM.
- **Grantees built external relationships with community partners.** All but one grantee said their relationship with community partners was reinforced and improved as a result of Voya-funded programs.