

# Inspiring Young Minds Through Out-of-School STEM

December 7, 2021



# Moderator



**Gemma Lenowitz**

Program Officer, Inspired Minds  
Overdeck Family Foundation

# Presenters



**Nav Deol-Johnson, MSW**  
National Program Operations  
Manager  
Imagine Science



**Britt Magneson**  
Executive Vice President – Education  
Outreach  
National Inventors Hall of Fame®  
[@bmagneson](#) | [@InventorsHOF](#)

# Presenters



**Nick Monzi**

CEO & Co-Founder

Learn Fresh

@NBAMathHoops | @Learn\_Fresh



**Chris San Antonio-Tunis, M.Ed**

Research & Evaluation Manager

Museum of Science, Boston

@museumofscience

# AN UNPRECEDENTED PARTNERSHIP FOR COLLECTIVE IMPACT



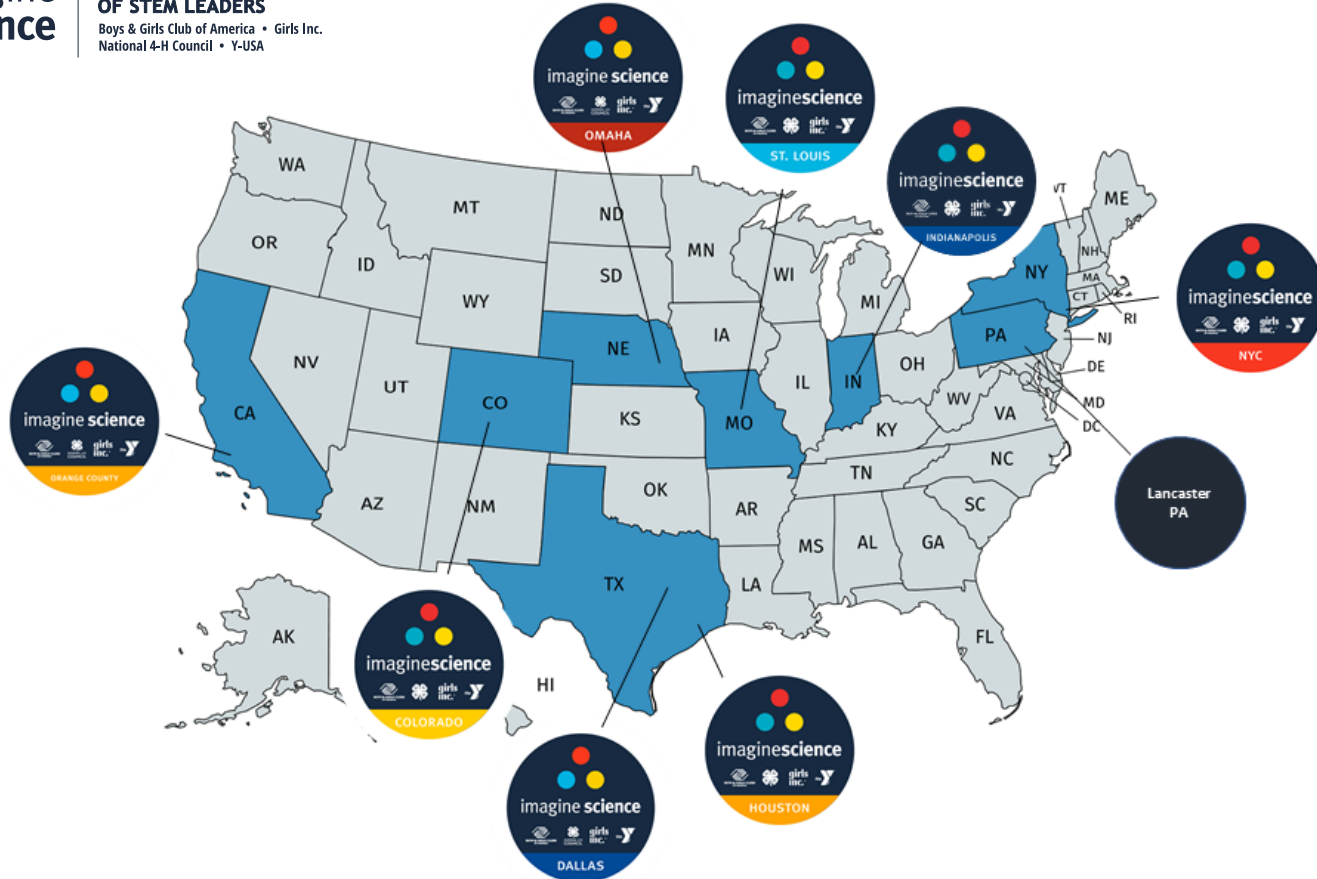
**INSPIRING THE NEXT GENERATION OF STEM LEADERS**  
Boys & Girls Clubs of America • Girls Inc. • National 4-H Council • Y-USA



imagine  
science

**INSPIRING THE  
NEXT GENERATION  
OF STEM LEADERS**

Boys & Girls Club of America • Girls Inc.  
National 4-H Council • Y-USA



## IMAGINE SCIENCE SNAPSHOT

**56%**

of youth served are female

**67%**

of youth served are in  
Grades 4-8

**81%**

of youth served from  
low-income families

**65%**

of programs are implemented  
during the summer

**90%**

of youth served from under-  
represented minority groups

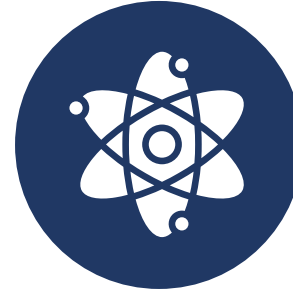
# COLLABORATION AND INNOVATION THROUGH SHARED RESOURCES



Youth  
Participants



Project  
Management



Curricula



Staff  
Training



Resources  
& Supplies



Program  
Evaluation

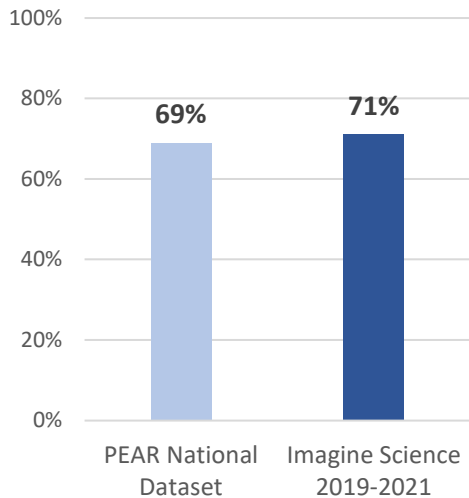


Fundraising

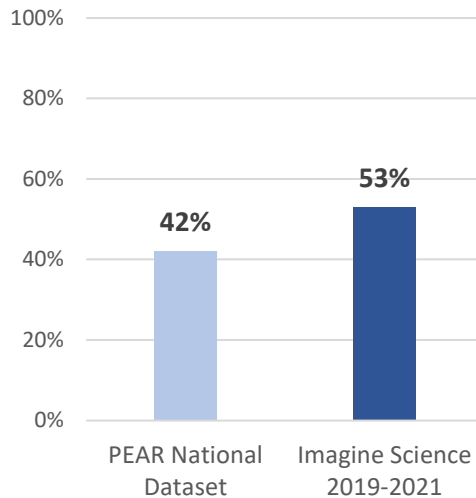


# COMMON PROGRAM MEASURES

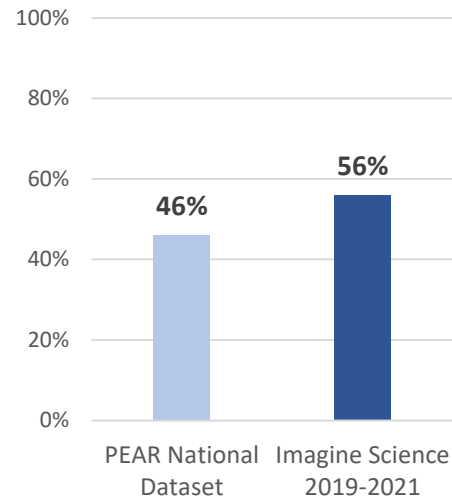
## STEM Engagement



## STEM Identity



## STEM Career Interest



INSPIRING THE NEXT GENERATION OF STEM LEADERS  
Boys & Girls Clubs of America • Girls Inc. • National 4-H Council • Y-USA

The **mission** of the National Inventors Hall of Fame® (NIHF) is recognizing inventors and invention, promoting creativity and advancing the spirit of innovation and entrepreneurship.



National Inventors  
Hall of Fame®  
EDUCATIONAL PROGRAMS

**Britt Magneson**  
Executive Vice President -  
Education Outreach  
[bmagneson@invent.org](mailto:bmagneson@invent.org)

In partnership with



# Leader in STEM Education for over 30 Years

**3,000**

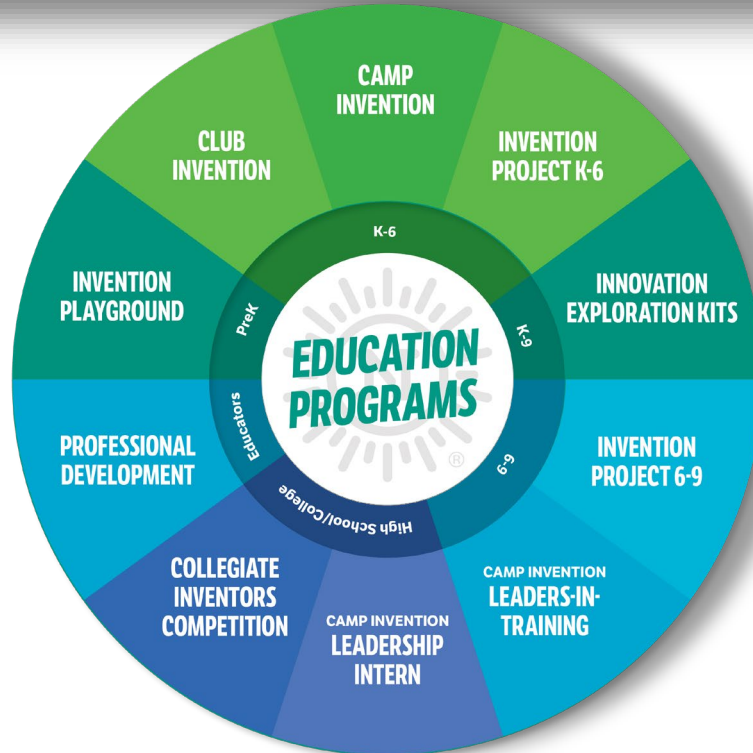
SCHOOL & DISTRICT  
PARTNERSHIPS

**2.5** MILLION

CHILDREN, EDUCATORS, COLLEGE  
STUDENTS & INVENTORS IMPACTED

**22,000**

EDUCATORS AND STAFF



**2021**

**210,000**

CHILDREN

**122,000**

UNDERSERVED CHILDREN

**K-12 Students  
Engaged and Inspired**



# A LEARNING EXPERIENCE

“  
Kids learn  
by experiencing things,  
not by studying things  
and repeating what they study.  
Providing an environment  
where children can learn the  
material, how it comes  
together, and how it works,  
in a climate of play, that's  
an unbelievable thing.  
”

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FEDERICO FAGGIN,  
CO-INVENTOR OF THE MICROPROCESSOR



A student builds confidence and focus  
as they take on a take-apart activity!

# PROVEN BENEFITS OF CAMP INVENTION

Two decades ago, Camp Invention® began formally measuring its impact. During this time, multiple independent evaluations have confirmed both the short- and long-term benefits of our Camp Invention program.

## EDUCATOR CHALLENGE

## CAMP INVENTION SOLUTION

### EQUAL OPPORTUNITIES

Children need equitable opportunities to become successful.

- ✓ Exposure to inventors and invention during childhood can increase the likelihood that a child will become an innovator. The Camp Invention program provides this exposure through our National Inventors Hall of Fame® (NIHF) Inductee integration.<sup>1</sup>
- ✓ Patent holders are successful, earning four times the average American household income. All of the inventors introduced at Camp Invention are patent holders.<sup>1</sup>
- ✓ If girls were exposed to female inventors at the same rate as boys are to male inventors, the gender gap in innovation would shrink by half. NIHF Inductees make up a diverse group of inventors who serve as career role models.<sup>1</sup>

### TEAMWORK

Children need more opportunities to learn how to collaborate — an essential skill for the 21st century.

- ✓ Students have shown improvement in their ability to collaborate after participating in Camp Invention.<sup>2</sup>

### TEACHER ENGAGEMENT

Educators are looking for greater support in teaching children the skills necessary to become innovative.

- ✓ Camp Invention enables teachers to incorporate more entrepreneurial concepts into their teaching.<sup>2</sup>
- ✓ After leading Camp Invention, instructors are more likely to foster risk-taking and create an atmosphere of acceptance of people and ideas.<sup>2</sup>
- ✓ Our program's influence on instructors' teaching strategies can make a positive impact on students beyond those participating in Camp Invention.<sup>2</sup>

### CREATIVE PROBLEM SOLVING

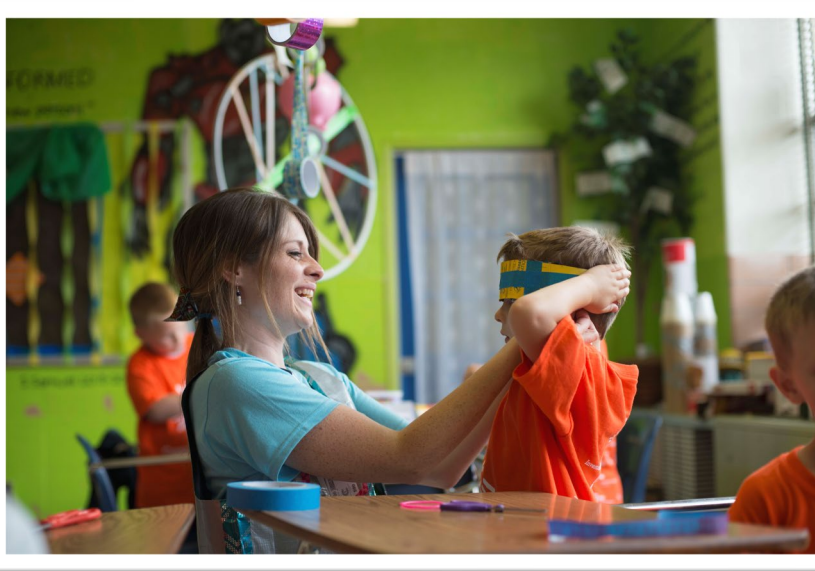
Children need hands-on opportunities to be creative and build problem-solving skills, so they are prepared to take on the challenges of the future.

- ✓ Just one week of Camp Invention results in significant short-term and long-term improvements in creativity, STEM interest, collaboration and problem solving.<sup>3</sup>
- ✓ Students with multiple Camp Invention experiences show higher gains in creativity, STEM interest and problem solving than those with limited or no previous experience.<sup>3</sup>
- ✓ Over the long term, from one to four years after Camp Invention, there is even stronger evidence of growth in creativity, STEM interest and problem solving.<sup>3</sup>

### INCREASED ATTENDANCE AND TEST SCORES

Children need experiences that support school performance, including their attendance and test scores.

- ✓ Participating in Camp Invention during the summer has increased students' performance and engagement the following school year.<sup>4</sup>
- ✓ Camp Invention contributes to better attendance, GPA and test scores — three key steps to ensuring a child takes a college path.<sup>4</sup>
- ✓ Following one recent Camp Invention program, 56% of students with high-risk absence rates demonstrated excellent attendance, and students' average and median standardized test scores rose in reading and math.<sup>4</sup>



1 A. Ball, R. Chetty, X. Jaravel, N. Perkhova, and J. Van Reenen, Who Becomes an Inventor in America? The Importance of Exposure to Innovation Opportunity Insights (2017). [https://opportunityinsights.org/wp-content/uploads/2019/01/patents\\_paper.pdf](https://opportunityinsights.org/wp-content/uploads/2019/01/patents_paper.pdf)

2 ChangeMaker Consulting LLC, Camp Invention Evaluation Executive Summary (2016). [https://www.invent.org/files/default/files/2016\\_02\\_18%20Evaluation%20Summary\\_MKT-588.pdf](https://www.invent.org/files/default/files/2016_02_18%20Evaluation%20Summary_MKT-588.pdf)

3 J. Falk, Camp Invention Evaluation Report: Institute for Learning Innovation (2018). [https://www.invent.org/files/default/files/2018\\_10/11\\_Evaluation\\_Summary\\_Camp\\_Invention\\_May2018.pdf](https://www.invent.org/files/default/files/2018_10/11_Evaluation_Summary_Camp_Invention_May2018.pdf)

4 Summer Education Initiative, National Inventors Hall of Fame Camp Invention Summer 2018 (December 2018). [https://www.summereducation.org/sites/default/files/2018\\_12/NIHF\\_2018\\_Summer\\_Program\\_Evaluation.pdf](https://www.summereducation.org/sites/default/files/2018_12/NIHF_2018_Summer_Program_Evaluation.pdf)



# ANY CHILD, ANY PACE

“  
It was meaningful working  
with my kids in  
an inclusive program that  
teaches them important skills.  
I love that ALL kids are  
successful in this program  
(EL, SPED, etc.).

”

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SHELLEY M.  
EDUCATOR



National Inventors  
Hall of Fame®  
EDUCATION PROGRAMS

# About Learn Fresh

- Learn Fresh is a 501(c)(3) nonprofit, launched in 2012 to develop and scale the NBA Math Hoops program and related experiences in sports and entertainment.
- **Mission:** Through community, play, and rigorous exploration, we leverage students' passion for sports and entertainment to inspire their STEM and social-emotional learning.
- **Vision:** We envision a world in which students find learning so engaging that they want to do it all the time.
- **Purpose:** Our programs are explicitly focused on achieving equitable representation across the STEM pipeline for girls, students of color, and those living in low-income communities.



Nick Monzi, CEO & Co-Founder  
Educator + Entrepreneur

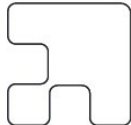


Calvin Sibert, Chief Academic Officer  
20+ year Math Educator



Colleen Serafini, Chief Program Officer  
Veteran Afterschool Administrator

**LEARN  
FRESH**



# NBA Math Hoops

- The NBA Math Hoops program features physical and digital games, math curricula, and community events for K-12 math learning.
- First developed in a math educator's classroom, the program formally launched in 2013 with the Cleveland Cavaliers and 500 students in Ohio.
- The program has grown to engage over 450,000 students through 27 pro team and league partnerships, and dedicated programs in the United States, Africa, Asia, and Australia.

## Other Experiences:

- Math Hits
- STEM Goals
- EcoTour
- Learn Fresh Fellowship
- Youth Assist Tracker Challenge

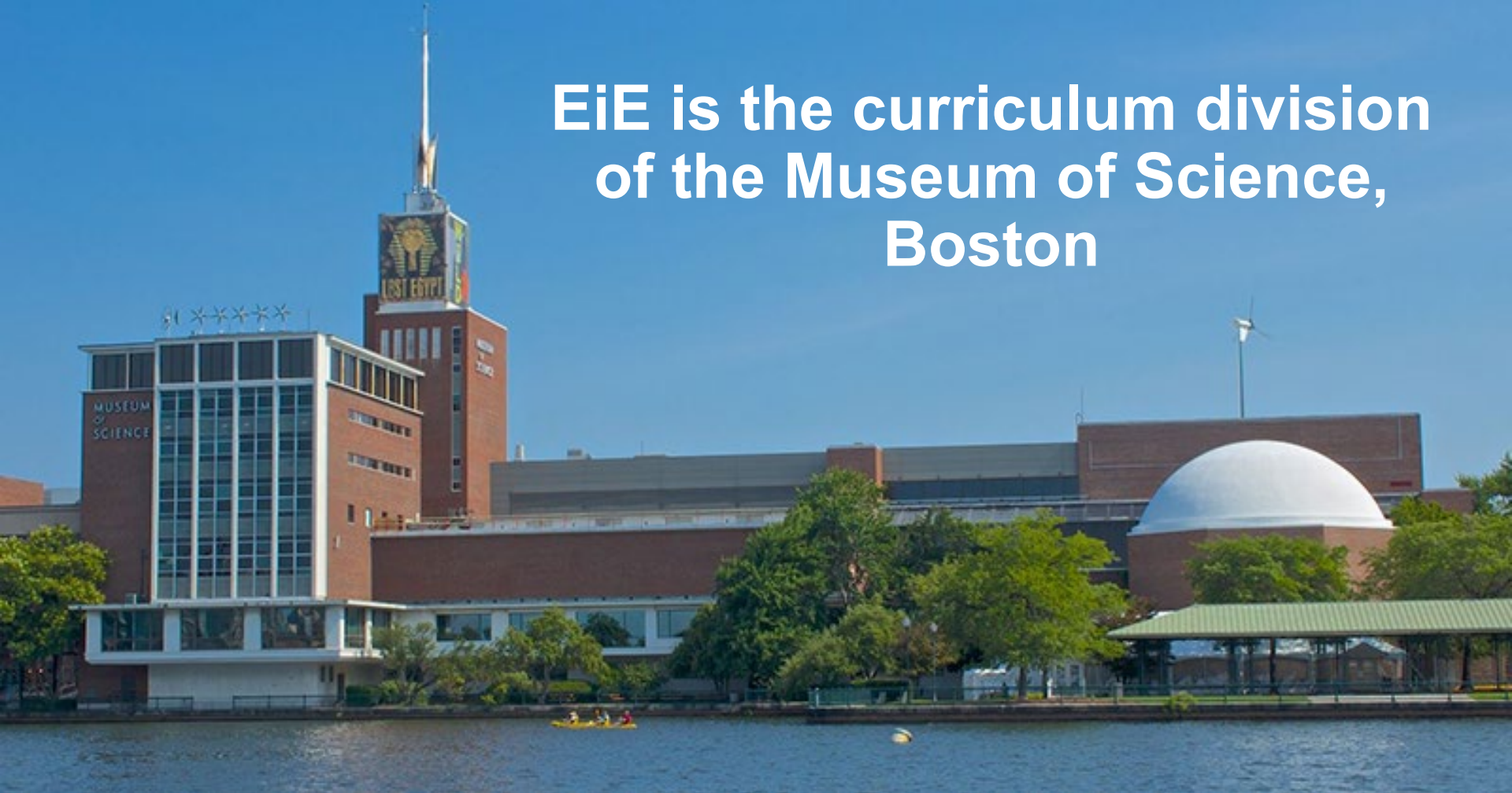


**LEARN  
FRESH**





# EiE is the curriculum division of the Museum of Science, Boston





**Create a Generation  
of Problem Solvers**

**EiE**

®

1996



PROFESSIONAL DEVELOPMENT • RESEARCH • THOUGHT LEADERSHIP

## Preschool Curricula

Wee Engineer  
AGES 3-5

## Elementary Curricula

EiE for Kindergarten  
AGES 6-8

Engineering is Elementary  
GRADES 1-5

Engineering and Computer  
Science Essentials  
GRADES 1-5

## Flexible Curricula

Engineering Adventures  
GRADES 3-5

Engineering Everywhere  
GRADES 6-8

Virtual Learning Series  
SELECT UNITS

## Resources

Video Collection

Extension Lessons

Student Assessments

Standards Alignments

Materials Kits

## Families

At Home Activities  
AGES 4-11

On-the-Go Games

STEM Events

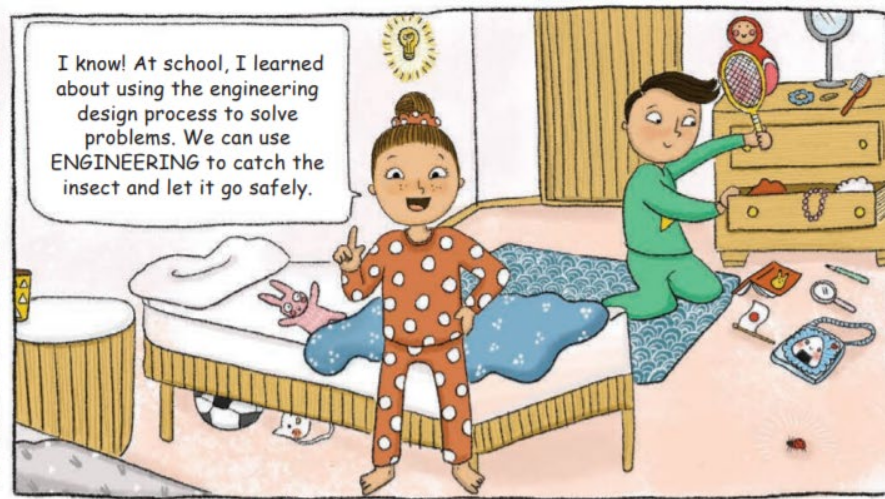


# Families and STEM Events



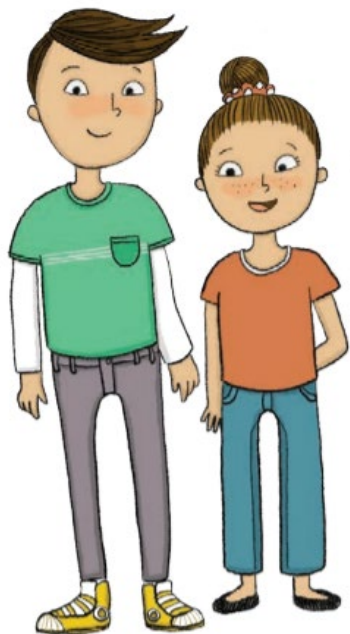
Museum of Science, **EiE** Families and STEM Events

Engineering at Home:  
**Bye Bye Bug**  
Activity Book

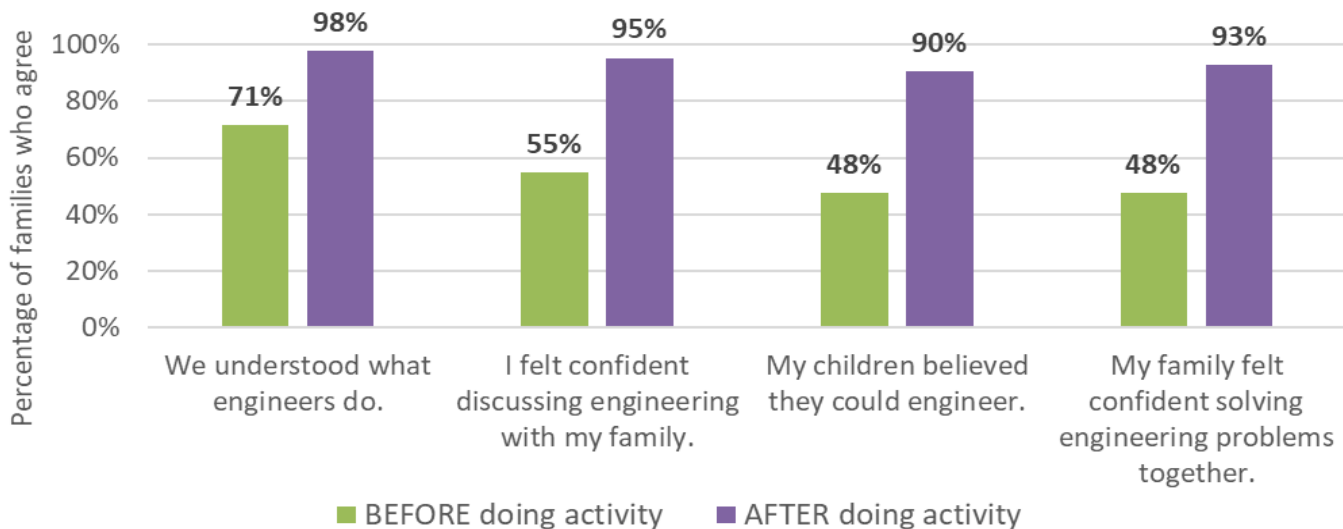


[EiE.org/families](https://www.eie.org/families)

# Families and STEM Events



Families rated their agreement BEFORE and AFTER doing both activities.



# Questions & Discussion

# Upcoming GLR Learning Tuesdays Webinars:

## CRUCIBLE OF PRACTICE SALON

Connecting Evidence-Based Strategies With a New Place-Based Initiative in Dayton, Ohio  
Tuesday, December 14, 12:30–2 p.m. ET/9:30–11 a.m. PT

## LEARNING LOSS RECOVERY CHALLENGE

Promotion Policies in 2021: Ensuring Students Are Ready, Not Retained  
Tuesday, December 14, 3–4:30 p.m. ET/12–1:30 p.m. PT

## FUNDER-TO-FUNDER CONVERSATION

Community Investments in Parent-Child Relationships Drive School Readiness  
Tuesday, December 21, 12:30–2 p.m. ET/9:30–11 a.m. PT

Please Join Us!

[gradelevelreading.net](http://gradelevelreading.net) [@readingby3rd](https://twitter.com/readingby3rd) [#GLReading](https://twitter.com/GLReading) [#LearningTuesdays](https://twitter.com/LearningTuesdays) [#GLRKeepers](https://twitter.com/GLRKeepers)

