



Coming Together to Prototype Innovation: Science Centers Educating Afterschool Providers in STEM and Making

Association of Science-Technology Centers Annual Conference, Hartford, CT October 1, 2018

September 29–October 2
ASTC2018
Annual Conference

Today's Panelists

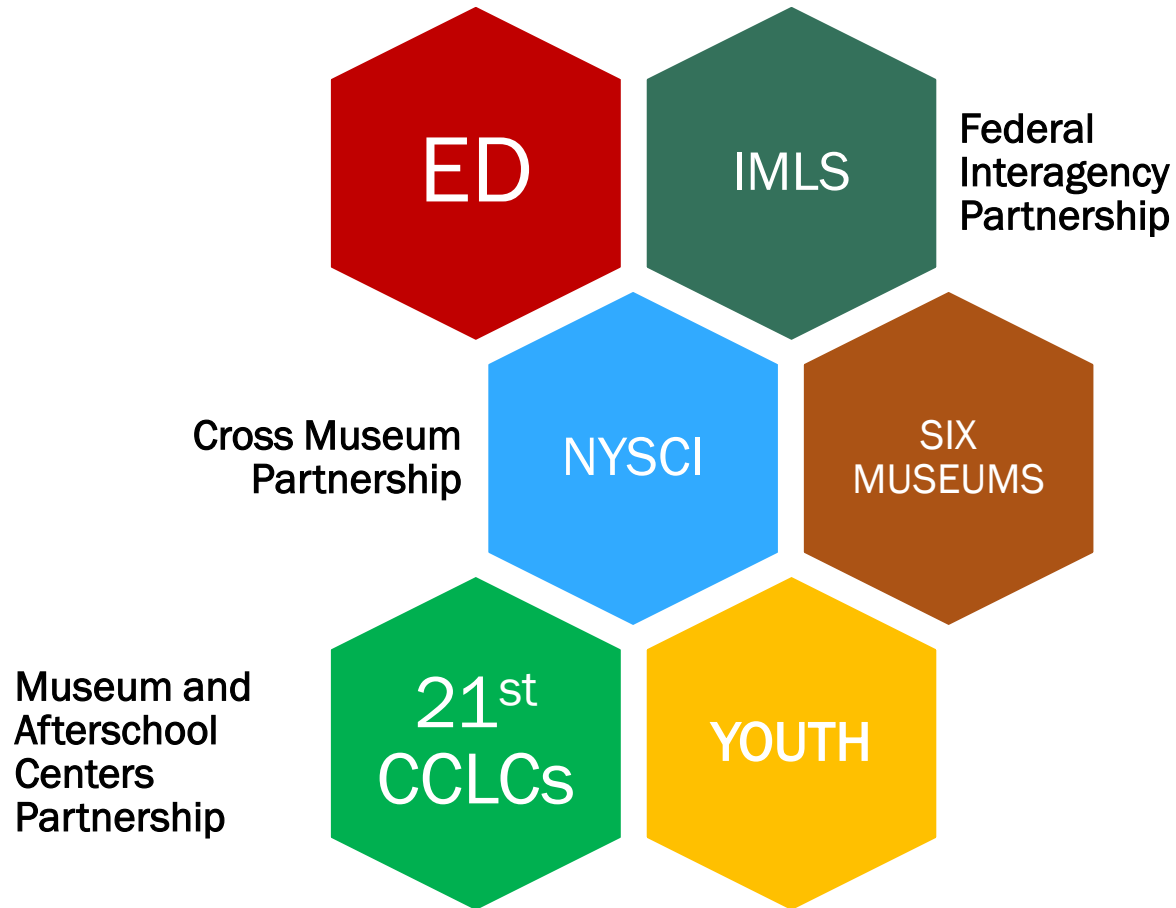
- **Chair and Moderator**

- Paula Gangopadhyay, Deputy Director, Museum Services, Institute of Museum and Library Services

- **Presenters**

- David Wells, Director of Maker Programming, New York Hall of Science
- Tara Cox, Manager of Professional Development, The Franklin Institute
- Jason Hammond, Science Educator, Children's Museum of Houston

A multi-layered and multi-institutional national partnership



Overview of the Project

- **Goal:** Through cross-sector collaboration, provide STEM-Making experiences to underserved youth. Brought together science centers, children's museums, and afterschool providers to leverage each other's strengths and collaborate as co-facilitators of learning to benefit their communities.
- **Collective Impact Model:** Organizations bringing together their complementary assets to achieve a common goal with shared measures of success.
- **Evaluation:** Formal third-party evaluation led by Education Development Center Inc. (EDC) to document the opportunities, challenges, and infrastructure needs of program implementation. The evaluator also examined benefits from the project for both the afterschool sites and museums. Additional Synthesis Evaluation conducted by ED.

An IMLS National Leadership Grant

- **New York Hall of Science (NYSCI)** joined as collaborator with IMLS and ED to lead this national project.
- NYSCI and IMLS initiated the project with a “co-creation” convening in New York, with the museum and education partners who had participated in the pilot phase of this project two years ago. The “lessons learned” shared during the convening were integrated into the six-week curriculum, tools, and delivery mechanisms NYSCI developed for the project.

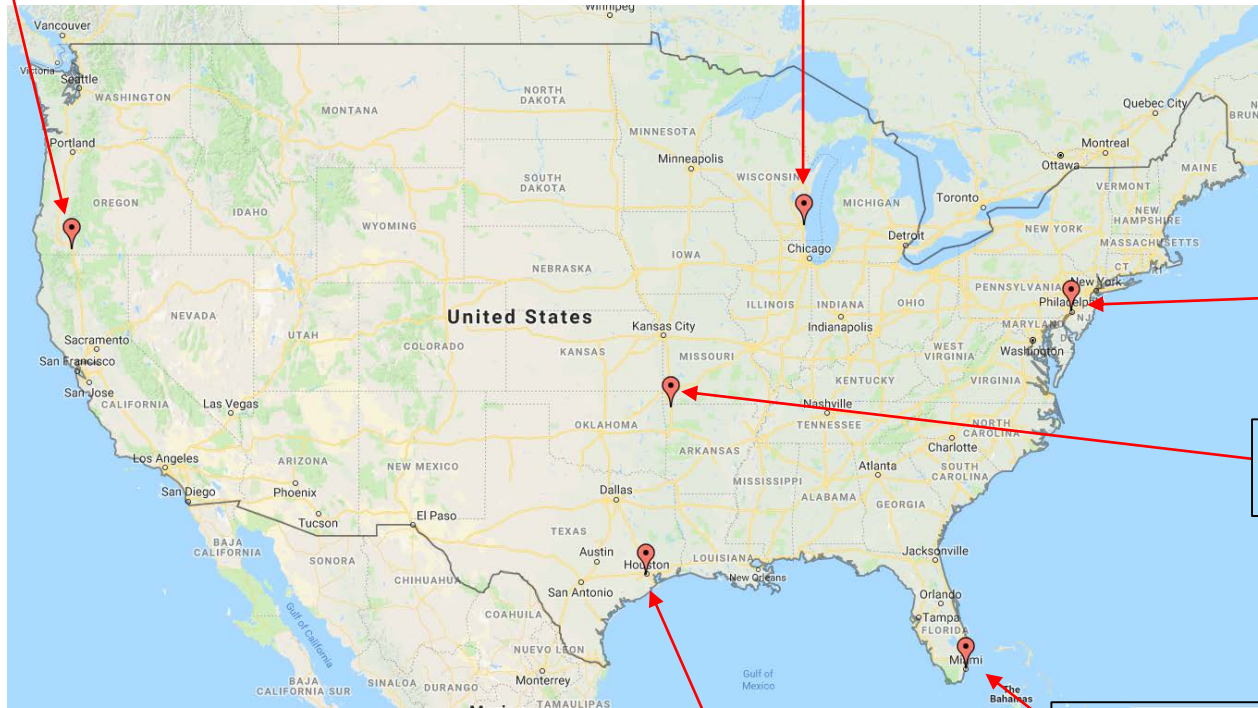
Museum and Science Center Collaborators

- Six science centers and children’s museums were selected and received a two-day “train the trainer” session to prepare them to lead programming and train staff of approximately **35 afterschool centers across the nation.**
- The museums that used their science expertise and museum assets to provide programming for this project were:
 - Betty Brinn Children’s Museum, Milwaukee, WI
 - Children’s Museum of Houston, Houston, TX
 - Franklin Institute, Philadelphia, PA
 - Philip and Patricia Frost Museum of Science, Miami, FL
 - ScienceWorks Hands-On Museum, Ashland, OR
 - Scott Family Amazeum, Bentonville, AR

Children's Museum and Science Center Collaborators

ScienceWorks Hands-On Museum
Ashland, OR

Betty Brinn Children's Museum,
Milwaukee, WI



Franklin Institute
Philadelphia, PA

Scott Family Amazeum
Bentonville, AR

Children's Museum of Houston
Houston, TX

Philip and Patricia Frost
Museum of Science

Lessons Learned from Implementation



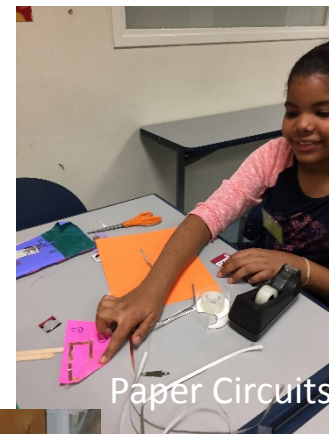
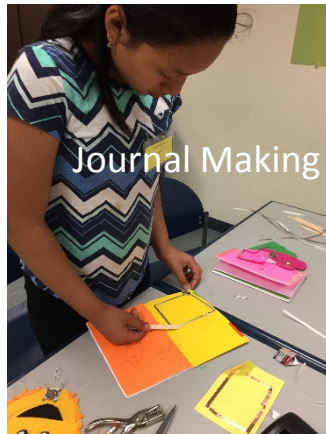
NEW YORK HALL OF SCIENCE WWW.NYSCI.

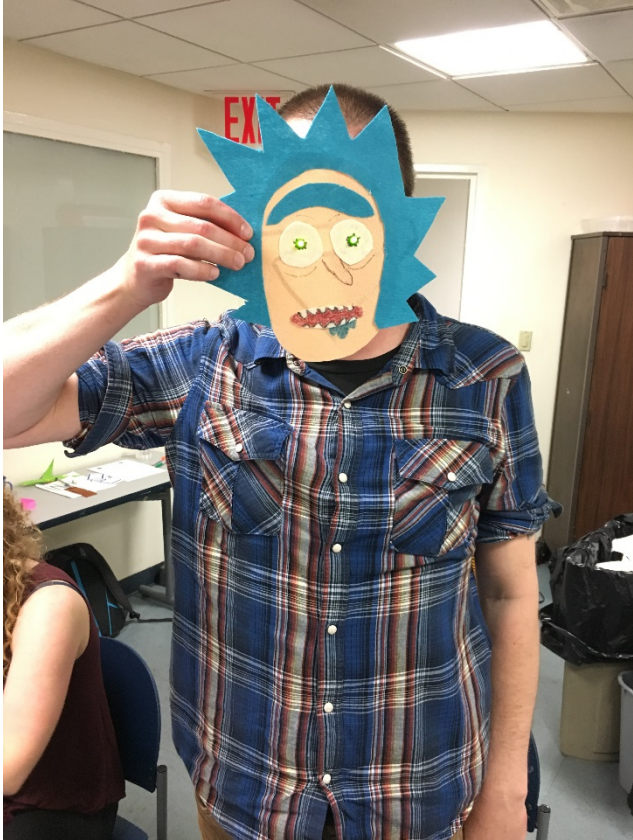
The background features four large, semi-transparent circular icons. The top-left icon shows a stylized leaf. The top-right icon shows a molecular or network structure. The bottom-left icon shows a rocket ship with a star. The bottom-right icon shows a stylized eye or a similar organic form.

NYSCI's mission is to nurture generations of passionate learners, critical thinkers, and active citizens through an approach we call *Design Make Play*.



Curriculum Co-Convening & Redesign





Train the Trainer



Sourcing, Packaging & Shipping Materials





Post Training Logistics

The screenshot shows a Google Drive interface with a folder structure for 'IMLS SAM @ NYSCI 2017'. The folder contains several sub-folders and files. The table below summarizes the contents of the main folder.

Name	Owner	Last opened	Size
IMLS Curriculum Dwells edits	me	Aug 20, 2017	-
Lessons	-	Dec 6, 2016	-
Maker/STEM Check-ins	aphillips	8:15 PM	-
Materials Lists	-	Sep 26, 2018	-
Media for Guides	aphillips	8:14 PM	-
Training photos	-	8:05 PM	-
IMLS Props/Videos/Photos	-	8:06 PM	-
Maker/STEM Education Support for 21 st CCLCs Pro...	me	Sep 26, 2018	-



STEM-Rich After-School Making Activities

Successes

- Completed Curriculum Guide
- Building Relationships
- Engaged a Community of Educators and Learners in Making & STEM

<https://y4y.ed.gov/stemchallenge/imls/2018/maker-resources>

STEM and Making in 21st CCLCs

Philadelphia, 2017

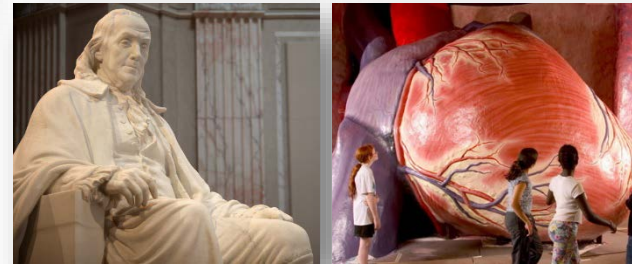
Tara Cox

The Franklin Institute



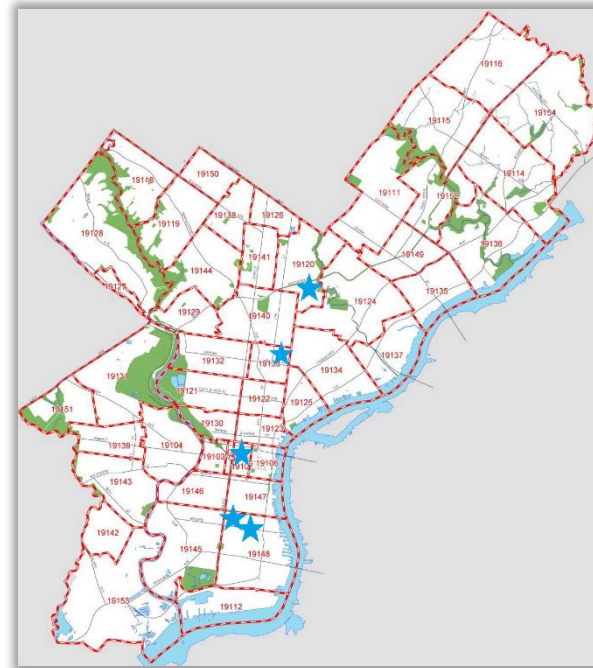
**Science Museum
Founded in 1824**

In the spirit and legacy of Benjamin Franklin, our mission is to inspire a passion for learning about science and technology.



Snapshot

- 5 sites across Philadelphia
- 10 educators trained in June 2017
- 87 youth reached throughout summer 2017

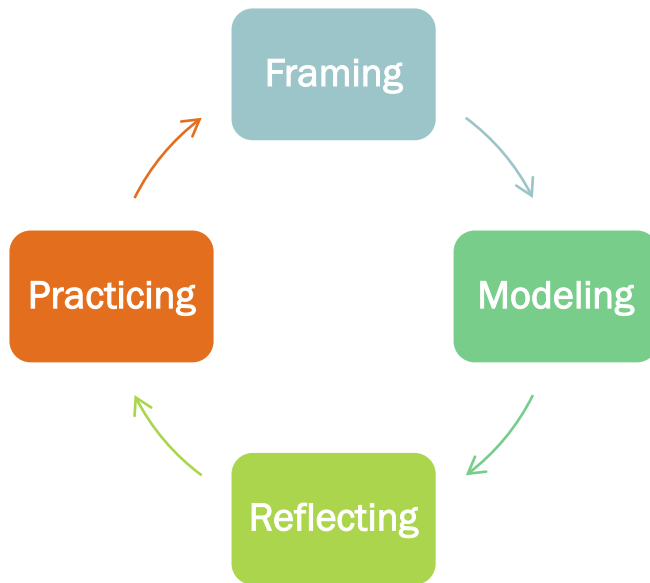


Site Recruitment



- Partnered with PA Department of Education to select sites
- Worked with local 21st CCLC program managers to ensure sites met requirements
- Communicated with site coordinators to select appropriate educators

Educator Training



- 5 hour training
- Educators received stipends
- Focus on facilitation and maker mindset

Site Implementation



Successes

- Robust supplemental activities for 21st CCLC summer programs
- High levels of engagement
- Capacity building of OST educators
- Increased partnership with the museum

Challenges

- Some lack of ownership from educators
- Lack of prior knowledge by educators and youth
- Consistent attendance

Implementation at Christopher Columbus Charter School

https://drive.google.com/file/d/0BzWpaol6uZ_1aUJUS19QMjRPMjg/view

CHILDREN'S MUSEUM OF HOUSTON



MISSION STATEMENT

- TRANSFORM COMMUNITIES THROUGH INNOVATIVE, CHILD CENTER LEARNING.

VISION STATEMENT

- CHILDREN'S MUSEUM OF HOUSTON SPARKS A PASSION FOR LIFELONG LEARNING

THE CHILDREN'S MUSEUM OF HOUSTON SERVES THE FOLLOWING COMMUNITY NEEDS:

1. FOSTERS THE DEVELOPMENT OF HOUSTON'S SIGNIFICANT CHILD POPULATION.
2. ENHANCES PARENTS' INVOLVEMENT IN THEIR CHILDREN'S LEARNING.
3. REINFORCES AND SUPPLEMENTS CLASSROOM INSTRUCTION.
4. REDUCES THE EFFECTS OF POVERTY ON LEARNING.
5. SERVES A MULTICULTURAL, MULTILINGUAL POPULATION.
6. PROMOTES WORKFORCE PREPAREDNESS THROUGH THE DEVELOPMENT OF 21ST CENTURY SKILLS.

SAM 2017

FIVE SITES

- QUEENS INTERMEDIATE
- JACKSON INTERMEDIATE
- MILLER INTERMEDIATE
- PARKVIEW INTERMEDIATE
- SOUTH HOUSTON ELEMENTARY

ATTENDANCE

- 72 UNDUPLICATED STUDENTS FROM THE 4 INTERMEDIATE SCHOOLS
- 19 UNDUPLICATED STUDENTS FROM SOUTH HOUSTON

RECRUITMENT

- SECURING INTERMEDIATE SITES



SAM 2017



TRAINING

- CONDUCTED 1 SIX HOUR TRAINING WITH 6 EDUCATORS
- FOCUSED ON FACILITATION AND THE IDEOLOGY OF MAKING
- THE EDUCATORS WERE GIVEN PEDAGOGY AND BEST BEFORE MODELING EACH ACTIVITY AND REFLECTING

SAM 2017



SITE IMPLEMENTATION

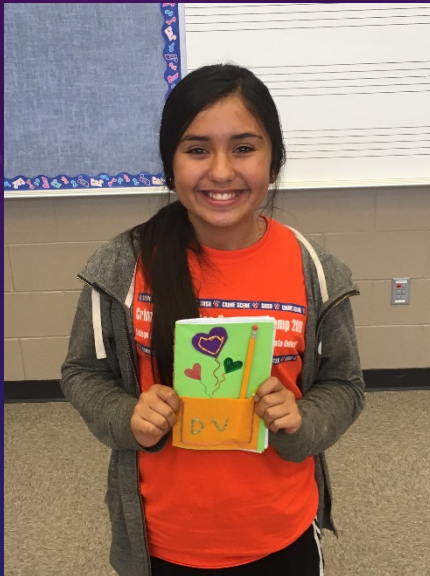
SUCSESSES

- INCREASED COMMUNITY PARTNERSHIPS
- ENTERED MIDDLE SCHOOLS
- INTEGRATION OF SAM CURRICULUM AND MUSEUM CURRICULUM
- KIDS OF ALL AGES ENJOYED THE ACTIVITIES

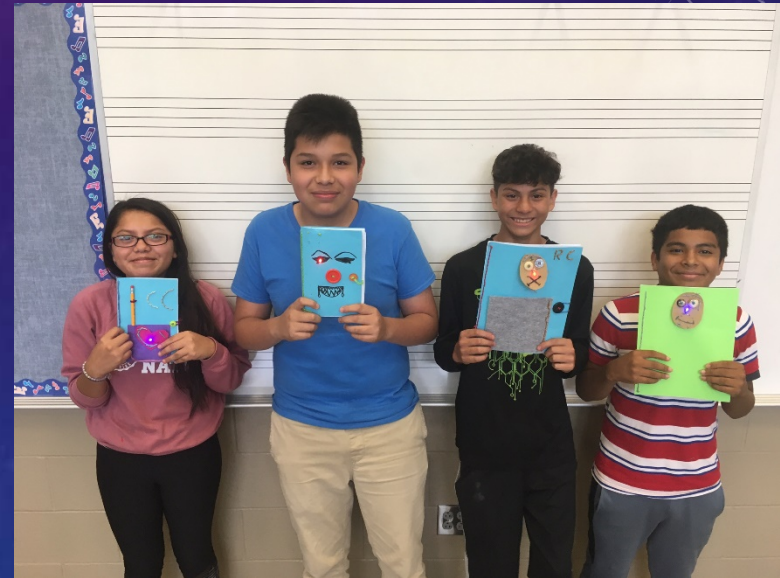
CHALLENGES

- MUSEUM STAFF BECAME PRIMARY EDUCATOR
- INCONSISTENT MIDDLE SCHOOL ATTENDANCE
- COMMUNICATION CHALLENGES

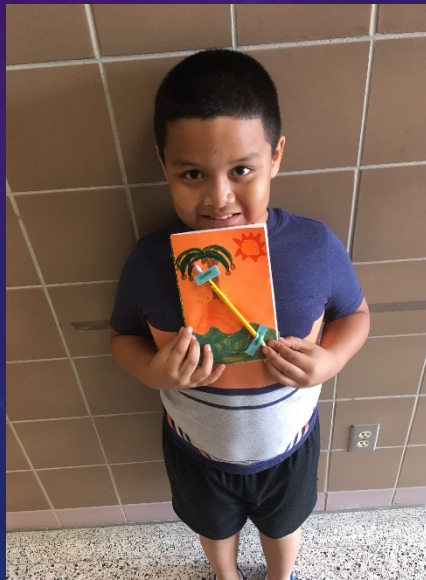
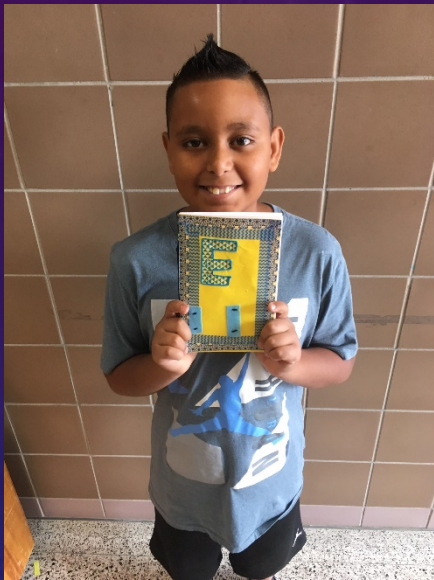
COMPLETED JOURNALS



SOFT CIRCUIT HORRORS



FINISHED PRODUCTS



Delving Deeper – Panelist Insights

1. One brief impact story from a youth program participant
2. Ready resources available from the project for other science centers and children's museums to use.
3. One idea from each of you on how this innovative project can be scaled up, optimally?

Your Turn...

Audience Questions and Ideas

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Thank You!