URBAN LIBRARIES COUNCIL

STEM PROGRAM MODEL

STEM Pals: Using Technology as a Tool to Develop 21st-Century Social Skills

Provided by Prince George's County Memorial Library System (Md.) and Pioneer Library System (Okla.)

HOW WE STARTED

Concept

Cross-country partnership between two U.S. library systems aimed at connecting and engaging tweens in inquiry-based STEM challenges and meeting professionals who represent careers students may not normally associate with STEM.

Goals

- Students from high-need communities will increase their intellectual curiosity and understanding of STEM concepts/terms and express increased interest in pursuing STEM careers after hearing from and connecting with professionals in various fields.
- Students will develop their social, emotional and 21st-century workplace skills by meeting and working with students in their communities and in communities across the country.
- The library will develop and sustain meaningful relationships with local schools to increase middle school student access to STEM programming, technology and other educational resources available at the library.

Locations

One branch at Prince George's County Memorial Library and one branch at Pioneer Library System.

Timeline

Two-hour sessions held once a week for eight weeks.

Partners

- National Oceanic and Atmospheric Administration
- Cosmetic Specialty Labs, Inc.
- National Institute of Neurological Disorders and Stroke

Photo credit: Pioneer Library System (Okla.)

INSTITUTE of Museum and Library SERVICES

The program outlined above was piloted as part of ULC's Partners for Middle School STEM initiative. This project was made possible in part by the Institute of Museum and Library Services grant LG-95-18-0025-18.

Click here to learn more.

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HOW IT WORKED

Partnering on Program Design

- Staff from both libraries met in-person to initiate their partnership and craft the program's design.
- The partners agreed upon flexibility as a mindset prior to launching the program and set up a sustainable framework for communications, including:
  - A routine schedule of deadlines and check-ins.
  - A shared online file storage space.
  - Assigned roles and ensuring accountability during check-in meetings.
  - Main points of contact between partners for questions that came up between meetings.

Recruiting Guest Speakers

- The libraries sought guest speakers who:
  - Could present on topics from non-traditional STEM fields.
  - Represented diverse backgrounds that reflected the communities served by the libraries.
- Presentations typically lasted 40 minutes, including 15 minutes of Q&A.

Fostering Tween Socialization

Tweens at both libraries connected weekly through:

- Icebreakers.
- Short informal interviews.
- Project result showcases.

Leveraging Technology

Participants used:

- Zoom and Flipgrid to connect virtually.
- Cozmo robots to explore the difference between artificial intelligence and robotics.
- TinkerCAD to design 3-D Windy City Models.

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WHAT WE LEARNED

Evaluation Methods

- Talk back boards provided immediate feedback from participants.
- Pre- and post-program surveys measured students' attitudes toward STEM before and after the program.
- Observational checklist designed to make note of, and track moments of, social and emotional learning in the program.

Program Evolutions

Important components of the final program that were not part of the original design included:

- Libraries increased one-on-one youth interaction and small group activities.
- Parental involvement became a key component when engaging tweens.
- As an addition to the programming, materials were provided for at-home learning.

Outcomes

- Social connections: Participants forged new friendships with youth across the country, helping them develop their 21st-century social skills.
- Library staff confidence with STEM: Staff built confidence and connections that will enable further STEM programming in their libraries.

Photo credit: Prince George's County Memorial Library System (Md.)

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