Earth & Space Project-Based Professional Learning Community





April Concurrent Session B1

Welcome!

As we wait to get started with today's online session:

- Wave! Please turn on your camera if you can
- **Rename your Zoom!** Please rename your Zoom window with your name and organization
- **Questions?** Feel free to type any questions you have into the chat
- **Recording?** Portions of this meeting will be recorded

Earth & Space Project-Based Professional Learning Community

Start the Recording





Connecting meaningfully with specific communities

- Chase Fischer, Discovery Center Museum, Rockford, IL
- Caitlin Luttjohann, Kansas Children's Discovery Center, Topeka, KS
- Ben LaPoint, The Children's Museum at Saratoga, Saratoga Springs, NY
- Liz Leahey, Discovery Museum, Acton, MA
- Annie Gordon, Sciencenter, Ithaca, NY



NAME(S): Chase Fischer, Education Specialist



PROJECT DESCRIPTION: In this project, Discovery Center Museum will bring earth and space based activities to various after school programs at schools, community centers, and YMCA groups. These activities will be hands on and include a take home.

Furthermore, we plan to include family nights for some of these groups as an opportunity to further engage the community and let the students show their grown ups what they have learned.

This project is primarily focused on K-12th students, but will also reach some groups of middle school students as well.





STEM on the Rock

- Started with NSBE
- Low income/minority students
- Middle School-Early High School

2020-2021

- Interest decreases
- No shows
- Population was not the target population

RPS Student Statistics:

- 50% chronic Absentee in 2021
- 60%-90% no homework turned in
- 50% College after Graduation

MIDWEST REGION







Our Problem:

- Lack of student involvement
- Lack of target population
- Lack of transportation

Our Solution:

• Find organizations with a need for science programming.



OF AMERICA







YMCA Middle School Achievers

First active year

Provides food and hygiene products to students Has grown substantially in the past year



Booker Washington Community Center

IL's oldest African American Resource Center 106 years old Teen REACH Youth





Earth and Space programing

Space exploration Series:

- <u>Survival on the Moon</u>
- Exploring the Universe: Pack a space telescope
- Exploring the Universe: Asteroid Mining
- Launch a Water Rocket
- Robotics and Rovers

Our dynamic planet Series:

- What is the Hydrosphere
- Exploring Earth: Rising Sea
- Exploring Earth: Paper Mountains
- Exploring Earth: Land Cover
- Exploring Earth: Map my Backyard



Challenges:

- Engineer Scheduling
 - Weekdays vs Weekends
- Expanding on kits to make take homes
 - Telescopes: Paper Towel Tube Rockets.
 - Land Cover: Cheap paint trays and hair nets.
- Reworking kits for grade levels
 - Asteroid mining: How to make this fun for older students?







Future Goals:

- To increase the number of organizations reached.
- To put a larger emphasis on the mentorship aspect.
- To create summer programming alongside these organizations.
- Create more opportunity for family involvement.
- Finish the space series with a planetarium show.

How We Have Expanded:

• Partner with STEM for Success



KS, Topeka Kansas Children's Discovery Center

Caitlin Luttjohann Vice President of Play and Learning

We are working on getting outside of our walls as we have found transportation as a barrier for families in our community. We will create pop up play events in local, underserved neighborhoods utilizing the space kit activities. The pop up play opportunities will be geared for families with children ages 3 - 10 and our bilingual staff will be present to assist.



Earth & Space Science For Everyone!

- Small events can have high impact
- Explore outside of your walls
- Stay up to date on current Earth and Space events & program around them
- Meet people where they are



Here's What Helped Me

- Approach like it is another problem to be solved
- Ask your village for help
- Know how it is helpful to your community partners
- Spread the word beyond social media



Challenges and Lessons Learned

- Listen and understand
- Partner constraints and needs
- Flexible
- Be as transparent as possible
- Know your capacity



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THE CHILDREN'S

Ben LaPoint

CMAS will reproduce Earth & Space materials and develop STEM kits focused on NASA's Artemis Program for students in the Franklin Community Center's Project Lift program.



Franklin Community Center (FCC)

- Nonprofit established in 1983
- Serves 6,000 people annually
- Provides basic necessities and services to the less fortunate
 - Free store
 - Food pantry
 - Safe and affordable housing
 - Advocacy and references
 - Student services







Project Lift

- After-school prevention program
 - In all Saratoga Springs schools
- Goals:
 - Enhancing socio-emotional skills
 - Improving decision making
 - Lessons in prevention
 - Building self esteem
 - Learning healthy boundaries





"My son is more positive and doesn't give up so easily."

Strategies and Approach

- CMAS works with Project Lift every year
 - Free of charge
 - Only 4 classes across 6 schools
- Kits went to all Project Lift students
 - Covid restrictions prevented in-person
 - Lack of technology prevented virtual



THE CHILDREN'S

MUSEUM

THE CHILDREN'S

NASA Artemis Program

Goals:

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- Land the first woman on the moon
- Land the first person of color on the moon
- More research and exploration
 - Establish first long-term presence
- Prepare for Mars

Resources Used

- NISE Program: Stomp Rockets
 - \circ \quad Modified to fit into a small kit
 - Reduced scale of rocket
 - Index card sized paper
 - Portable propulsion system
 - Bendable straws
 - Scientific instrument stickers
 - Used as tape
 - Added instructions and facts sheet
 - Generated to compensate for lack of direct contact
 - Artemis program details
 - Links and suggestions for continued investigation







THE CHILDREN'S

USEUM

Resources Used

- NISE Program: Imagining Life
 - \circ ~ Previously made kits using this program
 - Part of a series of 4 kits
 - Needed more without direct contact
 - Influence for "Artemis Base Camp" kit
 - Establish a lunar outpost
 - Biological needs
 - Energy use
 - Communication
 - Transportation
 - Data collection
 - Design and build
 - Various materials provided for construction



THE CHILDREN'S

JSEUM



Resources Used

- Aikaterini "Katerina" Bellou
 - Visiting Assistant Professor at Clarkson University
 - Department of Mechanical and Aerospace Engineering
- First academic partner on a project
 - What other partners can be sought in the future?







- NISE funding covered Museum costs
 - More students reached and more often
 - Momentum towards potential future opportunities
- Franklin Community Center
 - Strengthened relationship
 - New opportunities
- Program partnerships
 - Not just museums
 - Academic partners
- Improving kits
 - More engaging
 - Feedback
- Kits beyond Covid
 - More than just a work around



THE CHILDREN'S



ANY QUESTIONS?

MA, Acton Discovery Museum

NAME: Liz Leahey

ORIGINAL PROJECT DESCRIPTION: For our project, we will build upon the materials and activities found within the Earth & Space Toolkits to develop a small-scale, low-cost, immersive exhibit experience for our Community Gallery. The Museum does not currently have exhibits based around Earth & Space topics, and we would be excited to bring this theme to our diverse audience of children and their caregivers.







NEW PROJECT DESCRIPTION: Establish a new program series ("Exploring Sustainability") through which we will highlight sustainability and climate science themes. This program series will allow our Education Team to integrate and focus multiple efforts to bring sustainability and climate change/climate science to our Museum visitors and partnerships.

REASONS FOR CHANGE



- Recognize that many of our programs would be enhanced by helping visitors make more direct connections to sustainability-related issues. We have been working toward this goal, but have yet to specifically establish a program series centered around this theme.
- Original project proposal based in idea that would benefit Museum, lacked information on if it would meet the needs of our potential partners

- "Scaling back" would allow for more collaborative work with partners, and piloting/prototyping of activities (immediate feedback loop)
- Integrate and expand multiple efforts of Education staff
 - Staff member participating in NISE Network Sustainability Fellowship
 - Implementation of Museum's Sustainability Plan

WHERE WE ARE NOW: Piloting Programs

CELEBRATE EARTH DAY! (April, 22)

- Children's Librarian from Acton Memorial Library
- Mothers Out Front organization working for social, racial, and climate justice based in MA with chapters in CA, CO, NY, VA
- Spring Forward teen climate action group in Boston; empowering youth to become conscious global citizens through climate education

SOLAR SATURDAY (May, 21)

- Variety of programs focusing on central theme of sun as a source of energy, and highlighting installation of solar panels on Museum's campus
 - Sun Scavenger Hunt
 - UV beads / Sun Prints
 - Mini solar panel city
 - "Solar Panel Pinball"
- Plan to use activities during outdoor-focused Especially For Me Evening in June
- Prototyping for possible exhibit elements
- Future program series for work with Boys & Girls Club





NY, Ithaca Sciencenter

NAME: Annie Gordon

PROJECT DESCRIPTION:

We are connecting earth science to science process skills for families enrolled in our local Head Start program. We are hosting two family nights where the Head Start teachers will be facilitating hands-on activities. During the activities, teachers will have opportunities to point out and support science process skills to caregivers as their children are working.

Teachers will also attend a workshop on recognizing and supporting early childhood science. They will also get earth science classroom activities that showcase science process skills



NY, Ithaca Sciencenter



Making earth and space science relevant:

- Amending the earth and space science to earth processes that families could see in our area
- Highlighting activities and processes that both children and caregivers could tell stories about
- Our partners wanted to focus a theme around recycling and permaculture.

Lessons Learned:

- Having teachers facilitate exhibits in the museum helps Head Start Families connect to the museum.
- Giving caregivers and teachers appropriate tools and language to talk about climate.



NY, Ithaca Sciencenter



Resources:

- Long standing relationship with Tompkins Community Action
 - Trust within the partnership to implement new programming
- In those 10 years
 - CESL resources were from another grant to share our partnership
 - http://www.sciencenter.org/resources-for-museums
 - <u>http://www.sciencenter.org/perch/resources/connecting-science-</u> process-skills-to-head-start-standards.pdf



Additional Resources

- NISE Network Museum & Community Partnerships: Collaboration Guide <u>https://www.nisenet.org/collaboration-guide</u>
- Early Learner resources <u>https://www.nisenet.org/earlylearners</u>

Thank You





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