

Earth & Space Project-Based Professional Learning Community



April Concurrent Session A3

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



Working with K-12 Schools, Teachers, and Homeschoolers

- Ellie Daniel, Museum of Science & History, Memphis, TN
- Chip Lindsey, Discovery Lab, Tulsa, OK
- Jolie Pelds, Science Center of Iowa, Des Moines, IA
- Rosalie Wade, Frontiers of Flight Museum, Dallas, TX
- Yasmin Santiago, Arecibo Observatory, Arecibo, PR

TN, Memphis Museum of Science & History

The logo for the Museum of Science & History (MoSH) features the letters "MoSH" in a bold, white, sans-serif font. The letters are centered on a solid black rectangular background.

Ellie Daniel

MoSH will expand our current “lending library” activities focused on earth and space science, including activities in Spanish and for the vision or hearing impaired. These activities are offered for free to all local area teachers, but we will focus on outreach and accessibility for under-served groups or organizations such as Title 1 schools, community centers, Autism Resources of the Mid-South, and other nonprofit groups. Additionally, we will arrange professional development opportunities for teachers in a “teach the teacher” workshop, to help facilitate the continued use of the activities we have to offer.



TN, Memphis Museum of Science & History

MoSH

Adapting Lessons for Audiences



- Self-guided signs with instructions and explanations for the hearing impaired.
- Visual elements traded out for tactile ones for the vision impaired.
- All NISE Net activities prepped to be flipped to the Spanish translations and paired with a bilingual instructor.

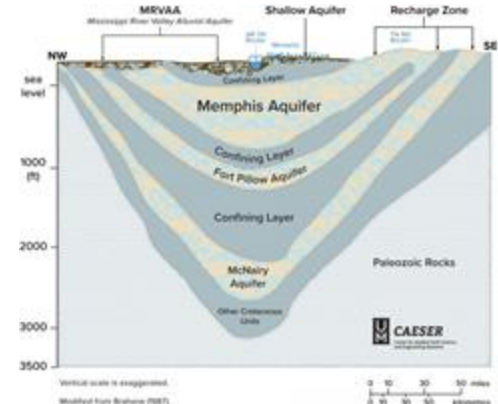


TN, Memphis Museum of Science & History

MoSH

Adapting to Community Concerns

- Identifying community issues
- Finding scientific elements
- Using activities as access points to larger issues
- Provide resources for further involvement



OK, Tulsa Discovery Lab

NAME(S): Chip Lindsey and Holly Neveu

PROJECT DESCRIPTION: Discovery Lab original 1,500-square-foot exhibit, *Beneath Your Feet: Geology of Oklahoma*, will begin a two-year tour to rural districts across Oklahoma starting in January 2022. Discovery Lab staff will travel to rural locations to provide outreach learning opportunities for teachers and students.



Altus Elementary Altus, Oklahoma



Tonkawa, Oklahoma



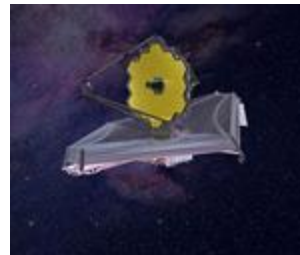
Pauls Valley, Oklahoma



IA, Des Moines Science Center of Iowa

NAME: Jolie Pelds, Director of Innovative STEM Teaching

PROJECT DESCRIPTION: Homeschool Science Series in Fall 2021 focused on the goals and instrumentation of the James Webb Space Telescope. Over a four week period youth learned about telescopes, how rockets launch space telescopes, the different instrumentation and what we will be looking at/for in deep space. Specially trained volunteers, Solar System Ambassadors and staff supported both youth and their parents in understanding more about how this incredible piece of technology will expand our understanding of the universe.



IA, Des Moines Science Center of Iowa

We created more resources for parents to give them support. They continue to have access to the padlet for videos, interactives and timing for launch as it approached in the winter.



We used multiple NISE Net kits for the students interactives. The volunteers and staff were able to watch the training videos in preparation.

TX, Dallas

Frontiers of Flight Museum

NAME(S): Rosalie Wade & Jessica Gradante

PROJECT DESCRIPTION:

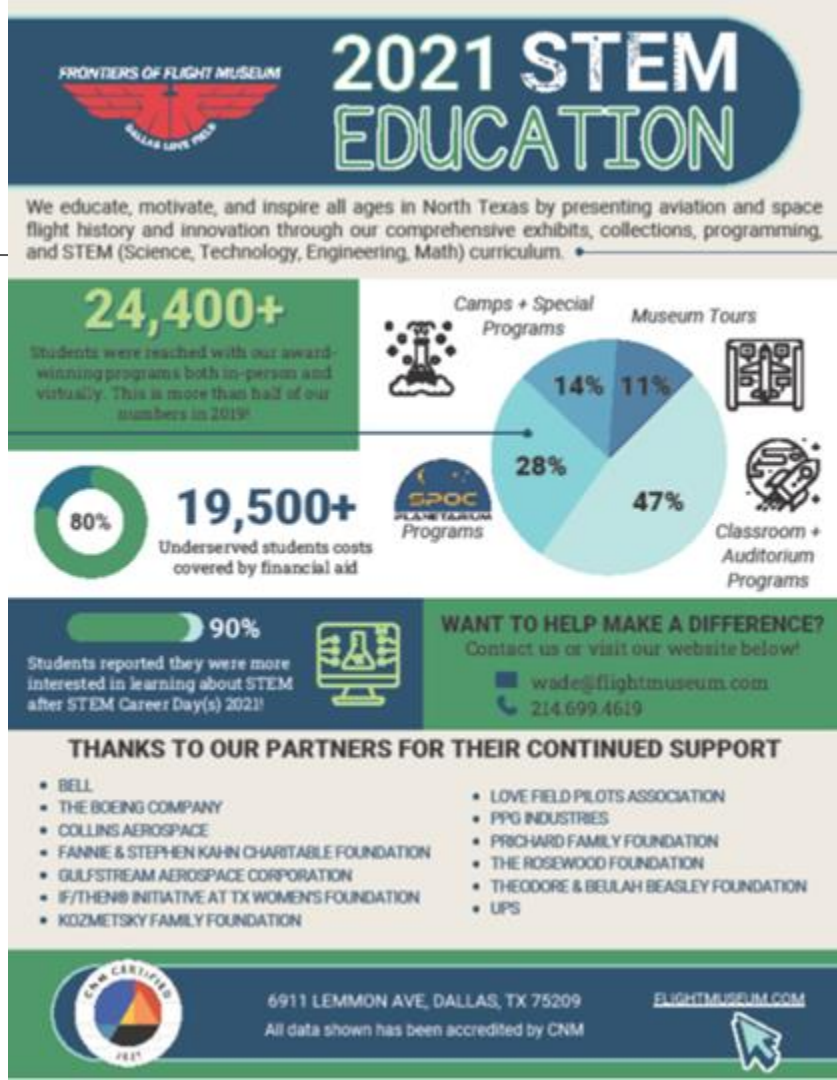
To create, expand, and modify both our classroom and planetarium programs as well as our STEM Night activities. Current programs in the works are new Earth Science planetarium programs for both elementary and middle school focused on their specific science standards; an expanded Earth and Space Science classroom program with a focus on weather and sustainability for grades K-2; and modifying our current STEM Night activities to include multiple options with new Earth and Space Science activities for all grade levels.



TX, Dallas Frontiers of Flight Museum

Title 1 Schools

- When applying for grants/funding, etc. we make sure to include financial aid in the budget for Title 1 schools to help cover program costs
- 80% of our programs in 2021 were covered by financial aid
- Connecting with the districts is key to helping share the resources!



TX, Dallas Frontiers of Flight Museum

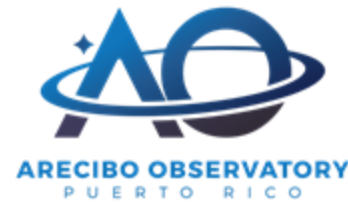
Teacher Advisory Boards/Committees

- In order to properly connect to your surrounding school districts, get in touch with teachers and district coordinators (we target STEM subjects)
- These are the folks that can tell you what they NEED/WANT
- They also can serve as your cheerleaders!



PR, Arecibo

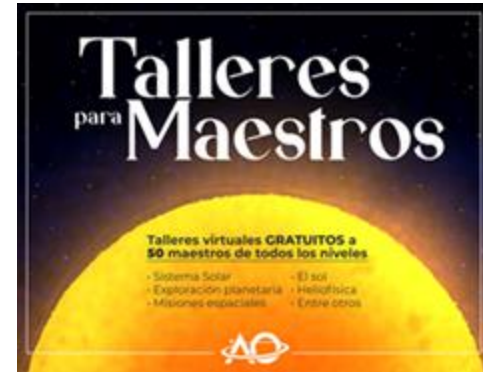
Arecibo Observatory



NAME(S): Yasmin Santiago

PROJECT DESCRIPTION:

My project focused on providing educators - 53 teachers from both the public and private sector of our country - with training on the following topics: "The Solar System and its Exploration" and "The Sun and Heliophysics". A Google Classroom was created for these trainings.



PR, Arecibo

Arecibo Observatory



Science and Visitor Center

Science Center that focuses on providing informal education to visitors about:

- Astronomy
- Atmospheric Science
- Planetary Science
- Arecibo Radio Telescope



PR, Arecibo

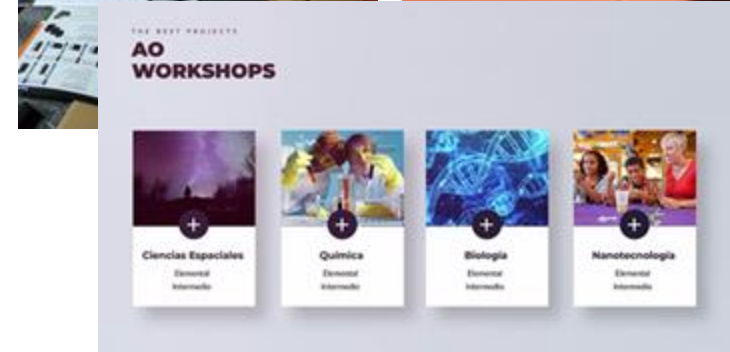
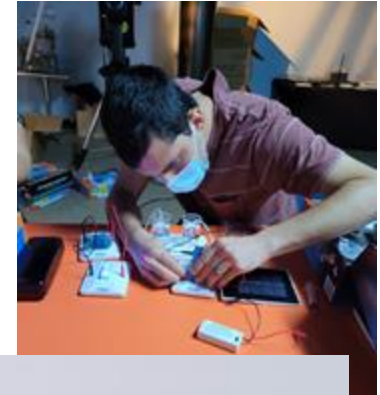
Arecibo Observatory



Professional Development Opportunities for Teachers

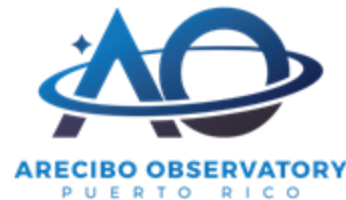
Workshops (Online / In-person)

- Chemistry
- Biology
- Nanotechnology
- Space Science
- Sustainable Energy
- Heliophysics
- Solar System and its Exploration



PR, Arecibo

Arecibo Observatory



Professional Development Opportunities for High School and College Students

- STAR Academy Program
- Research Experience for Undergraduates (REU) Program
- Girls Educating Girls
- Volunteer Program



PR, Arecibo

Arecibo Observatory



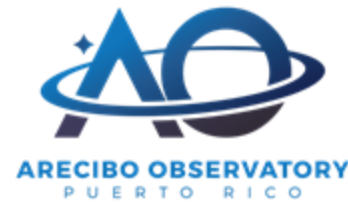
Development Opportunities for the Community

- Observation Nights
- STEAM Workshops
- Sustainability Workshops (future)
- Volunteer Program



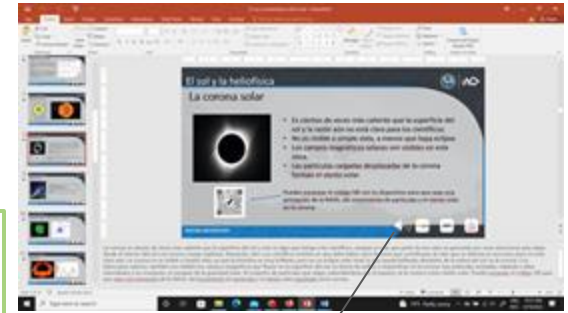
PR, Arecibo

Arecibo Observatory



Strategies for making Earth & Space more: Inclusive

- Giving homeschool teachers access to our workshops
- Developing audible explanations during online (asynchronous) workshops
- Providing visible notes in each slide for people with hearing impairments
- Conducting workshops in Spanish
- Developing online workshops



PR, Arecibo

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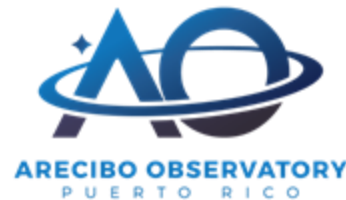
Strategies for making Earth & Space more: Relevant

- Developing workshops based on the curriculum of the PR Department of Education
- Including current events (NASA Missions, Sustainability efforts, etc.)
- Providing common everyday examples where STEM practices or concepts are applied



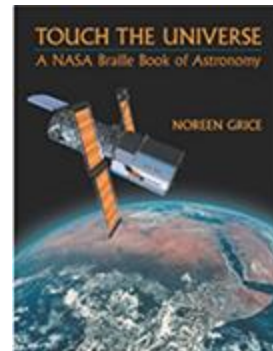
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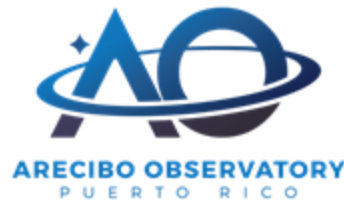
Strategies for making Earth & Space more: Accessible

- Developing books in Braille related to the radio telescope
- Books about astronomy in Braille available at select stations
- Constructing a 3D model of the radio telescope for the visually impaired
- Constructing a textured 3D Solar System exhibit (future)



PR, Arecibo

Arecibo Observatory



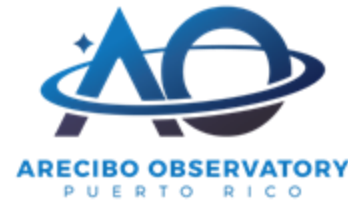
Resources: For information

- NASA Science Space Place – <https://spaceplace.nasa.gov>
- In Depth Our Solar System – <https://solarsystem.nasa.gov>
- Google Classroom – <https://classroom.google.com>
- NISE Network – www.nisenet.org
- SOHO Science Archives – <https://www.cosmos.esa.int/web/soho/soho-science-archives>
- NOAA – <https://www.nesdis.noaa.gov/una-guia-sobre-el-ciclo-solar-y-el-clima-especial>
- Curriculum for PR – <http://intraedu.dde.pr/materiales%20curriculares/rforms/allitems.aspx>



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Resources: For grants



- National Science Foundation Grants
<https://beta.nsf.gov/funding/opportunities>
- Funding Opportunities and Announcements – NASA Science
<https://science.nasa.gov>
- Federal Government Grants
<https://www.grants.gov/web/grants/search-grants.html>
- US Environmental Protection Agency
<https://www.epa.gov/grants>
- National Institute for Food and Agriculture
<https://nifa.usda.gov/grants/programs/hispanic-serving-institutions-education-grants-hsi-program>

Session Resources

Additional Resources

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

Thank You

