Diverse Audiences with Diverse Needs - Focus on Neurodiversity

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Today's Presenters



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Other N3 Personnel: Prof. Lynn Cominsky (PI, SSU), Dr. Wendy Martin (Co-I, EDC), Sylvia Perez (Co-I, NYSCI), Naomi Hupert (EDC), Georgette Williams (NYSCI), Dr. Bryan Mendez (UC Berkeley), Dr. Andrew Grillo-Hill (WestEd), Joshua Valcarcel (WestEd)



Providing a pathway to NASA participation and STEM employment for neurodiverse learners, with a focus on those on the autism spectrum.

- Enabling STEM education for a segment of the population that is significantly underserved by co-redeveloping existing NASA resources with autistic learners.
- Improving scientific literacy for this underserved population by providing authentic NASA experiences
- Providing internships, mentored by NASA Subject Matter Experts, to selected neurodiverse learners.

What does it mean to "codesign"





Interested in Participatory Co-Design?

• Autistic people are not usually involved in developing support programs despite evidence that participatory approaches improve their effectiveness.

• Making a program participatory means that stakeholders (i.e. autistic people) are meaningfully involved in developing, enacting, and disseminating research initiatives, programs, and activities.

• Participatory approaches are key to be sure that programs align with the needs of the people they intend to serve. ^{5, 6}



What have we learned so far?

- Astronomy from Home
 - Students and teachers gave critical feedback about the broader context of our AfH curriculum. While activities were fun and engaging, more background information was needed to motivate students and provide a contextual frame.
 - All participants emphasized the need for graphics, diagrams, images, videos, and other interactive methods for teaching these materials.
- Rocketry/Rising Data
 - Similar concerns arose when redeveloping this curriculum namely the need for an improved visual guide and step-by-step checklists to assist with completing this complex project



Astronomy Example





N3 Rocket Example



Helping-Hands Tools Hold Electronics Board for Ease of Soldering

Checklist



Checklists Support Success



Personalized Rockets Facilitates Ownership



Tips for Supporting Autistic Learners

- Provide a visual schedule
- Prime students for what's to come so they understand the context and process for their learning
- Embed interests
- Establish clear expectations
- Provide supportive visuals and/or other reference materials



N3 Eclipse Program Info 2023-24

- Context: Our Sun as an active star
- Hands on activities:
 - Sunspotter* activities to view sunspots prior to eclipses
 - Safe solar viewing prior to eclipses
 - Positions of the moon and sun in the sky
- Content
 - Solar cycle
 - o Sun's layers and atmosphere
 - Effect on Earth's technologies
 - Solar Eclipses
- Eclipse activities
 - Sunspotter used as partial solar eclipse viewing device
 - Pinhole cameras
 - Activities designed for those on the path of totality

*Modified from https://www.exploratorium.edu/eclipse/video/how-build-sun-viewer



Lithograph



N3 Eclipse Program Info 2023-24 (cont.)

- Activities will take place in 2023 and 2024
 - California Partner Schools
 - New York Hall of Science
 - At least one location under the path of totality in 2024

• Watch for activity releases on the N3 Website

https://n3.sonoma.edu

Questions?

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