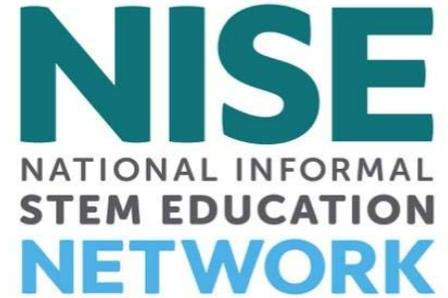


NISE Net Online Workshop

Programming for Audiences with Special Needs

Tuesday, November 19, 2019



Welcome!

Today's presenters are:

- **Max Cawley**, Museum of Life and Science, NC
- **Marta Beyer**, Museum of Science, Boston
- **Carolyn Ng**, NASA Goddard Space Flight Center
- **Meghan Schiedel**, Terry Lee Wells Nevada Discovery Museum
- **Meagan Downey**, James and Anne Robinson Nature Center

As we wait to get started with today's discussion, please:

Introduce yourself! Type your name, institution, and location into the Chat Box

Questions? Feel free to type your questions into the Chat Box at any time throughout the webinar or use the raise your hand function in the participants list and we'll unmute your microphone.

Today's discussion will be recorded and shared on nisenet.org at: nisenet.org/events/online-workshop



Online Workshop Overview



- NISE Net's Universal Design for Public Programs
- Usability and Accessibility of NASA Space Science Education Resources
- Programming for Special Needs Audiences
- Upcoming Professional Development Opportunities
- Q/A

NISE Net's Universal Design Approach and Resources



NISE
NATIONAL INFORMAL
STEM EDUCATION
NETWORK

www.nisenet.org

Marta Beyer

mbeyer@mos.org

November 19, 2019



Museum of Science.

Universal Design

- “The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”

(Center for Universal Design, 2002)

- Attention to
 - Physical inclusion
 - Cognitive inclusion
 - Social inclusion

(Blamires, 1999)

Universal Design Guidelines: Public Programs

- Resource to help educators create and implement inclusive programs
- Developed through a design charrette process and input from people with disabilities



Universal Design Guidelines: Main Concepts

- Repeat and reinforce the main ideas and concepts
- Make multiple entry points and multiple ways of engagement available
- Provide physical and sensory access to all aspects of the program

Universal Design Guidelines: Applying the Concepts

- Designing props and materials:
 - **Repeat and reinforce the main ideas and concepts**
 - Use **visual images** to support what you say
 - Use **models** that include concrete representations
 - Have **hands-on activities and/or tactile elements** that can be passed around that reinforce main ideas and/or engage audience

Universal Design Guidelines: Applying the Concepts

- Setting up and prepping your presentation:
 - **Provide physical and sensory access to all aspects of the program**
 - Provide **good visibility of the presenter's face** at all times
 - Make sure there is **enough room to present** without getting in the way of the visitors' view
 - Make sure **items can be viewed by people from a range of heights** including seated positions

Universal Design Guidelines: Applying the Concepts

- Delivering your presentation:
 - **Make multiple entry points and multiple ways of engagement available**
 - Find **ways to engage audience members** in the program
 - **Ask questions** that encourage visitors to connect what you are discussing to situations from their everyday lives

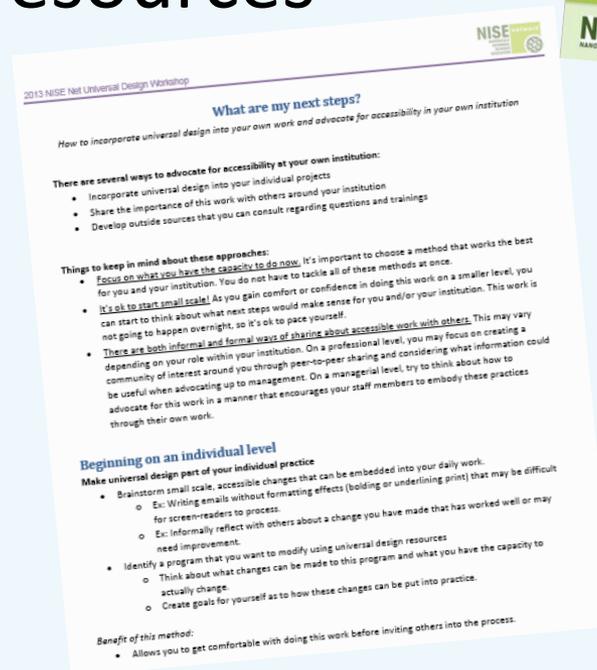
Universal Design of Educational Programs

Workshop Resources

- Workshop hosted in 2013 for museum educators
- Intended for those who develop and conduct educational programs or train others

Universal Design of Educational Programs Workshop Resources

- Slides
- Handouts
- Additional resources



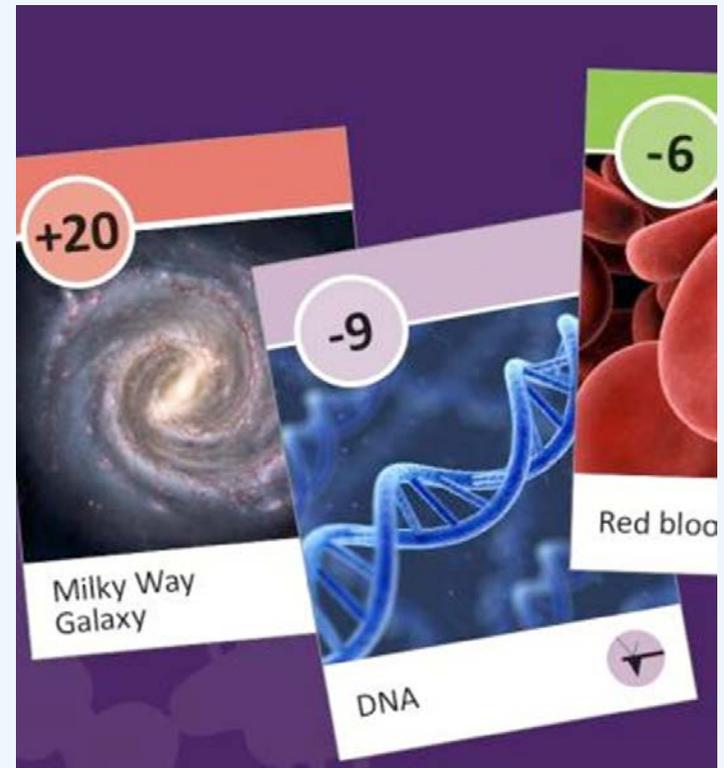
Universal Design for Public Programs online workshop recording

- Provides background on different models of disability
 - Reviews the social model of disability and NISE Net's Universal Design approach



Universal Design for Public Programs online workshop

- Offers examples of why it is important to use the three main ideas from the Public Programs Guide
- Highlights different NISE Net activities and what these suggestions look like in action
 - Designing props: Exploring Size: Powers of Ten Game



Resources Available on: www.nisenet.org

- **Universal Design Guidelines: Programs**
<http://www.nisenet.org/catalog/universal-design-guidelines-programs>
- **Universal Design of Educational Programs Workshop Resources**
<http://www.nisenet.org/catalog/universal-design-educational-programs-workshop-resources>
- **Universal Design for Public Programs online workshop recording**
<http://www.nisenet.org/catalog/universal-design-public-programs-online-workshop-recorded>

Thank You



This presentation is based on work supported by the National Science Foundation under Grant Numbers DRL-0940143 and DRL-1612482. Any opinions, findings, and conclusions or recommendations expressed in this presentation are those of the authors and do not necessarily reflect the views of the Foundation.



1AU

One Accessible Universe

Usability and Accessibility
of NASA Space Science Education Resources

Carolyn Ng

carolyn.y.ng@nasa.gov

NASA SMD SciAct



The **NASA Space Science Education Consortium (NSSEC)** is one of 24 teams funded by NASA's Science Mission Directorate.

Through museums and libraries, we'd love to reach many, including special needs audiences, with:

- Content – astronomy, solar science and planetary
- Projects – out-of-school-time, citizen science, educational technology (aka makerspace)
- **Products** – tactile, mobile apps, online resources
- Subject Matter Experts

3D Printing



2017 (and soon 2024) Total Solar Eclipse:

3D printed pin hole projectors



NASA 3D resources:

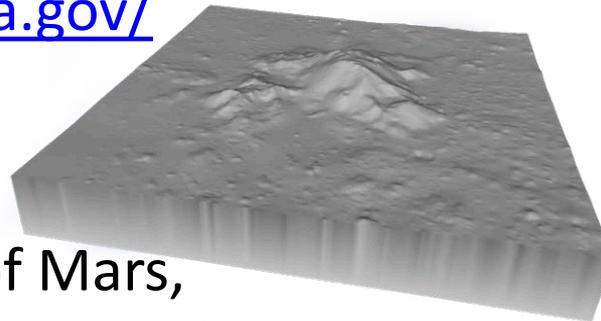
A collection of 3D models, textures, and images

<https://nasa3d.arc.nasa.gov/>

Solar System Treks:

Print the entire globe of Mars, Mercury, Moon or Titan; or pick a feature or area to 3D print

<https://trek.nasa.gov/>

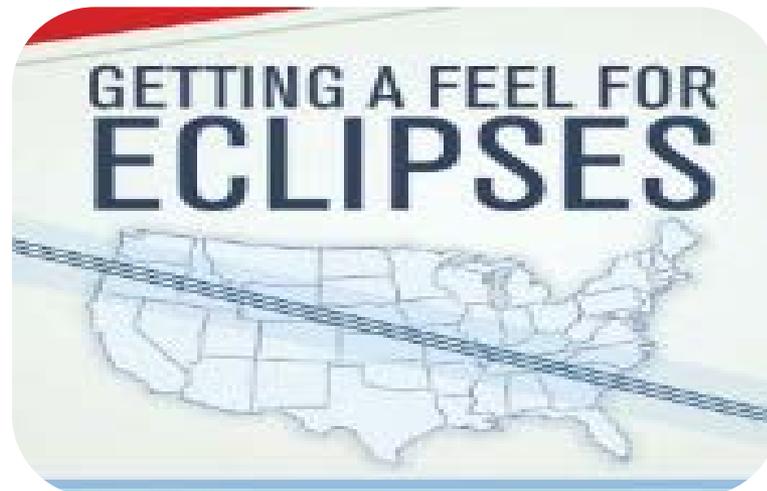


Braille Books



NASA's Braille Books

- Getting A Feel For Eclipses
- Moon Craters
- Mars Program



<https://sservi.nasa.gov/books/>

Right: In 2016 Troy Cline delighted the chief in Woleai, an island in Micronesia, with the 2017 eclipse book.



Educational Technology



ECLIPSE
SOUNDSCAPES

Smithsonian Astrophysical Observatory

NSSEC
NASA SPACE SCIENCE
EDUCATION CONSORTIUM

EclipseMob

WGBH Carl and Ruth Shapiro Family
NCAM
National Center for Accessible Media

NASA's Universe of Learning

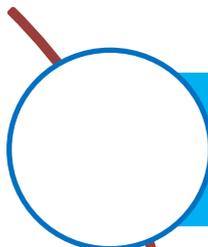
Provide Access to “Visual” Events



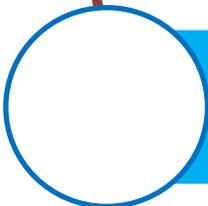
- Multiple ways to access the same information
- Think in terms of “spatial encoding” rather than “visual”
- Invent new solutions: “Rumble Map” technology
- Include members of your target community in the design

hwinter@cfa.harvard.edu

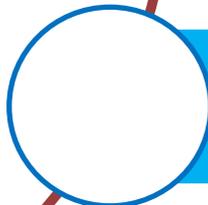
App Design



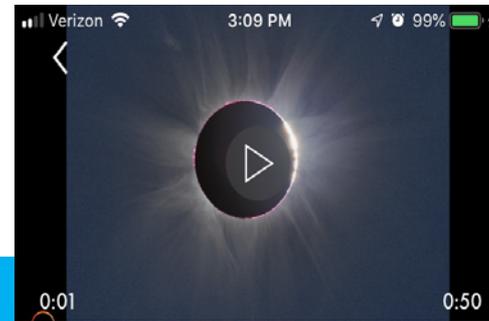
Geolocation features give users information about the eclipse in their area



Information is pushed to users as it is happening in real time.



Information is shared in multiple ways



Baily's Beads

On the right side of the moon, orbs of glowing sunlight shimmer off the edge of the moon's black disk. Called Baily's Beads, these final areas of the sun's light appear as glimmering pearls on a wire, made intensely bright by the absence of light surrounding them.

Explanation of what you might feel as you interact:

On the rumble map, explore the difference between the moon, the sun's corona and Baily's beads which are intense and irregular.

Additional scientific info:

Even this small section of the Sun's light

Rumble Map



- Allows for independent exploration of a feature
- Spatially encode data using dimensions other than color
- Uses FM Synthesis techniques to create special crafted tones that are audible, but that also “Rumbles”, the user’s handheld device
- Imagination and creativity out of necessity



App Users



Total of 57,477 users on day of the eclipse

Over 65,000 downloads as of June 2019

All A, AA, or AAA accessibility ratings from NCAM



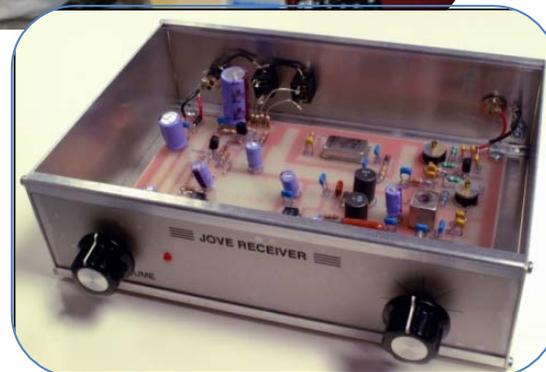
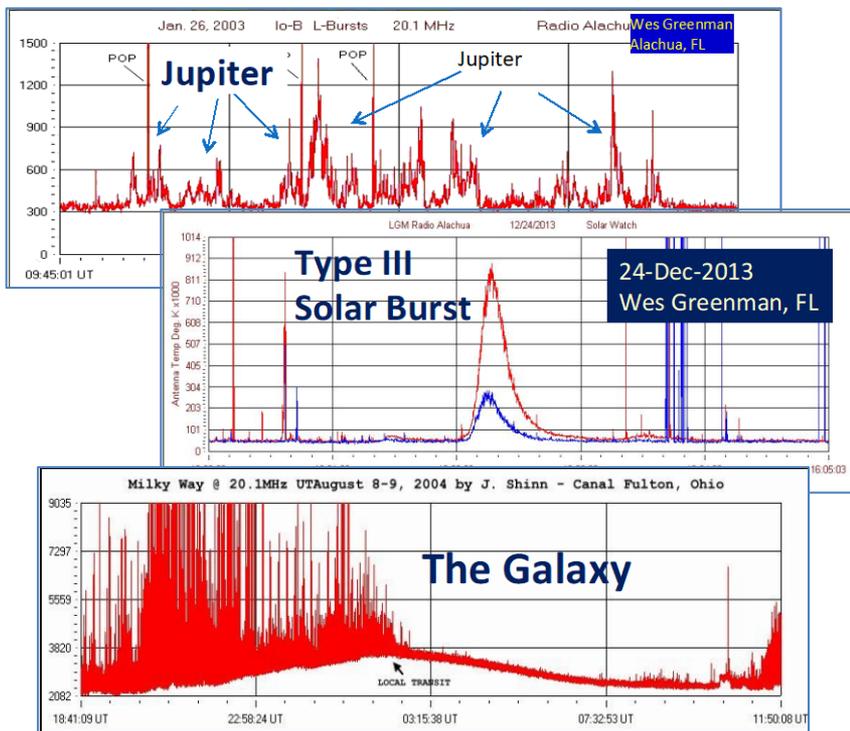
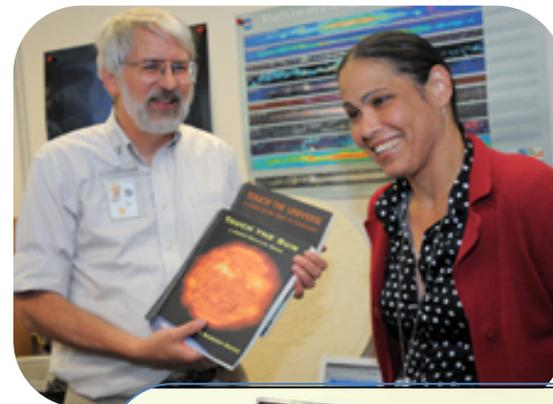
hwinter@cfa.harvard.edu

Educational Technology

Audification - Sonification



Radio JOVE – build a simple telescope kit to hear radio sounds of the Sun, Jupiter and the Milky Way Galaxy.



Conclusion



The **NASA Space Science Education Consortium (NSSEC)** along with other NASA teams would love to share with you and your audiences the following products:

- 3D printed pin hole projectors for eclipses
- 3D printed data and spacecraft models
- NASA Braille books
- Eclipse Soundscapes
- Radio JOVE and other sounds from space

Feel free to contact me at carolyn.y.ng@nasa.gov

MEGHAN SCHIEDEL

SCHOOL AND MUSEUM PROGRAMS MANAGER

THE TERRY LEE WELLS NEVADA DISCOVERY MUSEUM

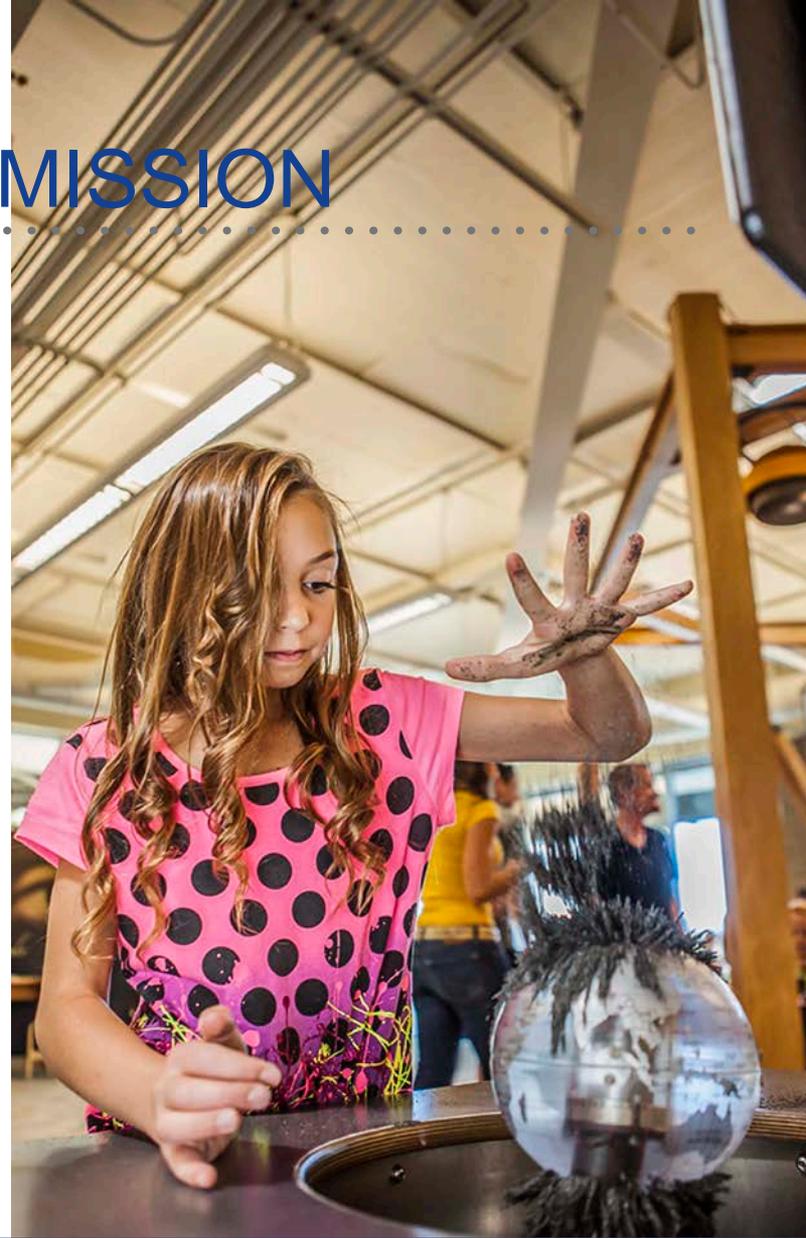




NSTA RENO – Making Space For Making in The Classroom

THE DISCOVERY'S CORE MISSION

**We seek to
inspire
by reaching more
people, more often
with exciting ways to
experience science.**



DISCOVER YOUR WAY

Sensory Friendly Hours

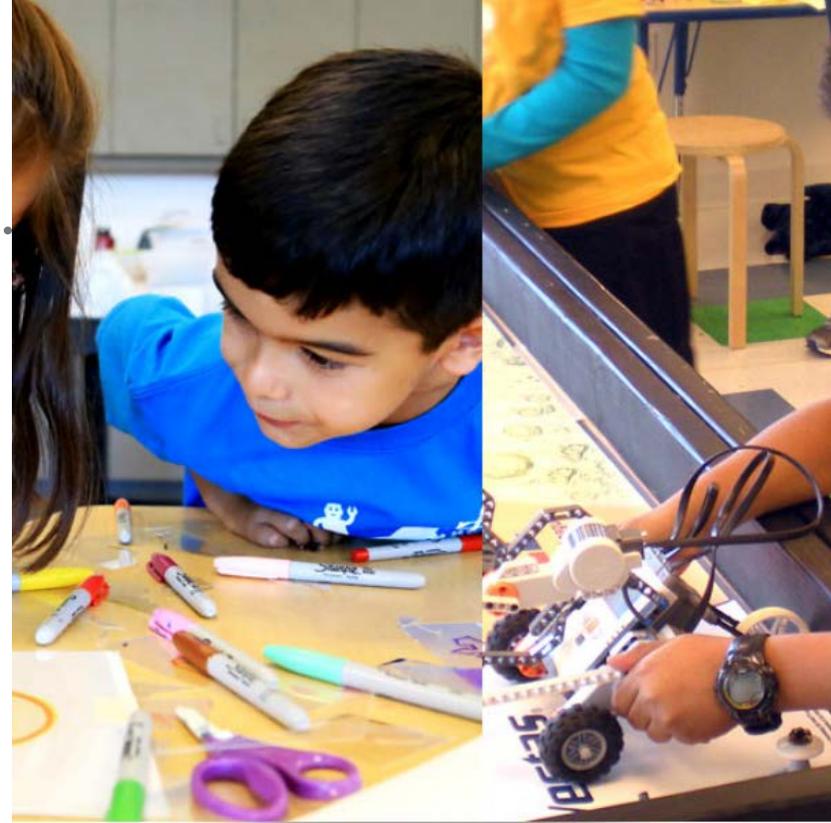
- Used partners for expertise
- Volunteer staffing
- Special training for all staff working this event
- Funding for the establishment of this program and develop a self sustaining program model



CAMP DISCOVERY

Inclusive Program

- Leveraged DYW partners to provide training for Camp Staff
- High ratios of adult to students
- Positive Behavior Support Protocol
- Financial aid program for camps



Universal Design Training Approach

- All trainings incorporate
training for diverse learners
and abilities



COVES (“**C**ollaboration for **O**ngoing **V**isitor **E**xperience **S**tudies”) is a system that provides for the ongoing collection of meaningful data about museum* visitors, allowing museum leaders to make data-informed decisions, while providing relevant points of comparison within our industry.



Thank you!

Meghan Schiedel

School and Museum Program Manager

mschiedel@nvdm.org

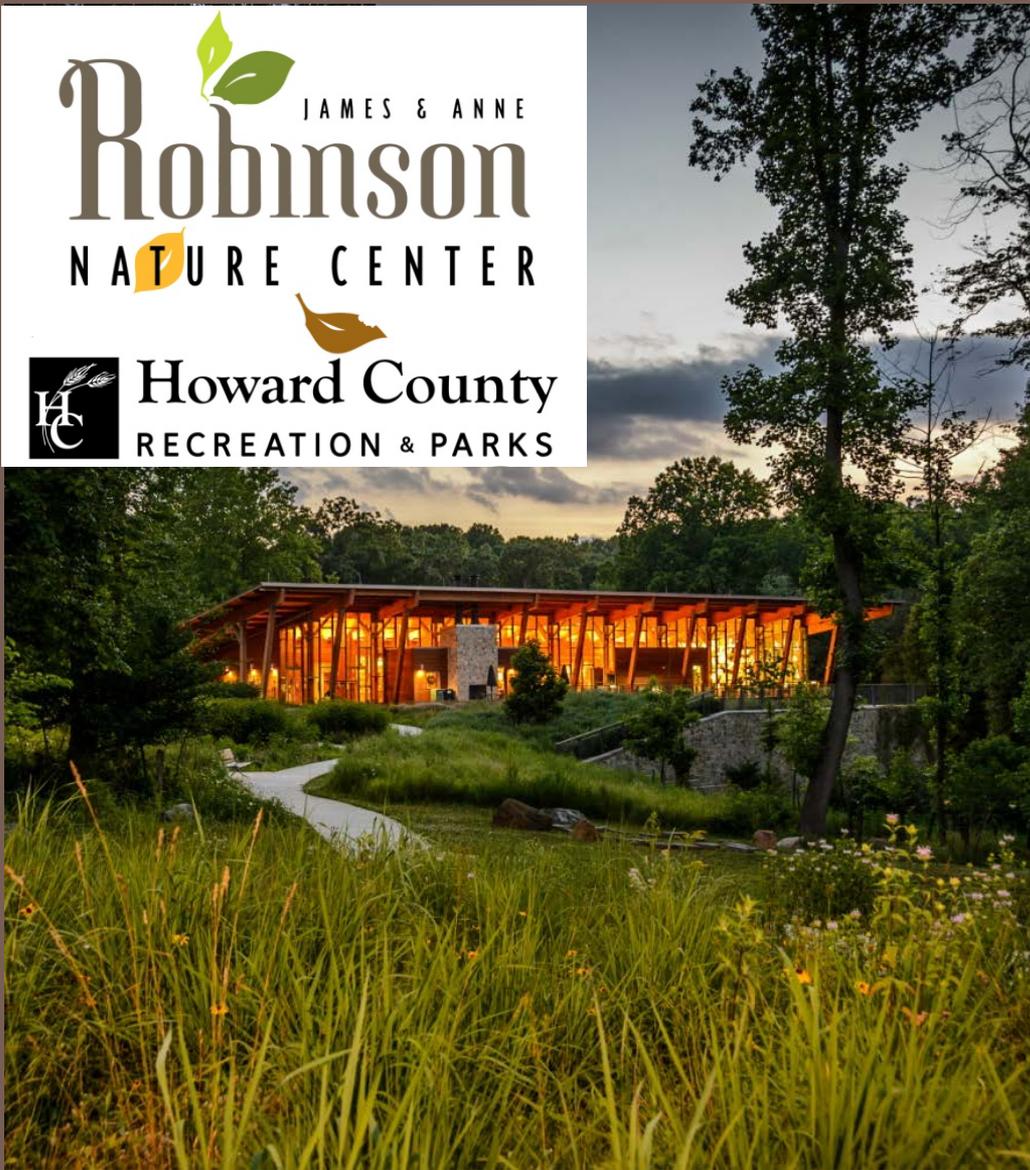
A close-up photograph of a young child with dark hair and blue eyes, looking through a magnifying glass. The child is wearing a red jacket with a black collar. The background is a blurred outdoor setting with green grass and brown mulch.

ASSESSING & MEETING THE NEEDS OF POPULATIONS BENEFITING FROM SPECIAL ACCOMMODATIONS

Meagan Downey, Program Manager
Robinson Nature Center

JAMES & ANNE
Robinson
NATURE CENTER

 **Howard County**
RECREATION & PARKS



THE JAMES & ANNE ROBINSON NATURE CENTER MISSION STATEMENT

The mission of the Robinson Nature Center is to facilitate the enjoyment and understanding of our natural resources and to bridge the gap between people and nature. By inspiring sound environmental awareness, we promote responsible stewardship of all of our natural resources and strive to connect people of all ages with nature through experience-based education.



Who We Are

Mission Accomplished (for some?)



Over 450 programs a year and over
40,000 visitors annually, but...

We are still missing the mark for some

Removing Barriers

Wouldn't it be great if every kid could enjoy this?



Seeking Outside Resources



We CAN do better if...

We talk to the right people!

Gathering Input



- *Identifying Stakeholders*
- *Surveying*
- *Observing*
- *Collating Feedback*

What needed to Change?

Utilizing Community Partners:

- *Training for staff and volunteers*
- *Marketing*
- *Sponsoring the cost of admission*

Creating New Resources:

- *Signage*
- *Maps*
- *Sensory-Friendly Visit section on website*
- *Social Stories*
- *Sensory-Friendly room during special events*

New Resources

Sensory Backpacks



New Resources



Sensory Signage



SENSORY FRIENDLY WELCOME INFORMATION

We strive to create an inclusive environment that allows all our patrons to experience the nature center at a level where they are most comfortable. To facilitate this, we have installed signs to help guide visitors that may find certain areas over-stimulating.



Areas where we expect the noise level to be higher on busier days. These are areas where those with sound sensitivity may prefer to use noise-dampening headphones during their visit.



Areas where we expect the noise level to be reduced. If you're looking for an area to unwind, these locations are the best to visit indoors. Walking on our outdoor trail system can also provide a relaxing experience.



SENSORY BAGS

Did you forget your fidget toy or headphones? If these items will improve your visit, please see the front desk to borrow one of our Sensory Bags! Bags include include headphones, various fidgets, and additional information to assist your visit.

Sensory Bags are free. All we ask is that you leave a driver's license or credit card at the front desk.

Robinson Nature Center Sensory-Friendly Building Map

LOBBY LEVEL

Life of the Forest Exhibit



Simpsonville Mill Exhibit



Discovery Room



Nature Gift Shop

Restrooms

Family Restroom

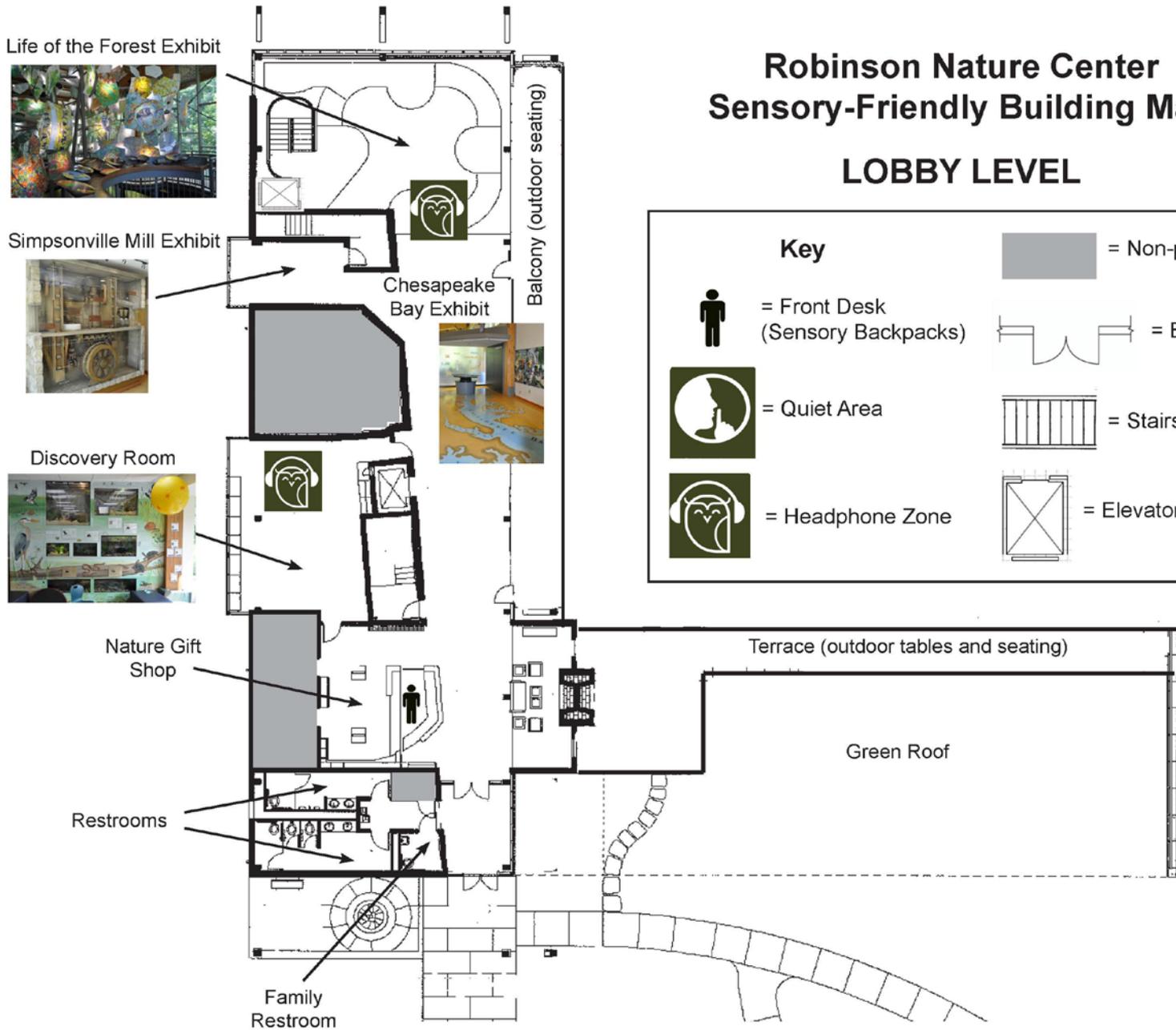
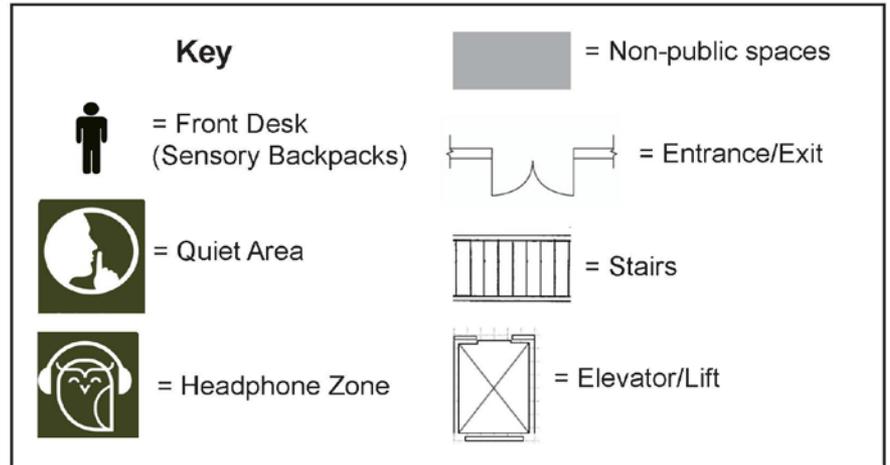
Chesapeake Bay Exhibit



Balcony (outdoor seating)

Terrace (outdoor tables and seating)

Green Roof



New Resources

Social Stories



New Resources

Suggested Visitor Itineraries

Say hi to animals in our Discovery Room "Touch Tank".



Turn the wheel and mill some grain at the Mill Exhibit.



Discover something new at one of our activity carts.



Open a drawer of discovery to look deeper into our exhibits.



Watch the seasons change as you walk through our forest exhibit.



**30 min
Indoor**

Visit the beaver lodge.



Control a model satellite camera.



Look for birds at the feeders.
This view is from one of our Quiet Areas.



Website -

<https://www.howardcountymd.gov/Departments/Recreation-and-Parks/Facilities/Robinson-Nature-Center/Sensory-Friendly-Visits>



SENSORY FRIENDLY VISIT

Sensory Friendly Resources at Robinson Nature Center

The Robinson Nature Center welcomes your family's visit. In partnership with Leadership Howard, the Howard County Recreation & Parks Therapeutic Recreation program and the Howard County Autism Society we have developed visual, social, communicative and sensory supports for children and adults with autism spectrum disorder as well as developmental, sensory and learning differences. You will find these supports throughout the nature center and can read more about them below. Additionally, we offer regular training opportunities for our staff and volunteers on how to accommodate children and adults with developmental, sensory and learning differences. We hope our staff, volunteers and tangible supports help your family to have a successful visit and leave you feeling happy and eager to return and to continue exploring nature as a family.

Sensory Backpacks



Upon request, we have sensory backpacks at our front desk for your family's use. The backpacks contain noise-reducing headphones, sensory fidgets and a Robinson "Nature Explorer" badge. You will also find a copy of our sensory friendly building map and information about Howard County's Therapeutic Recreation program inside the bags.

On the outside of the bags, there is a card with a QR code that links to our sensory friendly visit survey that you can fill out to let us know how your experience was. These bags are free for use throughout your visit. All we ask is that you leave a drivers license or other ID at the front desk which will be returned to you upon your departure.

Orientation

If you are planning a visit with a child who has special needs, you may call 410-313-0400 ahead of your visit to notify our front desk. When you arrive and check in with the front desk, they can provide you with more information on the visual/sensory supports available and/or check your family out a sensory backpack to enhance your child's experience at the Nature Center. If you would like any items removed from your backpack, please mention when you call ahead and we can have the backpack ready when you arrive.

Sensory Friendly Building Map



Sensory Friendly Sundays and Sensory-Friendly Rooms at Special

NEW!

Sensory-Friendly Sundays

AT ROBINSON NATURE CENTER

SEPTEMBER 8, OCTOBER 13, NOVEMBER 10, & DECEMBER 15

All ages | 11:30am - 12:30pm

General operating hours begin at noon and guests of this program are welcome to stay after 12:30pm.

**\$5, adult; \$3, child;
Free, members &
children under 3 yrs**

Due to expected demand, we encourage you to call 410-313-0400 to reserve your space ahead of time. Thanks to a generous donation by the Friends of Max Cowan, the first 70 families to attend these events will gain complimentary admission to the Nature Center.

This monthly event is designed for families with children, teens, and adults with sensory processing differences, autism spectrum disorder, or developmental disabilities. The center opens early, allowing visitors to enjoy a calm environment. Explore the exhibits, Discovery Room, nature trails and/or outdoor Nature Place play area. Sensory alert maps, sensory backpacks and quiet areas are available.

REGISTRATION / INFORMATION

Call 410-313-0400 or visit www.howardcountymd.gov/RNC/sensoryfriendlyvisit
You may also register in person at 6692 Cedar Lane, Columbia, MD 21044.

 Howard County
RECREATION & PARKS



 JAMES & ANNE
Robinson
NATURE CENTER



Sensory-Friendly Break Room



Quiet Area

**Special events can be
overwhelming. If you or your
child need a break visit us here
for quiet activities and a dimly
lit space.**

Results so far

- 1) Over 100 individuals have attended the first few Sensory Sundays; for many, it is their first visit to the Nature Center
- 2) We have repeat families whose children are able to sit for longer periods of time in the planetarium and spend more time in the Center on their repeat visits
- 3) Children are trying things for the first time – including being in a darkened planetarium and getting to touch live snakes and sea stars
- 4) In after-surveys, families report having utilized, and appreciated, Sensory-friendly rooms at our special events even if their children did not have special needs
- 5) Robinson Nature Center was recognized as one of the five “Autism Friendly Organizations” honored by the Howard County Autism Society in 2019 at their Annual Gala

Questions?



Meagan Downey

Program Manager, Robinson Nature Center

mdowney@howardcountymd.gov

**UPCOMING
PROFESSIONAL
DEVELOPMENT**

Poll Question

Q. How did you hear about today's online workshop?

- NISE Network Newsletter
- NISE Network Facebook
- NISE Network Twitter
- NISE Network LinkedIn
- Museum Alliance
- From a colleague
- Other – **Please Type response in the Chat Box**

Poll Question

Q. If we held a follow up workshop on today's topic would you be interested in attending?

- Yes
- No

Upcoming Online Workshops



**Using Your Explore Science: Earth & Space Toolkit
Outdoors: Practical Advice for Collaborations and
Logistical Aspects**

Tuesday, December 10, 2019

2pm-3pm Eastern / 11am-12pm Pacific

**Science Behind the 2020 Explore Science: Earth &
Space toolkits**

February/March 2020

Sustainability in Science Museums – 3 Part Series

February/March 2020

Learn more at nisenet.org/events

The screenshot displays the Ryver online forum interface. On the left is a dark blue sidebar with navigation options: a profile for 'Museum Alliance @BradHerring', a search bar, 'Notifications', 'Task Stream', and 'Personal Tasks'. Below these are 'FORUMS' with categories like 'Planetarium Shows', 'General Conversation', 'Explore Science: Earth & S...', 'Apollo 50th Conversations', and 'Tasks and Requests'. At the bottom are 'TEAMS' and 'PEOPLE' sections.

The main content area is titled 'Explore Science: Earth & Space Toolkits' and features a 'TOPICS' tab. A list of topics is shown, each with a red pin icon, a title, a reply count, and a user profile picture:

- Extending the Earth & Space Online Workshop Conversations** (3 replies) by Brad Herring, replied 28 days ago.
- Earth & Space toolkit - suggestions for hacking or extending the activities** (3 replies) by Christina Leavell, replied 29 days ago.
- Learn More about the NISE Network** (1 reply) by Christina Leavell, replied 29 days ago.
- Introductions** (5 replies) by Brad Herring, replied 29 days ago.
- Ryver Quick Start Guide** (1 reply) by Jeff Nee, created Jun 7.

Extending the Online Workshop conversation via the Museum Alliance's Ryver online forum.
Sign up here: <https://museumalliance.ryver.com/application/signup/guests/TGcXfWsrarSC7I>

2019 Annual Partner Survey

- Email invitations will be sent in November
- In order to learn more about your experiences in the NISE Network and with presenting Earth and space science content
 - We want to hear from partners across a diversity of roles, institution types, geographical regions, and levels of Network involvement
 - Whether or not you completed last year's survey
 - Even if others at your organization have participated
- Contact Marta Beyer at mbeyer@mos.org with any questions

****Respond by the Friday, November 22nd and you'll be entered into a drawing for one of five bundles of extra Earth and space science materials for visitors.**

Get Involved

Learn more and access the
NISE Network's online digital resources
nisenet.org

Subscribe to the monthly newsletter
nisenet.org/newsletter



Follow NISE Net on social networking
nisenet.org/social



Questions?

Thank You



This material is based upon work supported by NASA under cooperative agreement award number NNX16AC67A and 80NSSC18M0061.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Aeronautics and Space Administration (NASA).