Earth & Space Project-Based Professional Learning Community

NISE NATIONAL INFORMAL STEM EDUCATION NETWORK

EXPLORE SCIENCE Earth&Space

April Concurrent Session C1

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

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EXPLORE SCIENCE Earth&Space

Approachable Ideas to Address Extreme Weather

- Rebekah Domayer, Iowa Children's Museum, Coralville, IA
- Meghan Schiedel, Terry Lee Wells Nevada Discovery Museum, Reno, NV
- Stacey Forsyth, CU Science Discovery, Boulder, CO
- Sara Benson, Museum of Science, Boston, Massachusetts

MIDWEST REGION

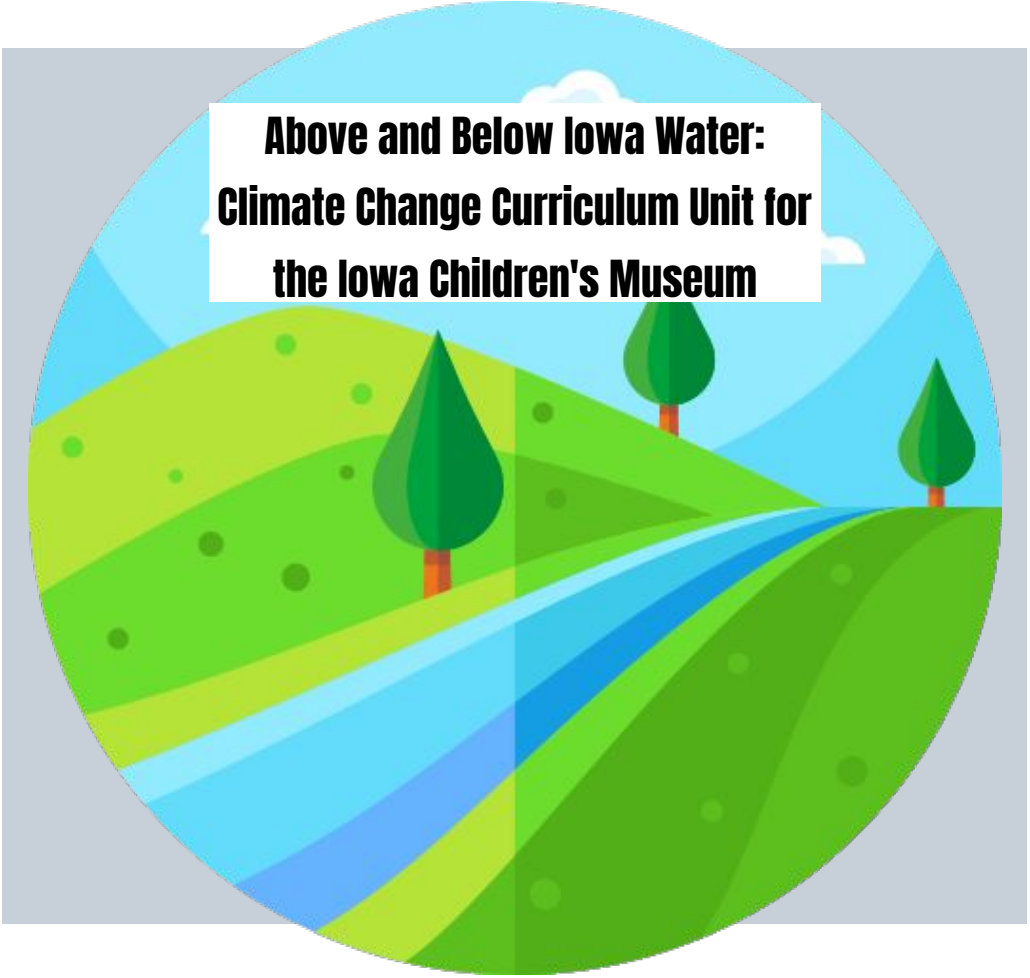
IA, Coralville
The Iowa Children's Museum

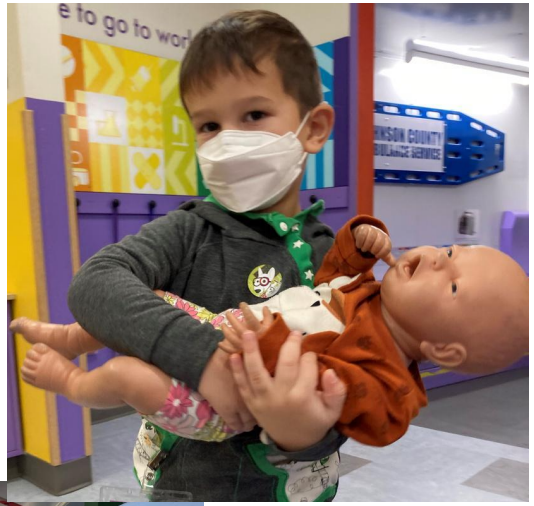
NAME(S): Rebekah Domayer, Education Program Manager

PROJECT DESCRIPTION: Our project is in collaboration with the Iowa City Community School District (ICCSD) and the State Hygienic Laboratory of Iowa in after-school programming to underserved elementary schools. This program will target grades kindergarten through 3rd. The after-school curriculum improvement will be on climate change and its effects on Earth and Iowa.

THE IOWA CHILDREN'S MUSEUM
imagine • create • discover • explore

Above and Below Iowa Water: Climate Change Curriculum Unit for the Iowa Children's Museum





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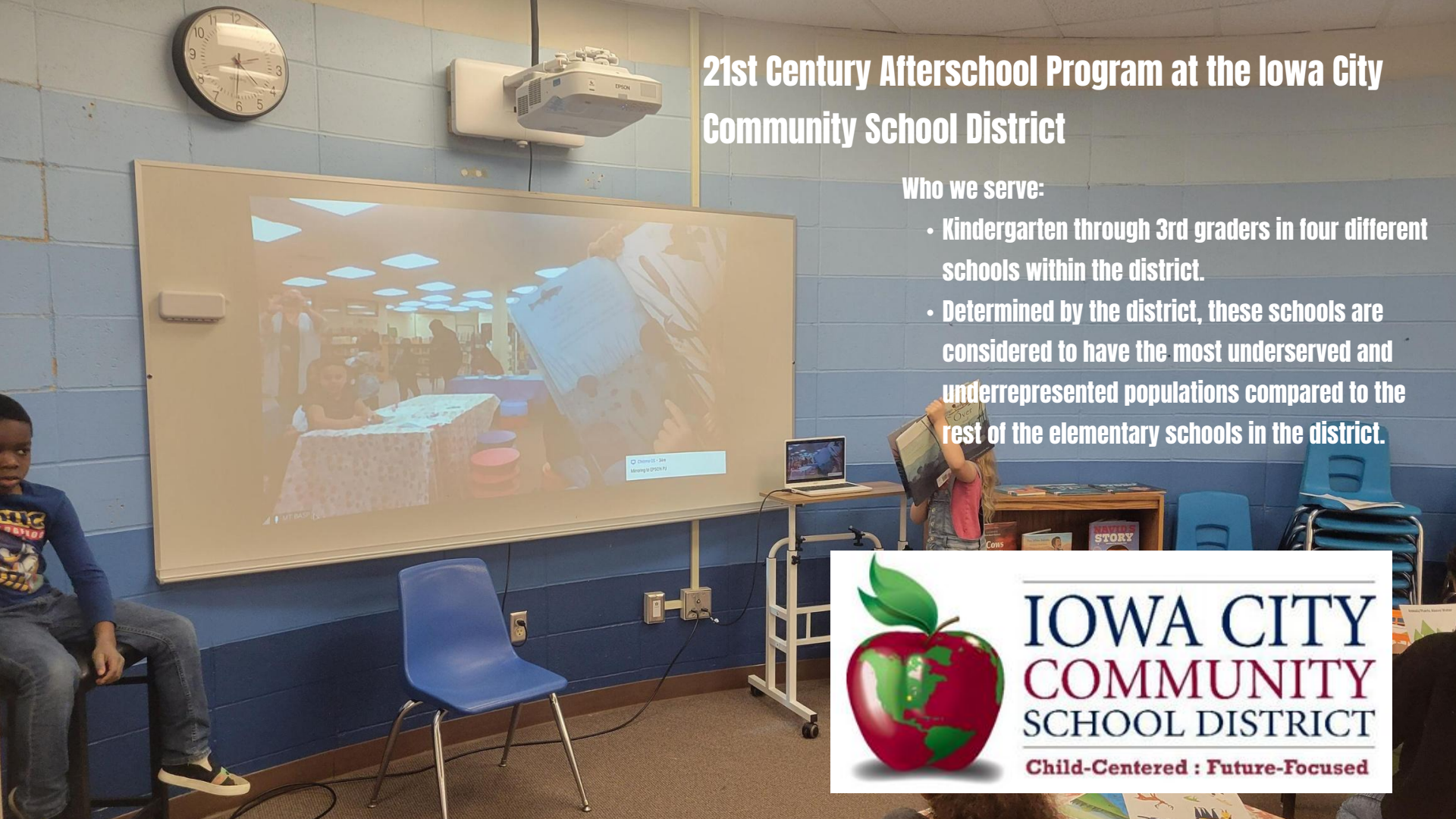


21st Century Afterschool Program at the Iowa City Community School District

Who we serve:

- Kindergarten through 3rd graders in four different schools within the district.
- Determined by the district, these schools are considered to have the most underserved and underrepresented populations compared to the rest of the elementary schools in the district.

IOWA CITY COMMUNITY SCHOOL DISTRICT

Child-Centered : Future-Focused

Our Plan

Expand our curriculum unit to include four activities that support the learning goal of local climate change in Iowa by partnering with the State Hygienic Laboratory at the University of Iowa (SHL). But how to we offer this virtually to our partnering sites?

- In one activity, students will learn about rivers around the state and what lives in a river by reading "Over and Under a Pond." Students will be expected to create a river scene that demonstrates and depicts what lives above and below a river. This activity is supported by the SHL by providing specimens they have collected in the rivers.

- In another activity, students will experience firsthand that climate change can have a direct impact on the environment but we can make solutions for that. Students will experiment with the use of plants to help eliminate erosion from occurring on shore lines of bodies of water during intense rain events and flooding.

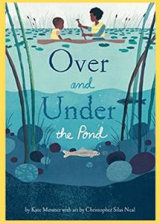
- Allow for youth voice to be centered in these activities, asking throughout our virtual interaction about their thoughts on climate change!

- How do we make it relevant, especially since some of these students have never been to a river or have experienced a flood during their lives?

Our mascot, Pete the turtle!

ICM ACTIVITY #1

Theme: Above and Below Iowa Water (Engineering 101)



What You Need:

- Water scene template
- Markers
- Glue sticks
- Scissors
- Printed animals/plants

What You Learn:

Students will learn about what animals and plants live above and below water and that it is important to take care of our water.

What You Do:

1. Set up materials in a buffet-style set up.
2. Read the book "Over and Under the Pond" by Kate Messner to the students.
3. Students will use the water scene templates and add both animal and plant life above and below the water.
4. During this time, prompt the students to think about the relationships of the plants and animals. What if there was a factory or housing complex built right next to their water? How would that effect what lives near and under the water?
5. Climate change is due to human interaction with the environment. Climate change can be used as an umbrella term that covers a lot of things, but we are focusing solely on the effects of civic development near natural waterways which can lead to kill events by simply disrupting the environment with introducing pollution (noise and chemical) and other kinds of non-native wildlife.
6. Have students share their work with the rest of the group if time allows.

FRAME WORKS INSTITUTE

NNOCCI National Network for Ocean and Climate Change Interpretation

Value

Protection

Why does it matter? What's at stake?

The story you're telling:

We must protect people and places from being harmed by the issues facing our environment.

Strategically redirects thinking away from patterns such as:

- Bottomless Grocery Store - Change Is Natural/Fatalism - Individualism
- Nature Will Fix Itself - Nature Works in Cycles - Solution = Recycling

Protection

Concepts and ideas included in this frame element:

- We must **protect and preserve the habitats and ecosystems** we depend on.
- Showing **concern for the welfare of others** is the right thing to do.
- **Stepping in to ensure the people's safety and wellbeing.**
- Sense of agency: protection means **actively eliminating or reducing risks.**
- Sense of urgency: let's be vigilant in **shielding and safeguarding habitats and people** from harm.

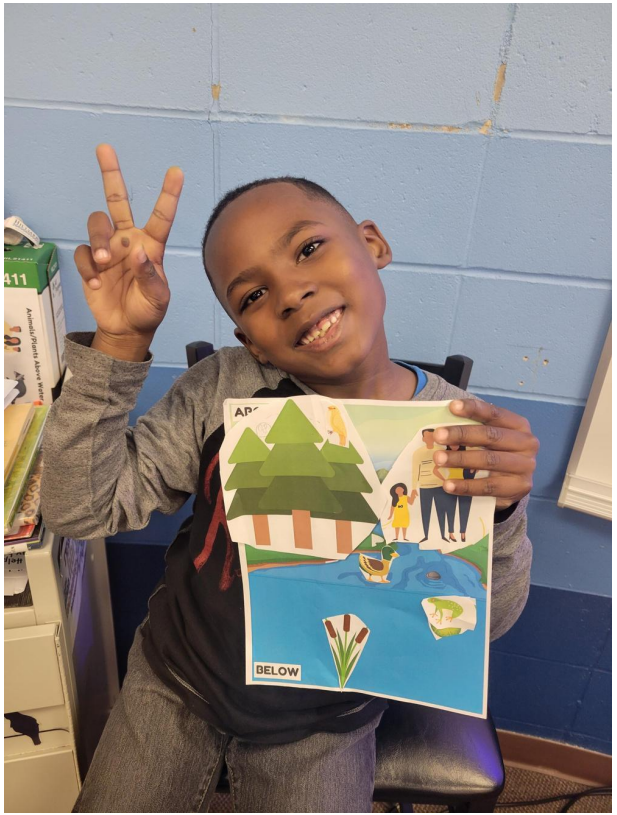
Read the original research behind this recommendation at FrameWorksInstitute.org

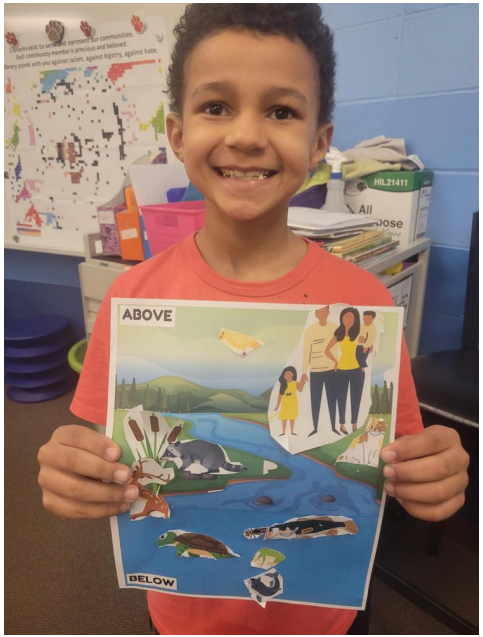

nuseum


ALL-STAR

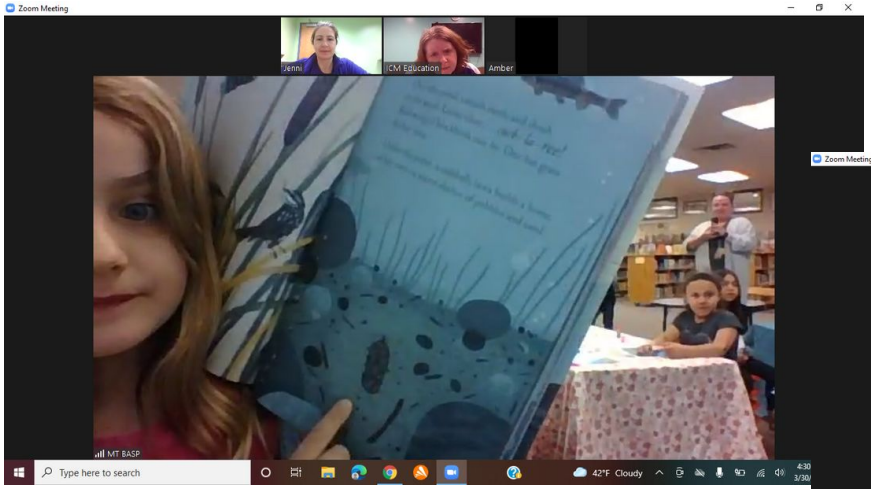

BELOW

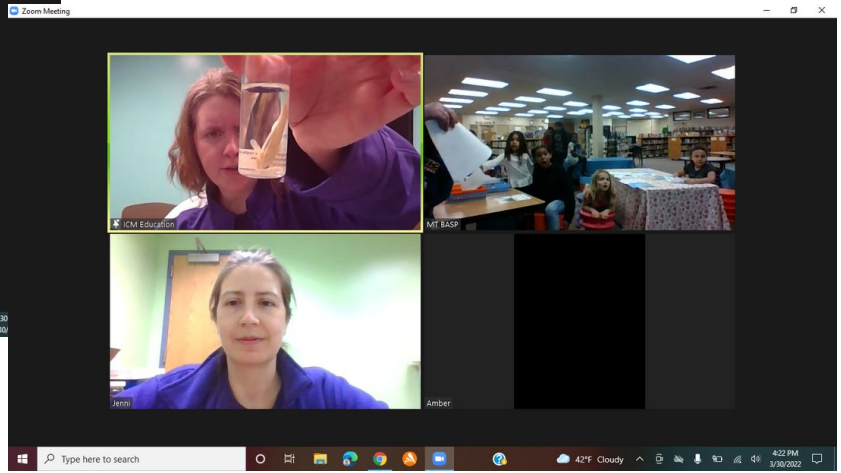

ABOVE
BELOW


BELOW


ABOVE
BELOW

We are still in the middle of the project but what we have learned so far.....





Together, we can make a turtle-y big change!

Rebekah Domayer

Education Program Manager

rdomayer@theicm.org

319-625-6255 ext 213

THE IOWA CHILDREN'S MUSEUM

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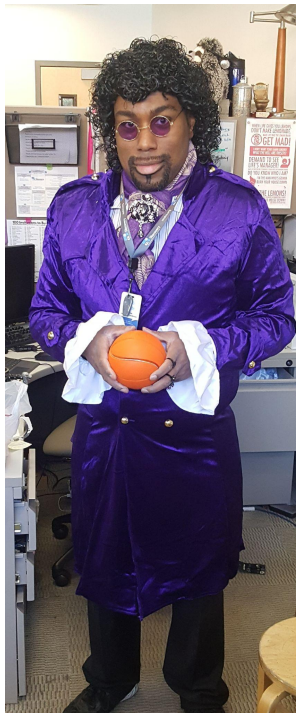
WEST REGION

NV, Reno
The Terry Lee Wells Nevada Discovery Mus

Christopher White & Izzy Martinez
Meghan Schiedel

PROJECT DESCRIPTION: Creating a visitor experience (signage, exhibits, activities, and guests) in our invention gallery, Spark!Lab, to show the connection between global climate change and Northern Nevada's evolving fire season.



THE TERRY LEE WELLS NEVADA DISCOVERY MUSEUM

Located in Downtown Reno, NV
We are an all-ages hands-on science center
In our 10 years we have had over 1.2 million visitors

COMMUNICATING CLIMATE CHANGE TO DIVERSE AUDIENCES


What is Fire Season?!?
And how do we teach it without scaring the crap out of our visitors?

Why is this topic important to us?

- Poor air quality
- Record land loss
- Straining of community resources
- Project: Camp at The Discovery
- Our role within our community

Managing internal project management.

- Set and manage expectations
- Assigning and understanding roles
- Ask questions
- Conflict happens and that's ok

How have we approached such a serious topic?

Games…obviously

Group based firefighting game

Shape based puzzle game

TRUST YOUR FLOOR STAFF! (TEAM BASED INQUIRY)

Who sees your visitors the most?
Who interacts with your visitors the most?
Where do most of the actual good ideas come from?
Who is going to test these ideas out for you?

Working with community experts and shareholders

Contributing community partners

- University of Nevada, Reno
  - Spencer Eusden
  - Cienna Ajir
- Bureau of Land Management
- Jennifer Diamond
- City of Reno Fire Dept
- US Park Service

Waterfall Fire 2004

Identifying community shareholders and experts

- Our organization's role in the community
- Shareholders live who in your community
- Opportunity to signal boost agencies
- Sage on the stage vs guide on the side.

Thank You!

WEST REGION

CO, Boulder
University of Colorado Boulder

Science Discovery
UNIVERSITY OF COLORADO **BOULDER**

Name: Stacey Forsyth

Building Community Resilience in the Aftermath of Wildfire

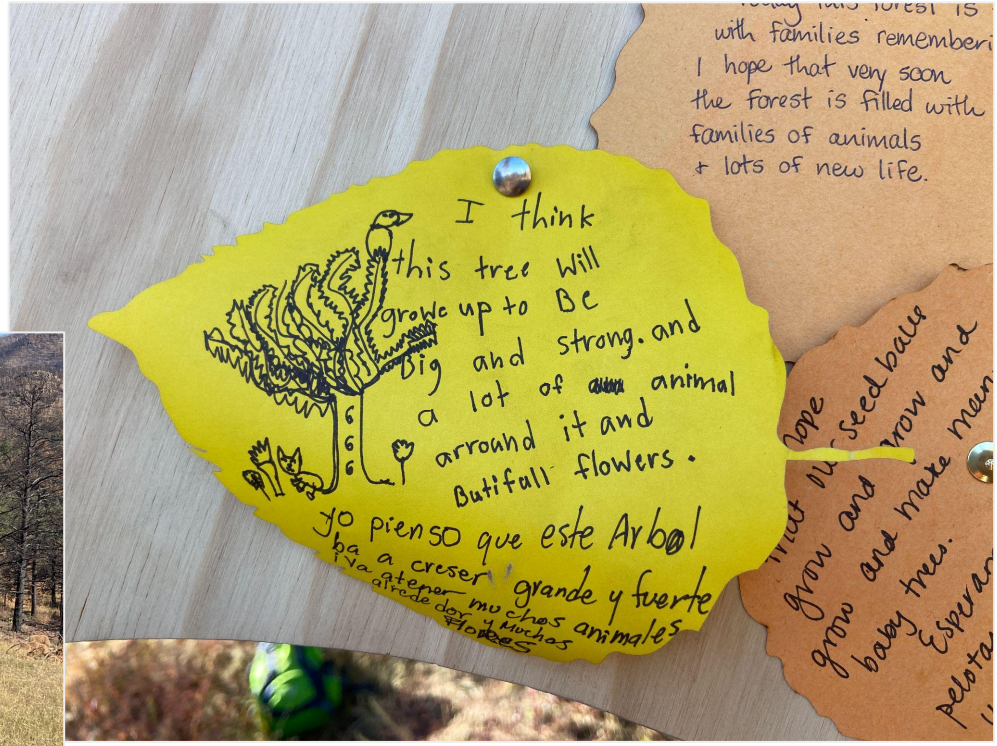
Goal: Engage youth and their families in climate science research and environmental restoration efforts at a local site recently impacted by wildfire.

Key Partners: Cal-Wood Education Center
Nature Kids Lafayette

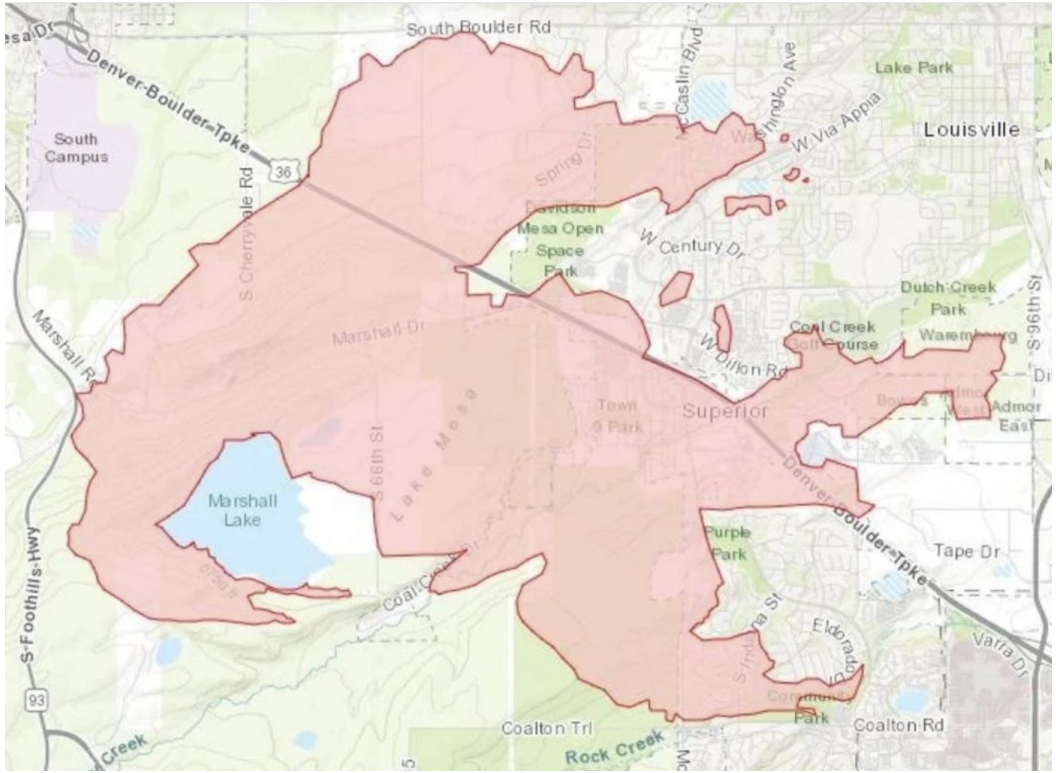
Above. Intact and burned areas of CalWood's forest. Left. Drone image of Cal-Wood forest following the 2020 Cal-Wood wildfire.

Fire Ecology Field Course

Community Engagement Event (Fall 2021)



Marshall Fire (Dec 30, 2021)



Focus on the Community's Needs

- Consider impacts to mental health & well-being
- Provide opportunities to reflect, grieve, express hopes, concerns, etc.
- Provide opportunities to engage in environmental action

New Partnerships & Plans

GROWING UP BOULDER

NORTHEAST REGION

MA, Boston
Museum of Science, Boston

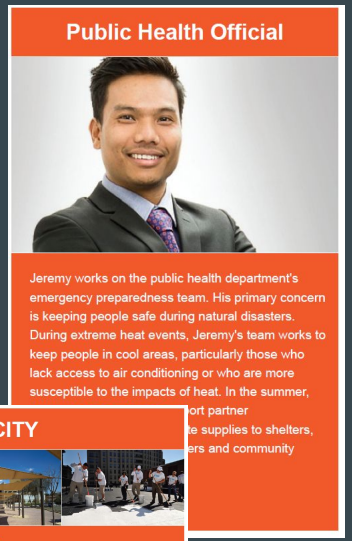
Museum of Science

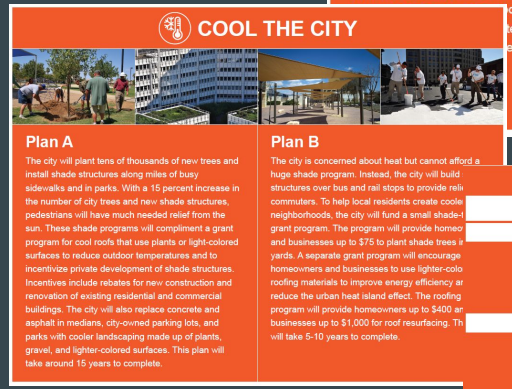
NAME(S): Sara Benson

PROJECT DESCRIPTION: This project will be to develop a locally focused deliberative forum around climate change and extreme heat in Greater Boston. We will work with community groups and civic partners to develop local materials about extreme heat using real life stories and stakeholders, community science collected data, and a strong call to action.

Climate Hazard Resilience Forum: Extreme Heat

- Introduction to the topic
- Perspectives
- Strategies
- Discuss and Decide
- Share out





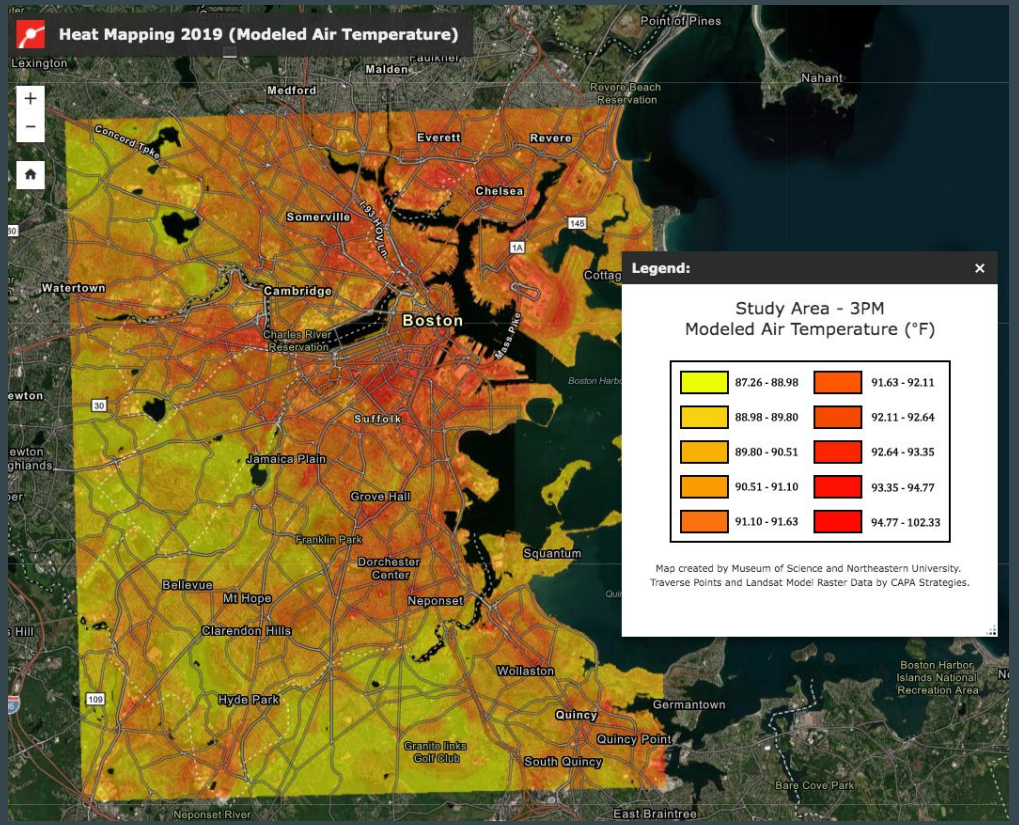
https://www.nisenet.org/forum-extreme-heat

Goals

- Localize the previous extreme heat forum
  - Focus on the Boston area community
- Education
  - Dangers of extreme heat, the urban heat island effect, solutions to heat, and the inequalities of extreme heat
- Community Engagement
  - Community collected data
  - Community and partner voices
  - Community tested and youth focus groups
- Call to Action
  - Citizen/community science opportunities

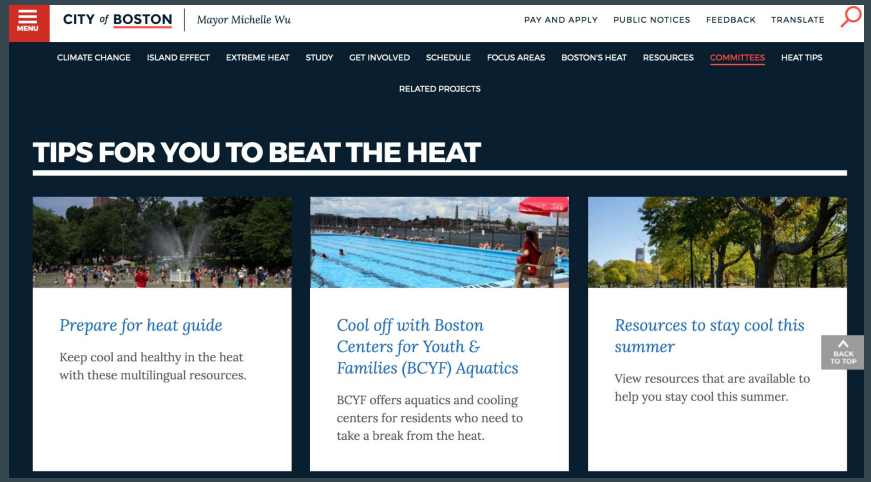
Introduction to the Topic

- Wicked Hot Boston Data
  - Jul + Aug 2019
  - 50 Citizen Scientists
  - 10 routes
  - 3 cities
- Boston extreme heat background packet



Perspectives and Strategies:

- Perspectives from real community groups and civic partners
- Resilience strategies occurring in the boston area

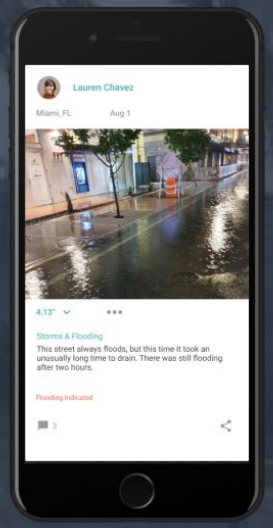


Institution	Title/Department
Boston Gov	Climate Resilence Project Coordinator
Boston Gov	Manager, Greenovate Boston Communications
Boston Harbor Now / Stone Living Lab	Cabot Education and Community Engagement Program Manager
Brookline Goov	Economic Development Director
Cambridge Gov	Cambridge Biosafety Committee
Climate CREW	Program Manager, Communities Responding to Extreme Weather (CREW)
Charles River Watershed Association	Charles River Watershed Association
Girls Inc / Beach Sisters	Beach Sisters Fellow
Greenroots	Climate Justice Organizer
Harborkeepers	Executive Director
ISeeChange	Writer
Metropolitian Area Planning Council	Clean Energy and Climate Planner II
Mystic River Watershed Association	Deputy Director
Mystic River Watershed Association	Climate Resiliency Manager
Mystic River Watershed Association	Engagement Manager
Neighborhood of Affordable Housing (NOAH)	Executive Director
Neighborhood of Affordable Housing (NOAH)	Coordinator of Community Engagment
Northeastern University	Professor Dept. of Marine and Env Science
Northeastern University	Grad student
Science Museum of Virginia	Chief Scientist
SciStarter	Digital Community Manager
Town of Arlington	Environmental Planner, Conservation Agent

Call to Action: ISEECHANGE

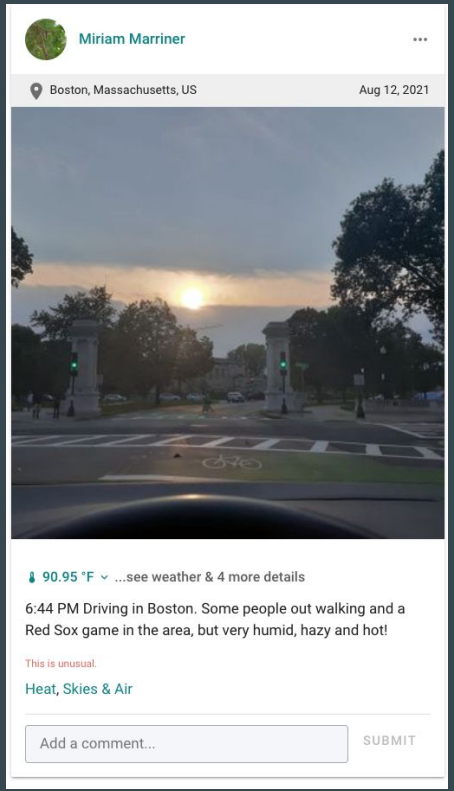
Document climate change on ISeeChange

Share photos and stories to help solve problems.



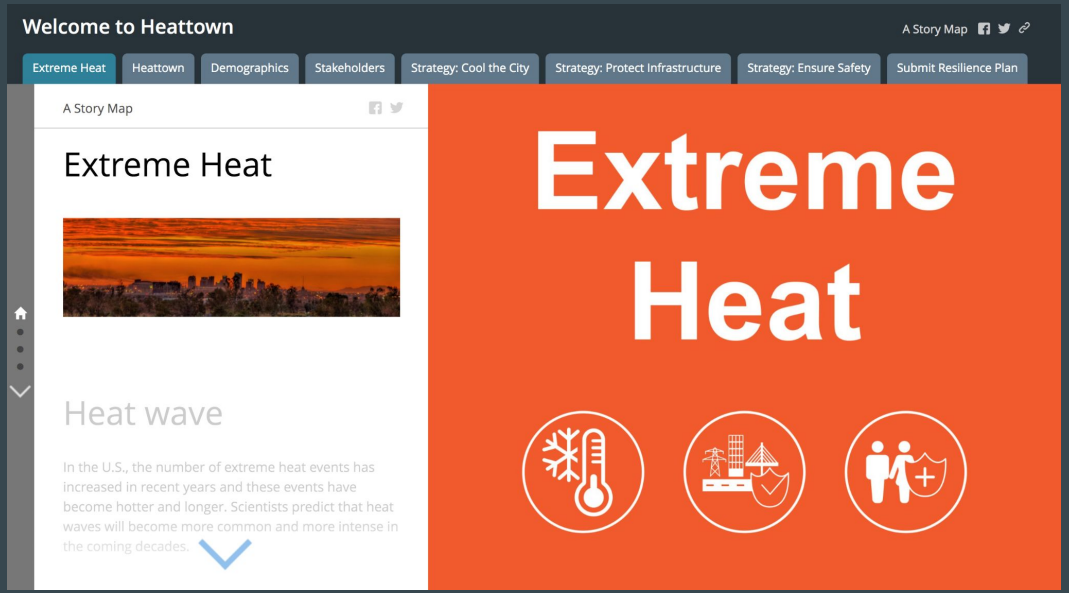
Sign up and start posting today

www.iseechange.org ISEECHANGE



Changes and Lessons Learned:

- Shifted timelines to accommodate youth voices
- Self facilitated forum to be more accessible for classrooms, museums, and staff
- Made sure there were both in person and online materials for easy access



Thank you!

sbenson@mos.org

Resources:

https://www.nisenet.org/climatechange
https://www.mos.org/climatechange
https://www.nisenet.org/forum-extreme-heat
https://www.nisenet.org/catalog/public-forums-manual
https://www.iseechange.org/

Session Resources

Additional Resources

- https://www.nisenet.org/climatechange
- https://climateinterpreter.org/
- https://www.mos.org/climatechange
- https://www.nisenet.org/forum-extreme-heat
- https://www.nisenet.org/catalog/public-forums-manual
- https://www.iseechange.org/

Thank You

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This material is based upon work supported by NASA under cooperative agreement award numbers 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).