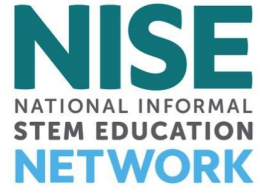


NISE Network Online Workshop

Activating Outdoor Spaces - Pocket Parks, Pollinator Gardens, and More!

Tuesday, June 13, 2023



Today's Presenters:

Nicholas Weller, Arizona State University

Emily Landis, Lancaster Science Factory

Chloe Doucette, Museum of Idaho

Kim Kleven, Children's Museum of Southern Minnesota

Janet White, Museum of Science and Industry (MOSI)

Lee Robinson, Muse Knoxville



Welcome! 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



Sustainability

- Hands-on activities and other public engagement resources
- Additional sustainability resources (annual events, UN Sustainable Development Goals, exhibit design, and more)
- Professional learning resources (training materials, guides, etc.)

www.nisenet.org/sustainability-resources

Science Factory Outdoor Courtyard Renovation





tenant fit-out expansion for:
LANCASTER SCIENCE FACTORY
454 NEW HOLLAND AVENUE
LANCASTER, PENNSYLVANIA 17602

PROJECT / PHASE
ARCHITECT
DATE
1/16

18 APRIL 2018

A.02



SCHEMATIC FLOOR PLAN DIAGRAM

SCALE: 1/16" = 1'-0"



- NEW OUTDOOR COURTYARD: 3,850 sf
- NEW EXHIBIT SPACE: 3,010 sf
- NEW MAKERS SPACE MULTIMEDIA CLASSROOM: 1,510 sf
- EXISTING MUSEUM SPACE: 10,820 sf
- EXISTING OFFICE & SUPPORT SPACE: 2,320 sf



4,000 sf outdoor expansion

Theme: Environmental Sustainability

Planning Partners:

1. Lancaster Conservancy
2. Chesapeake Bay Foundation
3. City of Lancaster Stormwater Dept
4. Pennsylvania College of Art & Design
5. Kidzibits
6. Landscape Architect
7. Funders



Before







After 😊







Key Elements:

100' Mural of Watershed

Stormwater Exhibit

Solar Exhibit

Rain Garden & Herb Garden

Whisper Dishes

Kinetic Tree Sculpture

Interpretive Signage Panels (10)

ADA Pathway

River Benches













The Susquehanna River & Chesapeake Bay

The River
The Susquehanna River is the longest river in the United States. It flows for 4,464 miles from its source in the Adirondacks to the Chesapeake Bay. The river is the only one that flows into the bay. It carries a large amount of sediment and nutrients to the bay. This sediment and nutrients are essential for the bay's health. However, too much sediment and nutrients can harm the bay's ecosystem. The Chesapeake Bay is a large body of water that is fed by the Susquehanna River. It is the largest estuary in the United States. The bay is home to many different species of fish and other animals. The bay is also an important part of the local economy. Many people live and work in the bay area. The bay is a beautiful and important part of the region.

The Bay
The Chesapeake Bay is a large body of water between the mouth of a river and the ocean. In fact, the Chesapeake is the largest estuary in the entire United States. Here, the freshwater and saltwater of the Chesapeake meet. The bay is home to many different species of fish and other animals. The bay is also an important part of the local economy. Many people live and work in the bay area. The bay is a beautiful and important part of the region.

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0 25 50 Miles

Conestoga River Watershed

YOU ARE HERE

Conestoga River

The Conestoga River is 107 miles long and flows 475,000 gallons of water in Lancaster County each day. It is the largest tributary of the Susquehanna River and the second largest in the Susquehanna River Basin. The Conestoga River Basin is one of the most important watersheds in the Susquehanna River Basin.

The Pieces of a River

Rivers are shaped like trees. They start at the top of the headwaters, called headwaters. When one stream flows into a larger stream, it's called a tributary and where the streams meet is called a confluence. Branches have joining larger until they reach the trunk, which is called a river's main stem. Finally, where the river ends, flowing into a larger river or estuary, is called the river's mouth.

Meanders & Oxbows

Meanders are a river's slight curves. The Conestoga has a winding meander of the river. The meanders are formed by the river's current, creating a shift in the river's path. Over time, the meanders can become so pronounced that they eventually break apart, leaving what is known as an oxbow lake.

Floodplains

During certain times, a river's water is forced to be above its banks. This is called a flood. Floods are caused by heavy rain, snow melt, and other factors. Floods can be dangerous and can cause a lot of damage. Floodplains are the areas of land that are flooded during a flood. Floodplains are important for agriculture and other uses.

Ground-water & Springs

Did you know that in the Conestoga River watershed, there's a lot more water underground than on the surface? That's right, lots of water is stored in the ground. This water seeps into rocks, forming underground lakes called aquifers. Sometimes the water flows to the surface, forming a spring. This is called a spring. Springs are important for drinking water and other uses.

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Pennsylvania's Major Watersheds

A watershed is an area where all of the water that falls eventually drains to the same place. It's like your kitchen sink: no matter what part of the sink you pour the water into, eventually it will all go down the same drain. Most rain that hits the ground works the same way, with hills and mountains acting like the sides of a sink, and rivers acting like its drain.

In Pennsylvania, there are four major watersheds (kitchen sinks). Each one includes major rivers, and flows into an estuary and finally the ocean. They are...

Chesapeake Bay

- North Branch Susquehanna River / Conowingo Bay
- West Branch Susquehanna River / Fries Creek
- Lower Susquehanna River / Juniata River
- Potomac River

Delaware Bay

- Upper Delaware River / Lehigh River
- Lower Delaware River / Schuylkill River

Gulf of Saint Lawrence

- Lake Erie / Allegheny River
- Lake Ontario / Hudson River

Gulf of Mexico

- Allegheny River / Connetquot River
- Monongahela River / Susquehanna River
- Ohio River / Susquehanna River

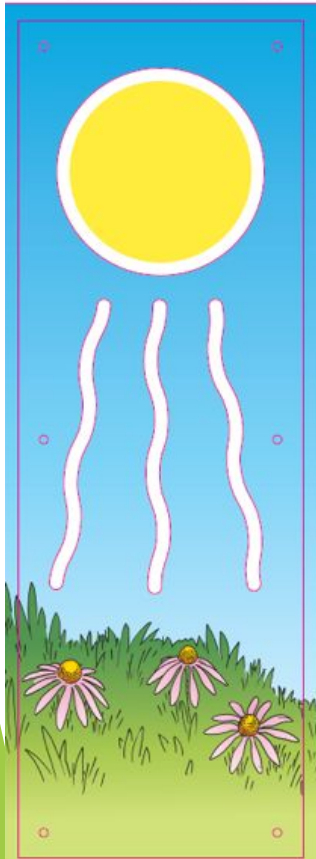
YOU ARE HERE

Philadelphia

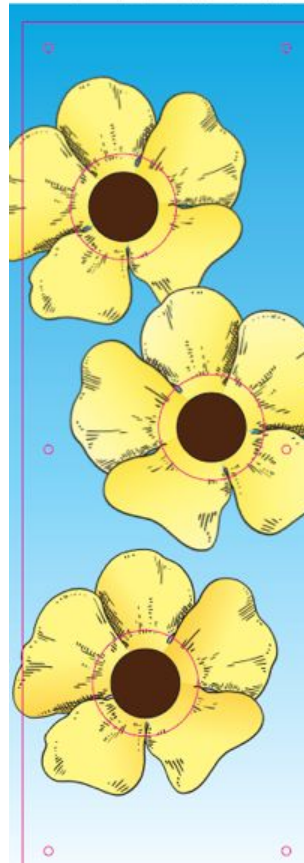
Can you identify the major watersheds on the map? Which watershed are you in right now? How about Philadelphia? Pittsburgh? Erie?



100%		50%		0%	
100%	50%	100%	50%	100%	50%
100%	50%	100%	50%	100%	50%



100%		50%		0%	
100%	50%	100%	50%	100%	50%
100%	50%	100%	50%	100%	50%



100%		50%		0%	
100%	50%	100%	50%	100%	50%
100%	50%	100%	50%	100%	50%




100%		50%		0%	
100%	50%	100%	50%	100%	50%
100%	50%	100%	50%	100%	50%

SOLAR POWER FLOWER

Solar panels convert energy from the sun into electricity. The more sun that shines on the panels, the more electricity they can produce.

Solar panels face south and are tilted at an angle so they collect the maximum amount of sunlight. The angle of some panels may be adjusted throughout the year when the sun is higher or lower in the sky.



Notice how the meter goes up or down depending on the amount of sun? It's not measuring sunlight, but actually showing how much electricity—or watts—the panels are producing.

Outputs: LED sun, kinetic spinner flowers, bird sounds, watt meter







COLLECT TO PROTECT

Sometimes big storms cause our stormwater system to overflow and pollute the watershed. This water storage tank—also called a cistern—is one way we help keep the watershed clean.

The cistern collects rainwater from our roof and we use it to water our plants. Sprinkled over our gardens, the rainwater slowly seeps into the soil and pollutants are filtered out by dirt and roots. Eventually the water makes its way into local streams, flows into the Conestoga and Susquehanna Rivers, and ends its journey in the Chesapeake Bay.

By collecting rainwater and using it in our garden, instead of letting it go directly into the sewer, we're helping keep pollutants out of the watershed.

This 830 gallon cistern has the capacity to collect 127,000 gallons of rainwater per year!

KEEP OUR WATERSHED HEALTHY AT HOME:

- Use rain barrels attached to a downspout
- Replace grass and pavement with native plants and trees
- Install a rain garden to collect runoff











Pollinators move from plant to plant looking for protein packed nectar.

Pollen fertilizes the plants which then forms seeds, berries, nuts and fruits.

As they travel they are dusted by pollen and move it to the next flower.

Monarchs & Milkweed
Many native plants and pollinator species have a special relationship - they have co-evolved to prefer and depend on each other. The iconic monarch butterfly has declined by 90% in recent years. One of the main causes is a lack of milkweed, its only caterpillar host plant. Without milkweed, monarchs can't complete their lifecycle.

Pollinators

Can you spot the milkweed in the rain garden?



Butterfly



Wasp



Hummingbird



Bat



Bee

How does pollination work?
Pollinators move from plant to plant, looking for pollen and nectar to eat. As they travel, they are dusted by pollen and move it to the next flower, fertilizing the plant, which will reproduce and form seeds, berries, and fruits. Many plants can't reproduce without the help of their pollinator species.



How can you help?
Welcome wildlife! Fill your garden and pots with beautiful native plants that pollinators love. Avoid using chemicals. Consider replacing grass, or letting it become a meadow. Bees love dandelions and clover.

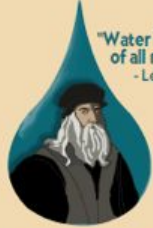
Pollinators are in trouble!
Their numbers are falling worldwide. Why? Habitat loss, invasive species, pesticides, and parasites.

Pollinators
Pollinators are animals that fertilize plants, which create seeds and fruit. Pollinators are needed to grow 80% of the food we eat!



Lancaster's Watershed and Geography

A watershed is a region that drains into a body of water.



"Water is the driving force of all nature."
- Leonardo da Vinci

As you move downhill and downstream smaller streams combine to form larger rivers.

The effects of what goes on upstream become magnified and complicated downstream.



Positive actions add up, too!

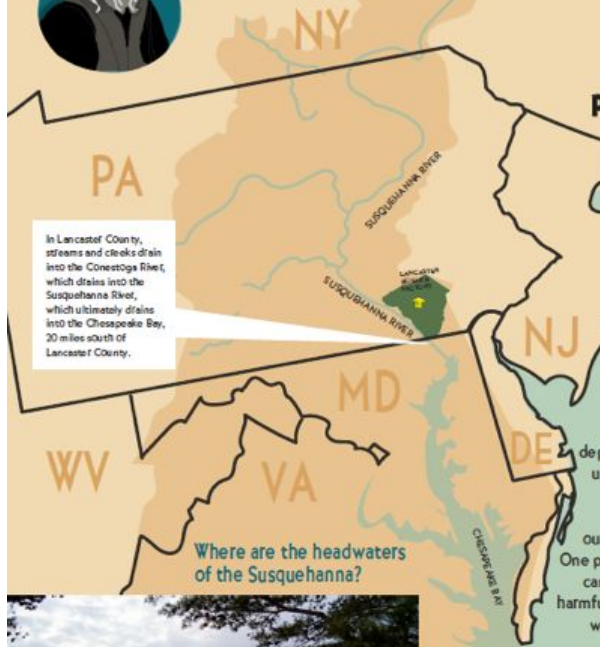
When people plant trees, clean up streams, and protect wildlife, the benefits go a long way.

Individual projects are great, collective measures are even better, yet every action helps no matter what size.

The health of the Chesapeake Bay is dependent on communities upstream, like the County of Lancaster.

Everything we put in our watershed accumulates. One person's polluting actions can have an immediate and harmful impact on our drinking water, plants, and wildlife.

The Bay is an estuary where the river unites with the Atlantic Ocean. The upstream areas of a watershed are called the headwaters.



Where are the headwaters of the Susquehanna?













Thank you!



Activating Outdoor Spaces- Pocket Park

- Mission: Inspiring wonder and discovery about Idaho and our world through science and the humanities
- Vision: Bringing the world to Idaho, and Idaho to the world
- Values: Sustainability, Professionalism, Inclusion, Connection, Exploration



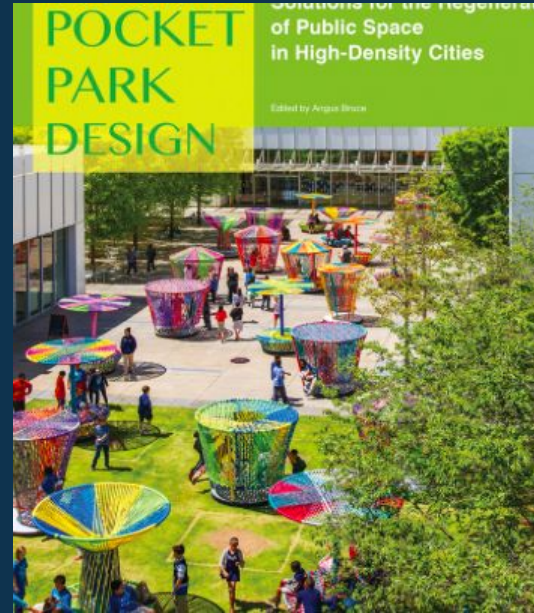
Why a Pocket Park?

MOI is right on the edge of Idaho Falls' historic downtown district. This space was underutilized and we saw/ still see the potential to share this space with the community in a way that is meaningful and that increases community connection.

Inspiration came from:

- VIS
- MOI's emphasis on place-based programming
- MOI's Discovery Room
- Other museums (esp. Museum of Life + Science)

MUSEUM
of
IDAHO



What has been done?

Picnic tables (3) and community gardening

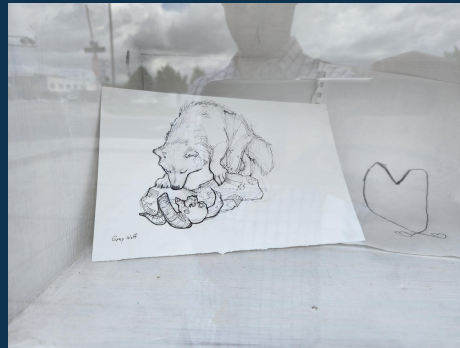
- Partnership with the city of Idaho Falls

Free Little Art Gallery (FLAG)

- Partnership with Idaho Falls Downtown Development Commission

Grants submitted for additional funding to add play structures, swinging benches, and “nature play” inspired activities.

- First grant submission was unsuccessful, second grant submission was just done.



Barriers

- Cost
- Time management
- Concern regarding safety and adaptability

Successes

- Partnerships
- Staff buy in
- New leadership developing “campus plan”

Vision for the park...

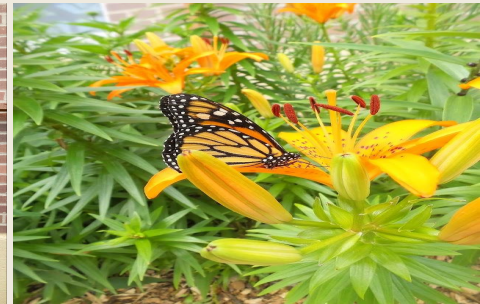
- Mammoth slide
- Nature play
- More native plants with signage
- Swinging benches
- Community focused programming





Pollinator Programming and Butterfly House

Our Mission is to
ignite the natural
curiosity of every
child through the
power of play in
awe-inspiring
environments indoors
and out.



**CHILDREN'S MUSEUM OF
SOUTHERN MINNESOTA**



www.cmsouthernmn.org

• **BUTTERFLY HOUSE**

• **PRAIRIE GARDEN**

• **WEEKLY PROGRAM**

• **TRAINING OPPORTUNITIES**

• **SUPPORTING ENVIRONMENT**

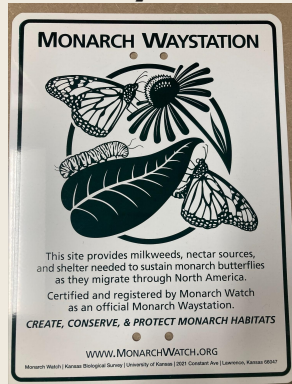
**CHILDREN'S MUSEUM OF
SOUTHERN MINNESOTA**

Pollinator Experience



Monarch Larva Monitoring Program

- **Monarch Way Station**



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CHILDREN'S MUSEUM OF SOUTHERN MINNESOTA



www.cmsouthernmn.org



**Thank
You!**

PLAY.
IT'S WHAT WE DO.

Kim Kleven

Vice President of Play & Learning

Kim.Kleven@cmsouthernmn.org



www.cmsouthernmn.org



507.386.0279



info@cmsouthernmn.org

Museum of Science and Industry (MOSI) Tampa, Florida

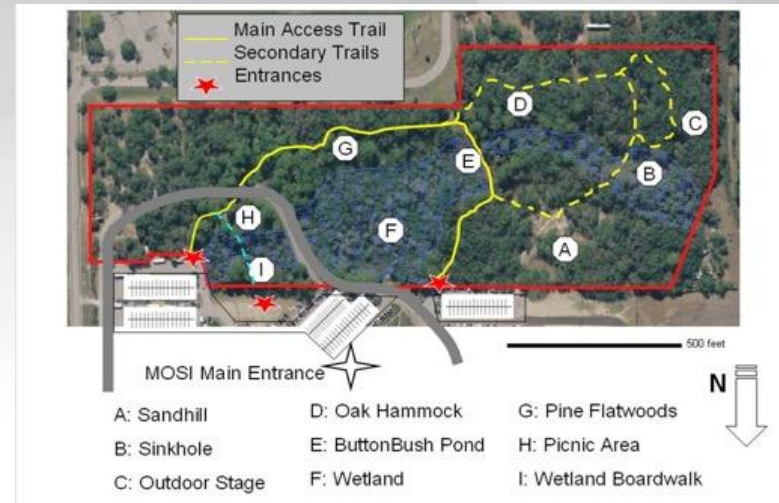
Backwoods Nature Preserve



MOSI Backwoods



- Backwoods Preserve is 25 acres
- Walking Trails
- Four Distinct Areas:
 - Sandhill Area
 - Wetlands Area
 - Pine Flatwoods
 - Oak Hammock Area



Why is it important?

- Trail and tours of these habitats provide guests a renewed appreciation for some of Florida's most sensitive and beautiful habitats.
- MOSI hopes to foster a greater respect through education for Florida's rapidly vanishing habitats.
- As Tampa's population continues to grow, many of the remaining natural areas are being developed.



Programming

- *Guided hikes for field trips
- *Wetland Wonders Program
 - *Scout Programs
 - *Camps
- *Guests can do self-guided trail walks



Program Topics

- Invasive plants
- Sustainability
- Inaturalist
- Wetlands Filtration
- Annual Water Days Celebration



Strategies

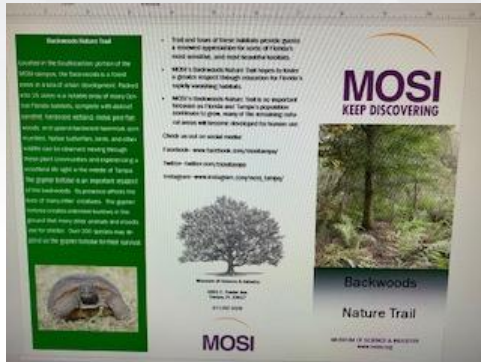
- Added signage for guests when they do self-guided trail walks
- Keep trails cleaned up



Strategies

Other Campus strategies

- After hours our campus is locked
- Provide paper and QR code with map of backwoods



Water Days



Some of our friends...



WeBeeLong

Muse Knoxville





Our Vision

To create a beautiful space to educate children and the adults who love them, about pollinators and the importance they play in our lives.

Our timeline



Idea

Our first conversation took place fall of 2019



Fellowship

Took part in the sustainability fellowship early 2021



Groundbreaking

May 2023

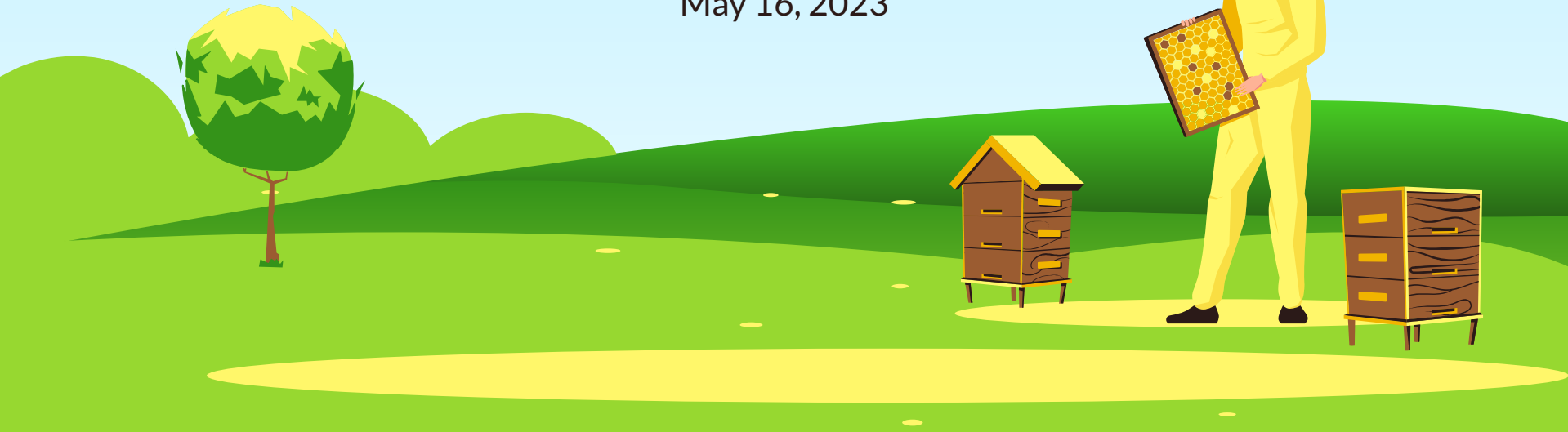


Before:



Happening now!

After almost 3 years, construction begins
May 16, 2023




Groundbreaking Day



Bee Sculpture







We hope to have this area open to the public by July.

This area will also include an insect spinner that can be manipulated to create different insects, a chalk wall to draw honeycombs and signage telling guest about plantings and pollinators in our area



Thanks!

Questions?

Please keep this slide for attribution

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Q&A

Use the raise hand feature or type your question in the chat



Resources & Opportunities



Learn more and access the NISE Network's online digital resources:
nisenet.org/browse-topic



Read our monthly newsletter
nisenet.org/newsletter

Follow NISE Net on social networking
nisenet.org/social



2023 Online Workshops

Bubbling Up later this Year... 🐱

Murals and Museums

Tuesday, July 18, 2023

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

Sustainability Planning

August - TBA

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



nisenet.org/events



Thank You

