SPRING / SUMMER 2025

NATURE CENTER
AT SHAKER LAKES

Upcoming Stream Bank Restoration
Junior Naturalists: Macroinvertebrates
Upcoming Programs & Events
43rd Annual Plant Sale
Nature at Night: Metamorphosis

ROOKERY

SCIENCE IN THE STREAM

WHY NATIVE PLANTS MATTER FOR STREAM HEALTH

"Each of us lives within a watershed, connected by the streams and waterways within it. Our yards, parks, and even parking lots all contribute to the health or decline of those watersheds. You can help protect our watersheds by planting native species, picking up pet waste, opting for organic lawn care reducing pesticides, and switching your gas-powered equipment to electric. Rain barrels or rain gardens help reduce and filter storm runoff. We are all connected by the water flowing around us and each small step we take adds to the greater good."

– Nick Mikash, Natural Resources Manager

A Newsletter for Members & Friends of the Nature Center at Shaker Lakes

LETTER FROM THE PRESIDENT

DEAR SUPPORTERS & FRIENDS,

Settling into a new year always spawns conversations of renewal, restoration, and reinvigorates motivation for progress. 2025 is an exciting year of expansion and ecological restoration for us at the Nature Center and our team is excited to begin work to improve the greater watershed. We are dedicated to educating our community on the benefits of native plants, responsible land stewardship, and highlighting ways individuals can positively impact the environment.

To provide these tools to our community, we understand how critical it is that our team "walks the walk" (through streams, with waders of course!). The 1,500 linear feet of stream on our site is directly impacted by the development of our surrounding communities and over time this results in erosion, sedimentation, and degradation. Recently, our Natural Resource team has leveraged grants to restore the waterways on our property. With the generous support from the Ohio Environmental Protection Agency and Northeast Ohio Regional Sewer District, we are making large strides to create a healthier ecosystem and stream ecology. While working through this restoration, it is our intention to provide opportunities for the greater public to connect, conserve, and be inspired by this important restoration work.

As you attend one of our talks, tours, events, or programs this Spring, please keep in mind that these types of impactful projects are only made possible because of the unwavering dedication of our supporters and members. With 2025 underway, we thank you for your involvement and look forward to what this coming year will bring.

Yours in Nature,

PETER BODE
President & CEO

NATURE CONNECTION

The Nature Center and its streams are part of the Doan Brook Watershed. The Doan Brook is one of the five greater "bluestone" brooks found in Cuyahoga County. Maintaining a healthy watershed is important for plants, wildlife, and people!

A stream and a watershed are both related to the movement of water in the environment, but they refer to different things:

STREAM

A stream is a body of flowing water, typically a small river or brook, that moves along a natural channel such as the water that flows through the Nature Center's 20 acres. Streams can vary in size and flow, and they often feed into larger rivers, lakes, or oceans. In our case, the stream flows into the marsh and then into Lower Shaker Lake. The flow in a stream is generally governed by factors such as precipitation, landscape, and water sources.

WATERSHED

A watershed, also known as a drainage basin, is the area of land that drains water into a specific stream, river, or lake. Essentially, it's the land area that funnels all its water into a particular body of water through various smaller streams, creeks, and tributaries. Watersheds can be small or large, and they play a crucial role in the water cycle by managing the collection and flow of surface water.

IN SUMMARY:

A **STREAM** IS THE FLOWING WATER

A **WATERSHED** IS THE LAND AREA THAT DRAINS INTO THAT STREAM

DEFINING A STREAM

BY KYLE WARREN
NATURAL RESOURCES TECHNICIAN

The Barber Habitat Restoration Fund

Supporting conservation efforts at the Nature Center for over 10 years!

The value of our programs and the quality of our visitors' experiences are directly tied to the quality of our natural habitats. These forests, wetlands, and stream corridors inspired the Barber family to establish a fund honoring their mother, Kathleen Barber, who devoted herself to the conservation of the Shaker Parklands and served as a founding trustee of the Nature Center. Donations to this fund support one of the most essential components of our mission: the comprehensive restoration of the Nature Center's 20-acre property, sustaining a healthy, diverse ecosystem which offers food sources and shelter to native wildlife, improves water quality, and serves as a place of respite for visitors of all ages.
Learn more or give today to support this fund! shakerlakes.org/endowment/

HOW IS STREAM HEALTH DETERMINED?

Photo: *The South and North branches of the Doan Brook both enter and subsequently converge at the Nature Center at Shaker Lakes, then flow into Lower Shaker Lake. The Lake then outlets into and continues through the Doan Brook, flowing up next to Martin Luther King, Jr. Boulevard and into Lake Erie.*

The Nature Center plays a critical role in stormwater control and the health of the Doan Brook; the water it carries are crucial to maintaining clean water for the citizens of Cleveland and its suburbs. When looking at stream health, the environmental industry looks at many metrics and measures including:

WATER SALINITY, as well as levels of oxygen, nitrogen, phosphorus, and coliform bacteria from feces. Some sources of salinity found in our watershed include road de-icing material, weathering of human-made surfaces, and household water softeners.

MACROINVERTEBRATE DIVERSITY, such as crawfish and beetles, whose presence suggests a healthier ecosystem because they need nurturing conditions to survive.

TOXIC CONTAMINANTS in streams, such as pesticides, mercury, or hydrocarbons.

STREAM TEMPERATURE, which can fluctuate naturally due to atmospheric conditions, topography, stream flow and streambed heat transfer, or as the result of human influences, such as land use, thermal pollution, water storage impoundments, and climate change.

HYDROMORPHOLOGY: Physical stream habitat is the product of a complex interplay between flow, sediment, geomorphology, and vegetation creating a diverse patchwork of habitats, water depths, flow types and velocities, substrate, and channel forms.

Included under this broad category is stream bank erosion, and sediment loads, including the size of rocks in the streambed. These can be measured with a gravelometer. The proportion of sand, gravel, cobble and boulders is an indicator of the suitability of streams to support living organisms.

BIOLOGIC AQUATIC COMMUNITIES, such as fish populations.

INVESTING IN THE HEALTH OF THE DOAN BROOK & UPCOMING STREAM BANK RESTORATION

In the coming months, the Nature Center will be working with environmental engineers and scientists to finalize a stream bank restoration design that will go to construction by the end of 2025. Our team will host workshops, talks, and tours as the project takes shape. Stay tuned and join the conversation.

Our team recently collected data on many of the above metrics, and determined it is imperative to reconnect our waterway to the floodplains and increase the overall stream health throughout the Nature Center property. Culverted streams and stormwater runoff from the surrounding development has caused erosion. Lakes and dams along the Doan Brook also impair the normal sediment transport, creating a net loss of sediment (i.e. staring stream) downstream. Aggrading sediment accelerates bar development and lateral erosion, which is one of the primary issues creating concern within the Nature Center property as each branch of the Doan Brook nears the lake/wetland.

To combat this, we are proud to announce our team has leveraged $500k in public funds from the Ohio Environmental Protection Agency and the Northeast Ohio Regional Sewer District that are earmarked for sitewide erosion control and strategies for ecological enhancement throughout the property. This will restore the stream banks on our property and reconnect the floodplain, with a design that accounts for the increased intensity of storms that climate change models are projecting.

The ecosystem services that this project provides to the region are:

- **Stormwater retention and storage in our wetlands**
- **Bioremediation of pollutants before flowing into Lower Shaker Lake**
- **A reduction in sedimentation from the restoration of the erosion issues**
- **The protection and enhancement of the aquatic habitat for the flora and fauna of the property**
- **Removal of invasive species populations, specifically along the north branch and the lake impoundment, and installation of stream habitat structure which includes native plant species**

Ohio Environmental Protection Agency

Northeast Ohio Regional Sewer District

SPRING / SUMMER PROGRAMS & EVENTS

For more information and links to register visit shakerlakes.org/calendar. For member discount inquiries contact cara@shakerlakes.org.

Featured Events

HISTORIC HOMES TOUR: Parkland Proximity

In partnership with Shaker Historical Society

Sunday, April 6 | 10AM–3PM | NCSL

Step back in time and experience the history of Shaker Heights, the Shaker Parklands, and the Freeway Fight in a new and exciting way. With sweeping views and access to preserved parklands, this year's homes will not disappoint. This tour focuses on homes with views of or within walking distance to the natural beauty of the Shaker Parklands. The program begins with a presentation and brunch by Kiln, Sophie La Gourmande, Haute Donuts, and Verbena Free Spirited, followed by a trolley tour of four stunning homes. **Limited tickets available. $160 per person, $125 for Nature Center or Shaker Historical Society Members. Visit shakerlakes.org for more information.**

NATIVE BOTANICAL COCKTAIL COMPETITION

In partnership with the United States Bartenders Guild: Cleveland Chapter

Sunday, May 4 | 6–8PM | NCSL

Join us for a night of fun, competition, and delicious drinks! Each competing mixologist will get the opportunity to showcase their skills and craft cocktails to be judged, and YOU get to taste and vote for your favorite. The winner and their cocktail will be featured at this year's Nature at Night: Metamorphosis Annual Benefit. **Registration required. 21 and over. Tickets are $35 each, members 10% off. Tickets are limited.**

ANNUAL BENEFIT: NATURE AT NIGHT

Metamorphosis

Saturday, May 31 | 6:30–11PM | NCSL

See back page for details.

SUMMER WEDNESDAYS

Wednesdays from June 4–August 27 | 5–8PM | NCSL

Make the most of long summer days with the Nature Center for a mid-week dose of outdoor fun, entertainment, and treats! Bring a picnic and join us for rotating schedule of movement, art, music, food trucks, nature, games, challenges, and more. Or simply invite friends to walk the trails or play in the Nature Play Area with family during our extended summer evening hours. Watch for schedule release in May. 25% off ice cream from the Duck Pond Gift Shop on Wednesday nights all summer.

RHYTHM & CLUES: A Musical Scavenger Hunt

Presented in Partnership with ChamberFest Cleveland

Saturday, June 14 | 11AM–1PM | NCSL

ChamberFest Cleveland returns to the Nature Center for this popular all-ages event! Enjoy the Nate's World Trio for a high-energy, family-friendly performance in the Friends Pavilion featuring a wide-ranging repertoire that spans classical favorites, funky jazz, Latin grooves, and more. You'll have fun exploring the grounds with a scavenger hunt to find musical performances and hands-on activities scattered throughout the Nature Center. Join us for this unique al fresco adventure for the whole family!

SEED LIBRARY

As a community resource, we provide you with FREE NATIVE SEEDS and heaps of information for both gardening newbies and seasoned pros. From colorful native wildflowers to beneficial grasses, shrubs and trees, you can create your own pollinator habitat—whether it's a whole garden or a single flowerpot—allowing you to enjoy the wonders of nature right outside your door.

Learn more: shakerlakes.org/seed-library/

Stop by the Welcome Desk for fun scavenger hunts, monthly crafts, Duck Pond snacks and more!

Birding Programs

GUIDED BIRD WALKS

Ongoing | Select Sundays: March 2 & March 16*, April 6, May 25 | 8–9:30AM

Join a guided walk through the Shaker Parklands looking and listening for birds. The first walk of each month begins on our ADA-accessible boardwalk and moves to dirt trails throughout the Parklands. **The second walk of each month is fully accessible and will be accompanied by an ASL interpreter (if indicated by an asterisk).** For all hikes, meet in the Nature Center parking lot. Binoculars are available. Rain or shine. **Free. $5 suggested donation. Registration required.**

AUDUBON SOCIETY SPRING BIRD WALKS

Select Sundays: April 13, April 20*, April 27* & May 4*, May 11*, May 18* | 7:30–10:30AM NCSL

Audubon Bird Walks, in conjunction with local partners, are a great way to improve your birding skills. Led by experienced birders who welcome all levels from beginners to advanced, the walks are between 1–2 miles on dirt, gravel and grass trails around the Nature Center and Lower Shaker Lake. **Dates marked with an asterisk (*) will have an ASL interpreter in attendance.** Bird species are counted and recorded, and the data is stored both on eBird and at the Museum of Natural History. **Free. Registration required.**

BIRD BANDING

Mondays, Wednesdays, & Fridays: April 16–May 30 | 7:30–11:30AM | NCSL

Observe expert birder Julie West and team near the right side of the driveway as they safely capture, band, and record valuable data about migratory birds in Northeast Ohio. **FREE. Weather permitting.**

GREYT BIG TALK

Friday, April 25 | 8:30–10AM | NCSL

Join us during the biggest week in birding for this ornithology-themed talk. Greyt Big Talk is a roaming, live-audience speaker series that inspires the next generation of artists and entrepreneurs in Cleveland, Ohio.

Art & Wellness

TREKKING TOGETHER: Spring Hikes with GirlTrek Cleveland

Select Saturdays: March 29, April 26, May 24, June 28 | 11AM–12PM | NCSL

Join Jo Rattiliff of GirlTrek Cleveland for our monthly Sunday evening hikes! We invite you to move with us and appreciate the beauty of nature as the weather warms up. Dress for the weather. In the case of inclement weather, the hike will be cancelled, and an email will be sent out. Registration required. **Free. Donations welcome.**

ART ON VIEW: DICK DAWSON

Thursday, April 10, 2025 | 5:30–7PM | NCSL

Dickson Robert Dawson is a retired Counseling Psychologist, and is now an artist and musician, who has focused on pastel landscapes with an "impressionistic" touch. He creates landscapes and florals that beckon the eye toward light and color. His paintings highlight woods, gardens, individual flowers, or fields, and provide a sense of serenity. Art has always been a part of Dickson's life. His father was a professional photographer, his grandfather a lithographer, and his great uncle was a graphic artist with paintings on covers of The Saturday Evening Post. Dickson lives in Cleveland Heights and has previously shown his work at Steinway Piano Gallery, Little Italy, and Trinity Cathedral. Art available for purchase and a percentage of sales support the Nature Center.

ORION MAGAZINE / MAC'S BACKS / LITERARY CLEVELAND AUTHOR EVENT

Wednesday, April 16 | 7–8:30PM | NCSL

Details coming soon.

NATURALIST NOTEBOOK: Crickets and Katydids

Sunday, May 18 | 1–3PM | NCSL

Lisa Rainsong, Ph.D. will join us to discuss and make music about insects, specifically crickets and katydids. Lisa is a professional musician and educator with a passion for the study of birds, insects, and amphibians of Northeast Ohio. The book, *Crickets and Katydids: Concerts and Solos* by Vincent G. Dethier is out of print, but used copies will be available at Loganberry Books. Join us to talk about these annual arrivals to our Ohio landscape, and learn about the sounds of nature that lull us to sleep. **Free. Registration required.**

Environmental Exploration

WINTER TREE ID HIKE

Sunday, March 9 | 3–4:30PM | NCSL

Learn to identify trees year round using features including buds, twigs, and bark. The hike will be approximately 60 minutes on and off trail. All participants will receive a copy of *Tree Finder: A Manual for the Identification of Trees by Their Leaves*. **$7 per person. Registration required.**

CITY NATURE CHALLENGE: Bringing the World Together for Biodiversity

Saturday, April 26 | 11:30AM–2PM | Nature Center

The City Nature Challenge (CNC) is celebrating its 10th anniversary this spring. All are encouraged to head outside to document observations of wild, living things using the app, iNaturalist. Grab your favorite walking shoes, download iNaturalist, and stop by the Nature Center where we will help you get started with the challenge. **Learn more citynaturechallenge.org.**

EARTH DAY TREE GIVEAWAY

Monday, April 2 | 10AM–3PM | NCSL

Choose a free red oak, tulip tree, redbud, or white pine sapling.

YARD TOOL TUNE-UP

Saturday, March 29 | 1–2:30PM | NCSL

Learn how to properly maintain your outdoor tools. In this timely workshop, we'll cover basic maintenance, what tools to use for pruning and trimming, and proper care. The Natural Resources team will share techniques and provide an opportunity for hands-on learning. Includes sharpening and reconditioning. Bring your own hand tools, such as loppers, pruners, shovels, soil knives, folding saws and work gloves. **Registration required. $8 per person, $6 per person for members with code SPRING25 and member ID.**

STREAM SWEEP

Saturday, April 19 | 10AM–1PM | Rockefeller Lagoon

Join the Doan Brook Watershed Partnership and the Nature Center as we clean up winter's accumulation of trash. Volunteer as an individual or as a group. Groups with school-age children welcome. **Free. Registration required.**

Junior Naturalist & Family Friendly

ALL ABOUT ANIMALS: Turtles

Saturday, April 5 | 11AM–12PM | NCSL

Join us for a "behind the scenes" look at our live turtles. All presentations will conclude with a feeding demonstration. **Registration required. $7 for children 4 and up; no charge for adults and children ages 3 and under. Donations welcome.**

SPRING ARCHERY AT THE NATURE CENTER

Saturday, April 26 | Time slots available between 12–5:30PM | NCSL

Unleash your inner archer, get a great workout, and enjoy the beautiful spring weather! Our certified archery instructors will teach you the safety and skills necessary to have fun and to hit those bullseyes. No experience required. Best for beginners or those with some archery experience, ages 8 and up. Closed-toe shoes and comfortable clothing required. **Registration is required and includes a safety and liability waiver. $20 per person.** Late admissions not permitted. Registration closes on Friday, April 25 at 3PM. More details at shakerlakes.org/calendar.

SUMMER OUTDOOR ADVENTURE CAMP

REGISTRATION IS OPEN

Limited space remains, visitshakerlakes.org/camp for more info. Need-based financial aid is available and covers up to 100% of the cost of one week of camp. Unsure if your family qualifies? Contact hunter@shakerlakes.org for more information.

SPRING BREAK CAMP March 24–March 28 | 9AM–3PM

Spring Break Camp is for kindergarten through grade 5 with daily themes including: **Spring Scientists, Rocks, Rock!, Crafty Creatures,** and **Artful Antics**. Register for one day or up to all five! **Learn more and register at shakerlakes.org/camp.**

Shop a wide variety of native perennials, trees, shrubs, annuals, edibles, flats, hanging baskets & more.

Experts available to help choose the right plants for your space.

VISIT shakerlakes.org/plantsale for details

PRESENTED BY: Bartlett Tree Experts · NATIVE Landscapes & Gardens · tilth Organic Living Soil

ONLINE NATIVE PERENNIAL SALE
PICKUP OR DELIVERY

- **ORDER ONLINE** | March 17–April 4*
  Pick up at the Nature Center | May 7 or 8 | 4–6:30PM

OR

- **DELIVERY WITH MY HOME PARK**
  Choose your delivery window throughout May

ANNUAL, EDIBLE & NATIVE PERENNIAL SALE
IN PERSON

- **IN PERSON AT THE NATURE CENTER**
  May 10 | 10AM–3PM & Member Preview: 8:30–10AM

HOMEGROWN SALE

IN PERSON AT THE NATURE CENTER

Saturday, June 7 | 11AM–3PM & Member Preview: 10–11AM

Shop native plants and shrubs grown and donated by local dedicated native gardeners. 100% of sale proceeds will support the Nature Center.

Spring Archery

Art on View

Rhythm & Clues

Cocktail Competition

Bringing *Nature* Home

FREE LECTURE SERIES

IN PARTNERSHIP WITH

junior NATURALIST

Beautiful Native Butterflies and Their Native Host Plants

Tuesday, March 4 | 12–12:45PM | NCSL

Led by Kathryn Marshall (Education Coordinator) and Amy Fredricks (Communications Director) at Native Landscapes & Gardens

During this class, children will read, move, and create while learning to identify a few local butterflies and the importance of native host plants to butterfly life cycles. Come have some "flutterby" fun!

SIMPLIFY YOUR LANDSCAPE DESIGN WITH NATIVE PLANTS

Thursday, March 6 | 12–1PM | NCSL

Led by Jesse Smith (Conservation Biologist) at Native Landscapes & Gardens

This presentation invites you to transform your outdoor space by harnessing the power of native plants. You'll learn how to identify and tackle invasive species that threaten your home habitat, setting the stage for a thoughtful and vibrant garden. The talk highlights creative design resources, practical preparation, and management strategies. You'll discover how planting natives elevates the beauty of your space and bolsters biodiversity.

CLIMATE RESILIENCY AND THE NATURE CENTER

Wednesday, April 30 | 6–7:30PM | NCSL

Led by Kyle Warren (NCSL Natural Resources Technician) and Rachel Lasso (NCSL AmeriCorps)

Learn how the Nature Center's diverse ecosystems act as carbon sinks and contribute to climate resiliency. This presentation will highlight the species that inhabit our floodplains and wetlands and are available for purchase at our Annual Plant and Homegrown Sales.

GETTING STARTED WITH NATIVE PLANTING

Saturday, May 10 | 9–10AM | NCSL

Led by My Home Park

Are you a beginner to native planting and ready to take the next step? This talk aims to ease hesitation and give the basic knowledge for you to get your native garden started! At the end of this presentation, head outside to the 43rd Annual Plant Sale where experts are available for further assistance.

SOIL HEALTH AND GROWING NATIVE PLANTS

Date / Time TBD

Led by Joe King (Rust Belt Riders & Tilth Soil)

Soil is one of the key components to a healthy and happy garden- the nutrients, oxygen, and life within the soil directly affect how well your plants thrive in your yard. Joe King Botanist & Educational Outreach Coordinator with Rust Belt Riders/ Tilth Soil will present on soil health and the relationship with native plants.

Additional themes, dates, and times may be added. Check shakerlakes.org for most up-to-date programs, lecture information, and registration.

A special thank you to Ruffing Montessori School. Thank you to our weekly volunteers, our Project FeederWatch volunteers, and the many volunteers that assisted with Winter Solstice Luminary Walk, Winter Warmups, and the Pancake Breakfast with the Birds.

VOLUNTEER OPPORTUNITIES

STEWARDSHIP SATURDAYS
Select Saturdays, March 29, April, 26, & May 17 | 10AM–12PM
Calling all volunteers aged 8 (with a guardian) and up to help with onsite landscape restoration work. Gloves and tools are provided. Individuals and groups are welcome. Please pre-register for this opportunity.

HISTORIC HOMES TOUR
Sunday, April 6 | 10AM–2PM
The event will feature a brunch and a tour of unique homes nearby. Volunteers will be needed for brunch assistance, stationed at a home, greeting, and other general event duties.

43RD ANNUAL PLANT SALE
Plant Sale volunteers are needed for the first full week of May!
Dates and times TBD. Volunteer opportunities will include unloading plants from the truck, arranging plants, picking orders or assisting with order pickup.

PLANT SALE DAY
Saturday, May 10 | 3 hour shifts available from 7AM–4PM
Volunteer roles will vary. Please register for shifts through our Volunteer Portal (VicNet) or by emailing the Volunteer Services Department at volunteer@shakerlakes.org.

YOUTH VOLUNTEER OPPORTUNITIES

SPRING BREAK CAMP ASSISTANT
March 24–March 28 | Minimum commitment: 2 days | Teens 13+

SUMMER OUTDOOR ADVENTURE CAMP:
Counselor in Training and Junior Counselor
June 9–August 8 | Minimum commitment: 2 weeks | Teens 13+

SUMMER YOUTH STEWARDSHIP
June 10–August 14 | Minimum commitment: 10 days | Teens 14+
Application materials can be found at shakerlakes.org/youth-opportunities. Email volunteer@shakerlakes.org for more information.

If you have any questions about volunteering opportunities, please contact Megan Millisor, Volunteer Manager at millisor@shakerlakes.org.

MEET THE STAFF

• HUNTER HAMMIL •
Outdoor Adventure Camp Manager

How do you practice sustainability at home?
I compost, recycle, utilize energy efficient appliances and electric yard tools.

What are your hobbies?
Birding, hiking or camping when it's nice out, video games when it's not.

Favorite animal?
Harpy Eagle. Finally got to see one at the Miami Zoo and they are MASSIVE.

Favorite nature moment?
Finishing a four day backpacking thru-hike on a 70 mile trail.

What's your typical day like at the Nature Center?
No such thing as typical here. Everyday is different between camps, classes, and meetings. I get to help kids learn to love nature through summer camp, which was one of the most important things in my life growing up.

Fun fact about yourself:
I've been to 104 National Park sites in 36 states.

junior NATURALIST

Teaching *our* Future Stewards *about* Stream Science *through* School Programs

Local students are exposed to numerous curriculum opportunities to observe habitats, discover living things, and study water quality through our educational program offerings and partnerships with schools. These programs are certified through the Northeast Ohio Regional Sewer District as part of their Stormwater Fee Education Credit program.

In one program, students huddle around an Enviroscape (watershed model), suggesting types of pollution they might see in their neighborhood. Educators drop food coloring or cooking oils on the model to demonstrate pollution. When it begins to "rain," courtesy of a spray bottle, students see how water droplets carry pollution into a stream. Students learn that Doan Brook connects to Lake Erie, our drinking water source. It is common to hear an "EWWWW!" coming from the group during this stage of the program (especially if one of the students suggests "dog poop" as an example of pollution!).

In the "Lakes and the Riparian Zone" curriculum, students take a closer look at water by performing a series of tests to measure temperature, turbidity, pH, dissolved oxygen and phosphates. They learn what a healthy balance is of each of these factors and perform their own chemical tests using dissolvable tablets.

In "Water Quality in Your Watershed," students study bioindicators. They head into the stream with nets to collect and identify macroinvertebrates, an indicator of stream health. After collection, students bring the macros inside to view under a microscope. They use a dichotomous key to identify what they've found and fill in a chart that is similar to those used by professional water quality scientists to document and score their data. They learn some macro species are very sensitive to pollution while others are not, and make observations on the health of our stream.

Know a fourth grader from Shaker or CHUH schools? They all joined us this fall for "Water Quality," so ask them to tell you more!

BUILD – A – BUG

Our streams, rivers, and lakes are important for all living creatures, including us! These habitats are filled with unique bugs and macroinvertebrates, which are small animals with no backbone, just big enough to be seen with the naked eye. Macroinvertebrates and other animals such as worms, mollusks, and crustaceans found in waterways can help us learn how healthy our water is. The mayfly and stonefly nymph, shown below, are sensitive to pollution and won't be found if the water is dirty. The dragonfly nymph is more tolerant to pollution, but thrives in clean water.

CHALLENGE

While you explore this summer look for these critters under rocks and leaves in the water.

Look at some examples below of some water bugs, or macroinvertebrates.

Activity adapted from Build-a-Bug from Utah State University Water Quality Extension

Dragonfly Nymph

Water Boatman

Caddisfly

Pond Snail

Scuds

Stonefly Nymph

Mayfly Nymph

ACTIVITY

You can use many things to create your own macroinvertebrate. Here are some questions to think about while building!

Does your macroinvertebrate have legs and how many?
Are the legs hairy or have suction cups?
Does it have a tail? Does it have antennae?
Does it have a special mouth to get food?
What does it eat? How does it move?
Does it camouflage or is it bright?

To the right are suggested materials you can use to make your own macroinvertebrate. Do not forget to give it a great name.

MATERIALS FOR BUILDING A MACROINVERTEBRATE

TAPE OR GLUE	COTTON BALLS
PIPE CLEANERS	TOOTHPICKS
EMPTY TOILET PAPER ROLLS	COLORFUL BEADS
GOOGLY EYES	CONSTRUCTION PAPER
FEATHERS	TISSUE PAPER
PIECES OF FABRIC	OR ANYTHING FUN!

Send us a picture of your macroinvertebrate and its name! naturecenter@shakerlakes.org

CREATURE FEATURE: CREEK CHUB

The Creek Chub is one of the largest minnows found commonly in streams and rivers throughout Ohio, with an average size of 4 to 8 inches. Larger specimens can grow to 12 inches in length, where in small streams they can be one of the top predators of insect larvae and other invertebrates. At the Nature Center in the spring, they will use the Doan Brook as spawning habitat. The Creek Chub dig a pit by sweeping their tail against the stream bed and moving gravel away with their mouth. After spawning occurs, they fill in the pit, burying the eggs, with small pebbles creating a mound, which they then guard from predators until the eggs hatch.

NATURE CENTER
AT SHAKER LAKES
2600 South Park Boulevard
Cleveland, OH 44120

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***Conserving** a natural area, **connecting** people with nature, and **inspiring** environmental stewardship*

SHAKERLAKES.ORG
216.321.5935 · naturecenter@shakerlakes.org

NATURE AT NIGHT

METAMORPHOSIS

• SAVE THE DATE •

MAY
31

BENEFIT CO-CHAIRS
Andrew Clifford
& Bailey Wells

BENEFIT FOOD CHAIR
Doug Katz

For sponsorship details or more information,
please contact Kimberlee Jones, Director of Philanthropy
at 216.321.5935 ext. 223 or jones@shakerlakes.org