

School Programs 2018–2019









ROAD ECOLOGY CENTER



mobot.org/schoolprograms



Transformative experiences for PreK-12 students, teachers, and schools

School Programs 2018–2019

66 PDISCOVER&SHARE KNOWLEDGE ABOUT PLANTS &
THEIR ENVIRONMENT
≥ ORDER TO PRESERVE
& ENRICH LIFE

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- mission of the Missouri Botanical Garden







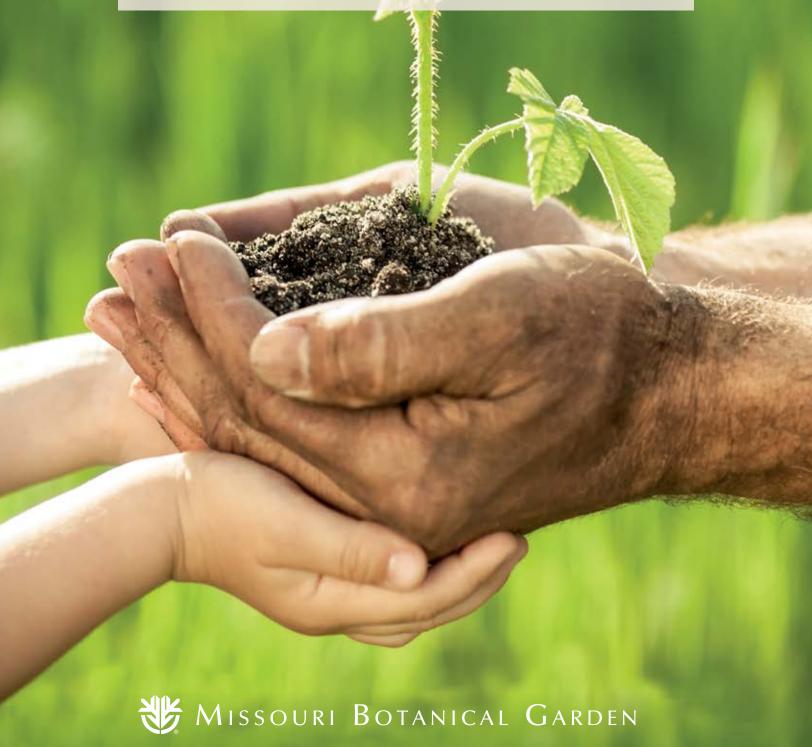
LITZSINGER ROAD ECOLOGY CENTER



Your love for plants can change the world.

Whether you're honing your gardening skills, flexing your creativity, or embracing your inner ecologist, our classes equip you to transform landscapes and lives.

How will you discover + share?



100% of your class fees help us discover new plant species, restore and protect at-risk plants and places, and connect more people with nature and the great outdoors.

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Why We Do What We Do

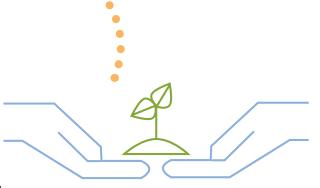


We love plants

In fact, we're obsessed with them. This obsession runs deep, spans the globe, and is unparalleled. In fact, the Missouri Botanical Garden is one of just a handful of entities on the planet working on the front lines to discover, document, restore, and conserve life on Earth, specifically plants, before it's too late.

We share this love with you and millions more every year

The Garden and its sites in St. Louis and around the world share the extraordinary world of plants with millions of people each year through immersive, in-depth, meaningful experiences designed to engage, educate, and inspire.



But this work on its own isn't enough

We—us, **YOU**, your students, your friends and family, your random neighbor down the street—need to make a big transition towards a better, more sustainable world for all. The status quo just isn't cutting it. To make this transition, masses and masses of people must start changing their choices, decisions, lifestyles, habits, priorities, roles, and responsibilities as citizens of the world, and quickly.

As teachers, you are uniquely positioned to shape our current and future citizenry. It is in this broader realm that the Garden builds upon its core commitment to plant science and conservation to work with you, your students, and citizens of all ages, backgrounds, and abilities to inform and motivate decisions and actions that enable plants, people, and the planet to survive and thrive for generations to come.



Every single one of us is—or can be—a citizen steward. Together, we can transform landscapes and lives.



Who We Are

"Every single one of us is—or can be—a citizen steward. Together, we can transform landscapes and lives."

This mantra is far more than just words on paper. It's our deep-rooted worldview that guides everything we do, including the experiences curated in the pages that follow.

Collectively, our programs for students and teachers are designed to plant seeds of wonder and curiosity, cultivate deep understanding and appreciation, and grow ecologically minded problem-solvers and stewards. And not for some far-distant future. The world needs such stewards now—all ages, all backgrounds, all abilities. There is no such thing as too many informed, enthusiastic, and active ambassadors for the living world.

On behalf of the entire Education crew at Missouri Botanical Garden and its St. Louis-area sites, we look forward to another year of collaboration with you, your students, and the communities you serve. It is our hope that you see us as your extended team—a tribe, if you will, of fellow nature ambassadors working with you, ready to transform landscapes and lives.

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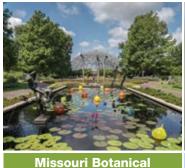
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Our Sites



Garden

- · Located in St. Louis, Missouri.
- · Leader in horticultural display, botanical research and conservation efforts, education, sustainability, and public engagement for more than 150 years.
- World-renowned plant collection and science-driven conservation that span the globe.
- · Invites students and visitors to experience a rainforest; learn about other cultures; delve into history; and celebrate, connect with, and care for plants.

Programming provided by the Missouri Botanical Garden and EarthWays Center.



Butterfly House

- butterflies and other insects play in our everyday lives and global world. • Offers unique opportunity

· Celebrates the role that

- to observe butterflies in two distinct habitats: native and tropical.
- The first dedicated allinsect facility in the U.S. accredited by the Association of Zoos and Aquariums.
- Partners with a sustainable butterfly farming operation, El Bosque Nuevo in Costa Rica.



Reserve

- · Located in Chesterfield, Missouri. · Located in Gray Summit, Missouri. · Located in Ladue, Missouri.
 - More than 2,400 acres that serve as a vibrant, biodiverse, living laboratory of Missouri ecosystems, including prairie, woodlands, glades, and wetlands.
 - Leader in native plant horticulture and ecological restoration.
 - · The Reserve's natural diversity provides an exceptional outdoor classroom for learners of all ages.
 - · Designated National **Environmental Education** Landmark in 1972.

Programs available through the Shaw Nature Reserve and Dana Brown Overnight Center teams.



Litzsinger Road **Ecology Center**

- · Provides extended partnerships in place-based education, linking professional development with field experiences for students.
- Coordinates a vibrant regional network of teachers, volunteers and community partners.
- · Models ecological restoration and research on 34 acres of woodland, prairie and creek ecosystems.

Due to Ladue use permit restrictions, LREC is open only for programs with partner teachers. It is not open to the public.



Programs for Students

The Garden's work with students spans the early childhood years through graduate fellowships and post-doctoral studies. It takes place in the greater St. Louis area as well as in regions around the world where the Garden's plant conservation mission is at work. Along this trajectory and within each community, our multidisciplinary team of early childhood specialists, environmental educators, teen instructors, teacher professional development facilitators, botanists, ecologists, and community conservation leaders are all working with common purpose to:



- Engage and educate others
- Inspire and prompt new ideas and questions
- Motivate action
- Build capacity for conservation and environmental stewardship

In the following pages, we focus on the PreK-12 experiences available for students, teachers, schools, and districts available at our St. Louis-area sites.







		PreK	Kindergarten	1st Grade	2nd Grade	3rd Grade	
	Seasonal	Gardenland Express, 11					
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	Teen Network						
	EarthWays					Green is Here for Good Tour	
	Center	LEAP On-Demand Outreach, 27					
	Progr ams	Investigate Green Schools, 2	8				
		Personalized Sustainability C	Outreach, 28				
	Learning Lab	Story of a Butterfly, 16					
	Classes		Adventures in a Butterfly Gar	rden, 16			
			Wings of Wonder, 16				
						Bugs Alive, 16	
l SE						It's a Small World, 16	
BUTTERFLY HOUS	Guided Tours		Guided Tour, 15				
[표]	Outreach	Story of a Butterfly, 29					
世		Hide a Butterfly, 29					
15			The World According to Inse	cts, 29			
			Butterfly Biology, 29				
A-MAZE-ing Cockroaches, 29				29			
	Teen Network						

 $^{{}^*\}mathit{These}\ programs\ are\ of\ fered\ during\ specific\ months\ of\ the\ school\ year.\ See\ program\ description\ for\ details.$

4th Grade	5th Grade	Middle School	High School
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Rainforest Rendezvous, 11			
Botanical Engineering, 11			
		Asian Gardens, 12	
Classification and Systemati	cs, 12		
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Ethnobotany, 12			
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Foodology, 13			
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		Arthropod Anatomy, 29	
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Looking for help with your Family Engagement event or STEM Night? See page 30 for more information.



Educator Memberships

Join the Garden and help realize the mission set forth by Henry Shaw to discover and share knowledge about plants and their environment in order to preserve and enrich life.

Members receive great benefits including:

- Free admission to all of our attraction sites
- Retail discounts
- Access to special members-only events and much more!

Educators who become MBG members also receive:

- Discounted rates on professional development workshops and public programs classes
- Priority booking for field trips and special school group events
- Free membership to the Stupp Teacher Resource Center

Visit **mobot.org/membership** to learn more!

			PreK	Kindergarten	1st Grade	2nd Grade	3rd Grade
	Self-Guided		Little Acorn Trail, 18				
		SNR Outdoor	SNR Critters, 18				
		Experiences	Earthwalks, 18				
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 $^{{\}it *These programs are of fered during specific months of the school year. See program description for details.}$

4th Grade	5th Grade	Middle School	High School
			-
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Aquatic Ecology, 19			
Forest Ecology*, 19			
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Compass/Orienteering*, 22			
	Global Positioning System, 2	2	
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Living off the Land, 24			
Birds of a Feather, 24			
Ecology of Wolves, 24			
Insect Ecology, 24			

Interested in an Internship? See page 34 for more information!



There are so many ways to volunteer at the Garden, Butterfly House, Shaw Nature Reserve, and Litzsinger Road Ecology Center!

Take action to bring more significance to your daily life. Become a part of a vital volunteer community.

Interested? Please visit mobot.org/volunteer to view opportunities and fill out an application.

Call (314) 577-5187 or email volunteer@mobot.org to learn more!

Programs for Students

at the Missouri Botanical Garden

The Missouri Botanical Garden offers onsite programs for school groups from September through December and February through May, and is available for self-guided visits throughout the year. Our programs introduce students to the Garden's historic and scientific significance using inquiry-based activities aligned to Missouri and Illinois standards. For up-to-date information about our programs, upcoming events, and policies, please visit our website at **mobot.org/schoolprograms** or call our office at (314) 577-5185.

Zoo-Museum District Schools (ZMD)

Thanks to the support of the Metropolitan Zoo-Museum District, schools located **within St. Louis City and St. Louis County** are eligible to receive a 50% discount on Guided Tour, Garden Class, and PlantLab program fees, as well as other considerations as described below.

Onsite Visit Options:

- **Self-Guided Visits** Design your own experience! Resources can be found at **mobot.org/schoolprograms**. Admission is free for all ZMD students, and non-ZMD students in grades PreK-8th. Non-ZMD students in grades 9 and above are admitted at \$8/student.
- **Guided Tours** Take a stroll through the Garden with one of our knowledgeable guides. Tours typically last for 1–1.5 hours. Each tour accommodates up to 30 students. *Fee: \$80 Add photography to your tour for \$15.*
- **Garden Classes** (includes Combination and Multidisciplinary classes) Designed for groups seeking an in-depth experience around specific topics, our classes couple age-appropriate, hands-on indoor learning experiences led by trained instructors with a theme-appropriate guided tour of the Garden. Programs typically last 2–2.5 hours hours and include a take-home for each student. *Fees: Standard (up to 30 students): \$150. Large (up to 60 students): \$300.*
- **PlantLab Programs** Dig deeper into plant science in the PlantLab! Programs designed for grades 3 and up offer students an opportunity to explore more rigorous botany and STEM topics with our trained instructors. PlantLab sessions serve up to 30 students, last 45–60 minutes and include a take-home planting for each student. *Fee: \$100*
- **Add-on Experiences** Make your students' experience even more memorable by including one of the following in your visit (See pg. 17 for more information):
 - Pot-a-Plant Sessions accommodate up to 30 students. Fee: \$50.
 - **Shaw's Satchels** \$5/satchel (This fee is waived for ZMD school groups.)
 - The Doris I Schnuck Children's Garden is open April through October. School groups must pre-register to receive a reduced entry fee and to guarantee admission, as capacity is limited. Fee: \$3/student, payable upon arrival.

How to Register:

- Registration for Fall 2018 programs will open on July 16, 2018. Spring 2019 programs will be available beginning November 1, 2018. All registrations are accepted on a first-come, first-served basis.
- For fastest service, submit your registration request online at mobot.org/schoolprograms.
 You can also book by calling (314) 577-5185.
- Program fees for tours and classes include admission for up to six adults with a standard program and 12 adults for a large program. One adult is also admitted free of charge for every five students attending a self-guided visit. Additional chaperones are admitted at standard admission rates; **teachers may pay for all additional chaperones** in one transaction upon arrival, or elect to have an invoice sent to the school after their visit.



Seasonal Early Childhood Programs

Gardenland Express (MBG)

Grades: PreK-K; November-December

Bring your students to the Missouri Botanical Garden during the holiday season to enjoy our annual Gardenland Express Holiday Flower and Train Show! This unique program includes a guided tour of the show, during which you and your students can see our six G-scale LGB trains wind their way through themed landscapes and fanciful displays and learn about the show's theme. Afterward, each student will pot a plant to take home. Capacity: 25 students; length of program: 45 minutes

Combination Classes

A Seasonal Snapshot (MBG)

Grades: K-2; September-December and February-May

What season is it? How do you know? Through seasonal storyboards, students will observe the life cycle of an apple tree and discuss how the changing seasons affect plants, animals, and human beings. Out in the Garden, students will practice their observation skills as they compare and contrast the current season with other times during the year. *Capacity: 60 students; length of program: 120 minutes*

Heaps of Seeds (MBG)

Grades: K-2; September-October

From acorns to zinnia seeds, the beginnings of a plant are found in an amazing diversity of shapes and sizes. Students will investigate the various ways in which seeds travel in a series of hands-on stations, and then venture out into the Garden in search of seeds to collect to take back to your classroom. *Capacity: 6o students; length of program: 120 minutes*

Tops & Bottoms (MBG)

Grades: K-2; September-December and February-May

Based on Janet Stevens' book *Tops & Bottoms*, this program provides an introduction to plant structures using familiar food plants. Students hear the charming adventures of Hare and Bear, and then assemble a storyboard "garden" while reviewing the parts of a plant. Out in the Garden, groups will have the opportunity to examine real food plants growing in the Climatron® conservatory and the William T. Kemper Center for Home Gardening. *Capacity: 60 students; length of program: 120 minutes*

Foodology (MBG)

Grades: 3–5; September–December and February–May

How much of our food can be traced to plants? All of it! In this class, students will explore the history and science of agriculture and food production. Along the way, they'll learn about the origins of our familiar food plants, contributions made by scientists like George Washington Carver, and design a food garden of their own. Capacity: 60 students; length of program: 120 minutes

Rainforest Rendezvous (MBG)

Grades: 3–5; September–December and February–May

Escape to the Climatron® conservatory to investigate the strategies plants use to compete and survive in a lowland tropical rainforest, and learn why this productive biome is unique and important. Students will explore rainforest leaves, stems, and roots through hands-on station activities in the classroom, and then head into the Climatron with cameras to capture the same adaptations in a photo scavenger hunt. Capacity: 60 students; length of program: 120 minutes

NEW! Botanical Engineering (MBG)

Grades 3–12 September–December and February–May

Survival for plants often means finding innovative ways to overcome challenges in the environment! In this fascinating new class, we'll first explore the adaptations that plants have devised that enable them to survive in some of our planet's most extreme environments. Then we'll venture into the Garden for a look at the solutions humans have devised to replicate these environments so that these plants can survive in St. Louis. *Capacity:* 60 students; length of program: 120 minutes

Programs for Students at the Missouri Botanical Garden cont'd

PlantLab Programs

NEW! Classification and Systematics (MBG)

Grades: 3–8; September–December and February–May

Carl Linneaus once said, "If the names are unknown, knowledge...also perishes." Since 1859, the Missouri Botanical Garden has served as a world leader in the fundamental science of discovering, classifying, and naming plant species from all around the world. This hands—on session will provide students with a taste of the real world work our researchers do, from collection and classification to identification and nomenclature. *Capacity: 30 students, length of program: 50 minutes*

NEW! Ecology (MBG)

Grades: 3–8, September–October and March–May

An understanding the interconnectedness of the natural world is vital if we are going to tackle big challenges like climate change and conservation. In this class, students will explore the interdependence between flowering plants and their pollinators, underscoring how this simple relationship affects not just the organisms involved, but the ecology of their local habitats and human quality of life. *Capacity: 30 students; length of program: 50 minutes*

NEW! Ethnobotany (MBG)

Grades: 3–12, September–December and February–May

Plants provide humankind with our most crucial resources: food, medicines, fiber, building materials, and a range of other economically valuable products and essential services. This hands—on program gives students an opportunity to explore of the traditional uses of plants as well as glimpse some of the ways in which plants can be used in the future to address environmental and economic concerns.



Multidisciplinary Classes

Asian Gardens: Science and Culture (MBG)

Grades: 6-8; September-December and February-May

Explore East Asia in this integrated curriculum course! Students will discuss similarities and differences between the Chinese and Japanese cultures. As they visit the Margaret Grigg Nanjing Friendship Garden (Chinese Garden) and Seiwa-en (Japanese Garden), they will grasp the underlying philosophies that influenced each garden's design and the traditions surrounding them. Connections to ecology surface as they stop at the moss garden and koi bridge. They will try their hand at an abacus and make additional connections across Social Studies, Fine Arts, and Literacy. Capacity: 60 students (Rotation options are available for larger groups); length of program: 150 minutes

Guided Tours (MBG)

Discover MBG Guided Tour (MBG)

Grades: K–12; September–December and February–May

The Garden is always beautiful, no matter the season. Discover the diversity of plants, immerse your students in St. Louis history, and explore gardens that reflect a variety of cultures, styles, and traditions. *Capacity: 30 students; length of program: 60 minutes*

Up, Down, and Around (MBG)

Grades: PreK–K; September–December and February–May

Get your students active in the Garden with this fun tour based on the popular book *Up*, *Down*, *and Around* by Kathryn Ayers. Students will explore and observe the different ways that familiar plants grow. *Capacity: 30 students; length of program: 45 minutes*

Plants from Top to Bottom Guided Tour (MBG)

Grades: K-2; September-December and February-May

Come and enjoy a tour through the William T. Kemper Center for Home Gardening! This resource comprises 23 demonstration gardens showcasing different approaches to gardening in Missouri. During the tour, students will learn about the six major parts of a plant and how each part plays a vital role in the plant's survival. Capacity: 30 students; length of program: 60 minutes

Sensational Seed Hunt Guided Tour (MBG)

Grades: K-2; September-October

What is inside a seed? What do seeds need to grow? How are seeds dispersed? Join us as we find out the answers to these questions while hunting seeds in the Garden! Capacity: 30 students; length of program: 60 minutes

Tropical Rainforest Guided Tour (MBG)

Grades: 3–8; September–December and February–May

A tour of the Climatron® transports students to a lush lowland rainforest complete with waterfalls, tropical birds, and some 1,500 plants. Students will see firsthand the strategies tropical plants use to survive in this wet, competitive environment, and the resulting diversity of structures and behaviors that can be observed here. Capacity: 30 students; length of program: 60 minutes

Foodology Guided Tour (MBG)

Grades: 3–8; September–December and February–May

Tour the William T. Kemper Center for Home Gardening and learn the origins of our favorite foods. Witness modern-day agricultural practices and learn about the vital contributions of agriculture pioneers like George Washington Carver. *Capacity: 30 students; length of program: 60 minutes*

Asian Gardens Guided Tour (MBG)

Grades: 6–12; September–December and February–May

Come explore the culture, art, and science of our Asian gardens. Students will explore the Margaret Grigg Nanjing Friendship Garden (Chinese Garden) and learn how Chinese philosophies influenced the garden's arrangement and plants. From there they will enter *Seiwa-en*, our 14-acre Japanese "strolling garden," to discover how Japanese traditions are reflected in that garden's design. *Capacity: 30 students; length of program: 60 minutes*

By Request (MBG)

Grades: 6–12; September–December and February–May

Interested in discussing a topic that isn't covered by one of our tours? We can work with you to design a tour that suits your group's needs. Visit **mobot.org/schoolprograms** and complete the request form for a Guided Tour to let us know what you have in mind!

Grow Your Experience!

Whether your itinerary for your class' visit includes a program or you're planning to guide your students on your own, consider adding one of the following experiences to your day!

- Pot-a-Plant—Take your learning back to school with you! These 15-minute sessions accommodate up to 30 students, and include a brief lesson for students and a guided planting experience. Every student will receive a potted seed or cutting to take back with you. Visit mobot.org/schoolprograms for a list of planting options.
- Shaw's Satchels—Lead your own program using our handy activity satchels! Each satchel contains the materials necessary to accommodate up to 10 students. Requested satchels will be waiting at the entry gate when you arrive, and can be dropped as you depart. Visit mobot.org/schoolprograms to see a list of available satchels.
- The Doris I Schnuck Children's Garden— Provides a wonderful backdrop for nature exploration and educational play for students between the ages of 3 and 12. Visit mobot.org/childrensgarden for more information.
- Take your tour experience with you with digital photography!—Each group of 30 students will have the use of three digital cameras throughout the tour. After your visit, we will download all photos taken and send them to you to use in your classroom! Fee: \$15 + tour fee.



Programs for Students

with the EarthWays Center

Located at the Missouri Botanical Garden



a division of the Missouri Botanical Garden devoted to helping people understand

how their daily behaviors and choices impact plants, humans, and the environment. We provide opportunities for learners of all ages to build awareness and personal understanding of their role in the conservation of energy and other natural resources for the future.

The EarthWays Center's work with schools ranges from kindergarten through the 12th grade. Programs include opportunities to learn and engage in discussion on the topic of sustainability including: on-site programming, guided tours, outreaches, long-term partnership programs that connect local schools with green building



professionals, environmental organizations, local green businesses, and community leaders.

For more information on the EarthWays Center and sustainability at the Garden, visit mobot.org/ewc.

How to register:

- Registration for EarthWays programs must be made at least two weeks in advance of your intended visit date. All registrations are accepted on a first-come, first-served basis, so early registration is encouraged.
- To register, e-mail earthways.edu@mobot.org or call (314) 577-0281.
- Please plan to bring one adult for every five students. Program fees include admission for required adults. Additional adults are welcome, but will be admitted at standard admission prices.

Green Is Here for Good (MBG-EWC)

Grades: K-12; September-December and February-May

How "green" are you? Sustainability-themed visits to the Garden integrate an interpretive tour that illustrates the importance of waste minimization, energy, energy efficiency and conservation, and resource conservation. Students will discover simple things they can do to use resources more efficiently and live more sustainably. Tours can be customized to focus on the specific topics relevant to teachers and students. Cost: varies, call for more information; length of program: 90 minutes

Personalized Sustainability Experience

Grades: K-12, September-December and February-May

Schedule a special hands-on, interactive class with the EarthWays Center to dive deeper into green living topics such as waste, energy efficiency and conservation, stormwater management, and more. EarthWays Center offers these unique personalized presentations to meet the goals of your specific field trip experience. Each 60-minute class features a hands-on activity or experiment to get students thinking, learning, and exploring green. Activities are designed to be grade-level appropriate and vary for each class offering. Sessions serve up to 30 students. \$100 (ZMD schools receive a 50 percent discount). E-mail earthways.edu@mobot.org or call (314) 577-0281 to discuss options and pricing.

Programs for Students

at the Butterfly House

The Sophia M. Sachs Butterfly House offers unique, inquiry-based experiences for students that align with Missouri Science Standards. We use living animals and real specimens, and each class includes an unforgettable trip through our tropical conservatory of living butterflies. We encourage teachers to book as early as possible, given limited capacity on high-demand dates. Teachers and paraprofessionals are admitted free to all programs.



Onsite Visit Options:

- Learning Lab Programs—Classes run 45 minutes and include hands-on activities and animal encounters, followed by a self-guided walk through the tropical conservatory. Classes are offered Tuesdays through Fridays, with sessions beginning at 9:30, 10:30, 11:30 and 12:30. Minimum 15 students and maximum 35 students per program. Please note that due to space considerations, a maximum of 7 chaperones will be allowed in the Learning Lab. Cost: \$5 per student, \$8 per adult, max of 1 adult per 5 students
- **Self-Guided Visits**—Lead your group through the Butterfly House animal exhibits, tropical conservatory, and native habitat garden. *Please plan to bring one adult for each five students. Cost: \$4 per student, \$7 per adult. Scavenger hunts and other resources may be downloaded at our website: butterflyhouse.org/schoolprograms.*
- **Guided Tours**—Have our staff lead you through the story of our butterflies and learn about our worldwide conservation efforts. *Fee:* \$6 per student, \$9 per adult

How to register:

- Registration for Fall 2018 programming opens on May 1, 2018. Registration for Spring 2019 programming opens on September 1, 2018. Please register at least 2 weeks in advance of your desired program date. All registrations are accepted on a first-come, first-served basis.
- For fastest service, register online at **butterflyhouse.org/schoolprograms** or email butterflyhouseeducation@mobot.org. You can also call (314) 577-0888 ext. 2.

Programs for Students at the Butterfly House cont'd

Story of a Butterfly (BH)

Grades: PreK-K; Year-round

Students will witness the life cycle of a butterfly using our innovative caterpillar puppet, and assemble a butterfly to learn about its important body parts. They will compare and contrast the survival needs of plants and animals as they enjoy a tour of the Conservatory, where they will search for the resources butterflies and plants need to live and grow. *Capacity: 35 students; length of program: 50 minutes*

Adventures in a Butterfly Garden (BH)

Grades: K-3; Year-round

Discover pollination as we explore and compare the life cycles of butterflies, honeybees, and plants. Students will learn that fruits and seeds can only come from plants that have been pollinated, and we will discuss different ways that insects, birds, and other animals spread pollen and disperse seeds. In the Conservatory, students will be able to look for seeds and pollen as well as butterfly chrysalides, and they can apply what they have learned to discuss how butterflies pollinate our plants. *Capacity: 35 students; length of program: 50 minutes*

Wings of Wonder (BH)

Grades: K-3; Year-round

Students experience hands-on observations with real samples of butterfly eggs, caterpillars, pupae, and wings. Grades K-2 will learn how butterflies meet their survival needs and how these needs are the same or different from other animals or plants. Grades 3–5 will focus on the adaptations upon which butterflies rely to survive in their environment, and will discuss how variations between individuals of the same species can provide advantages. In the Conservatory, we will look for butterfly adaptations to the tropical environment and we will talk about how this differs from our environment here in Missouri. *Capacity: 70 students; length of program: 90 minutes*

NEW! It's a Small World (BH)

Grades: 3–5; Year-round

Through observations of different plant and animal life cycles, students will explore the relationships of plants and animals in the wild and the processes that cycle matter through the ecosystem. *Capacity: 35 students; length of program: 50 minutes*

NEW! Bugs Alive: Ecosystem Challenge (BH)

Grades: 3-5; Year-round

Through a series of live animal encounters, students will explore an animal's place in an ecosystem by examining the adaptations, senses, and genetic variation of each. Students will be exposed to a variety of ecosystems and the challenges organisms face for survival in each. At the end of the lesson, students will be challenged to design an insect that has adaptations necessary for survival in an assigned ecosystem. Capacity: 35 students; length of program: 50 minutes



Programs for Students

at Shaw Nature Reserve

Shaw Nature Reserve programs are designed to immerse students in inquiry, exploration, and problem solving while experiencing the Missouri landscape. Just 45 minutes from St. Louis, but a world away for young minds. For up-to-date information about our programs, upcoming events, and policies, please visit our website at **shawnature.org** or call our office at (314) 577–9523.

Onsite Visit Options:

- **Day Programs** Shaw Nature Reserve classes vary in duration from 1 to 2 hours, but all include hands-on learning and active discovery of nature and the great outdoors. We encourage you to schedule two classes with a lunch in between to make the most out of your Shaw Nature Reserve experience. Class fees are \$2 per student. Scheduling availability and maximum class sizes vary; see class descriptions for more information.
- **Self-Guided Trail** The Little Acorn trail is available year-round for younger learners. Participating groups pay \$1 per student.
- Canopy Climb Canopy Climbs are a day-long experience that runs from 9:30 a.m. to 2:30 p.m. and includes a climbing session, forest ecology program, and time for lunch. Registration is by appointment only. *Cost is* \$895 for a group of up to 24 students and 8 adults.

How to register:

- Registration for Fall 2018 programs will open on May 1, 2018. Registration for Maple Syrup classes in January of 2019 opens on October 1, 2018. Registration for all other Spring 2019 programs will open on November 1, 2018. All registrations are accepted on a first-come, first-served basis.
- Call (314) 577-9523 or e-mail kbryan@mobot.org to book your visit.
- Student groups should plan to bring one adult for every eight students. Required adult chaperones are admitted at no extra charge. Additional adults are admitted at standard admission rates.

	Earthwalks (PreK-8)	PreK-K	1st-3rd	4th–8th	
September	Earthwalks	SNR Critters	Water's Edge	Aquatic Ecology	
October	Earthwalks	SNR Critters	Little Houses on the Prairie	Tallgrass Prairie	
November	Earthwalks		In Plain Sight	Animal Adaptations	
December	NO CLASSES				
January				Maple Syrup Making	
February				Maple Syrup Making	
March	Earthwalks	SNR Critters	In Plain Sight	Animal Adaptations	
April	Earthwalks	SNR Critters	Our Forest Neighbors	Forest Ecology	
May	Earthwalks	SNR Critters	Water's Edge	Wetland Ecology	

Programs for Students at Shaw Nature Reserve cont'd



Little Acorns Trail (SNR)

Grades: PreK-3; Year-round

Take your young learners on an exciting adventure along this easy self-guided trail. Pick up a key and backpack at the Visitor Center containing everything you'll need as you unlock the seven activity boxes along your hike. Each activity box contains two activities that are designed to help children learn about the plants, animals, and habitats of Missouri. *Length of program: varies; fee: \$1 per student*

Earthwalks (SNR)

Grades: PreK-8; September-November, March-May Students will explore the wonders of the natural world

by using their five senses. Instructors will lead your students on a walk through diverse ecosystems and they will use their sense of touch to identify natural objects, sense of hearing to identify birds, and sense of sight to simulate how animals see. This light and comfortable approach to nature can be adapted for different ages. Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student

SNR Critters (SNR)

Grades: PreK: Year-round

Discover animals of many shapes and sizes that call Shaw Nature Reserve home. Students will learn about what helps these animals survive through hands-on activities. Capacity: 24 students; length of program: 60 minutes; fee: \$2 per student

In Plain Sight (SNR)

Grades: 1-3; November, March

Learn about camouflage through a series of fun games and activities. Students will discover the importance of camouflage for both predators and prey in their daily struggle to survive. They will also learn about mimicry and how some animals use this adaptation to fool potential predators. Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student

Little Houses on the Prairie (SNR)

Grades: 1-3; October

Experience what life was like for early prairie settlers through activities based on *Little House on the Prairie* written by Laura Ingalls Wilder. Excerpts from the book will be matched with hands-on activities, so that students get a glimpse into the lives of early Missouri residents. They will compare and contrast living in a teepee with living in a sod house. *Capacity: 60 students; length of program: 120 minutes; fee:* \$2 per student

Water's Edge (SNR)

Grades: 1–3; September, May

Explore aquatic and terrestrial communities through hands-on activities based on *Around the Pond: Who's Been Here* written by Lindsay Barrett George. Students will compare and contrast aquatic and terrestrial turtles, birds, and insects. *Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student*



Our Forest Neighbors (SNR)

Grades: 1-3; April

Who lives in Missouri's forests? Explore the forest ecosystem and learn about the native residents. Students will learn about the unique adaptations of forest animals and how they survive in this special habitat. Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student

Animal Adaptations (SNR)

Grades: 4–5; *November*, *March*

Discover some of the fascinating adaptations that animals have for survival through hands-on activities. For example, students will learn how different bird beaks allow them to eat certain foods. While exploring the "Un-nature Trail" they will see how camouflage helps animals survive. Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student

Aquatic Ecology: (SNR)

Grades: 4–8; September

Discover the tiny world living in the lake community. In small groups, your students will search for diverse organisms living in different aquatic zones. They will use magnification tools and field guides to identify organisms based on structures for feeding, moving, and breathing. Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student

Forest Ecology (SNR)

Grades: 4-8; April

How are forest trees like apartment buildings? Why do many wildflowers bloom in the spring? Why do some animals live only in the forest? Discover the answers to these questions and more while exploring the upland forest. Through investigations of decomposing logs and soil and plant identification activities, students will learn that the forest is a diverse and fascinating ecosystem. Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student

Maple Syrup Making (SNR)

Grades: 4-8; January and early February

Celebrate the coming of spring! Learn about maple syrup by exploring the two processes that make it all possible: photosynthesis and the water cycle. Students will investigate the annual cycle of sap movement and the importance of sap to trees. After helping with sap collection and cooking, they will enjoy a sample of delicious syrup. *Capacity: 6o students; length of program: 120 minutes; fee: \$3 per student*



Programs for Students at Shaw Nature Reserve cont'd



Tallgrass Prairie (SNR)

Grades: 4-8; October

Explore the fascinating ecosystem that once covered 40 percent of Missouri. Learn the history of this unique grassland community and investigate some of the inhabitants that make up this ecosystem. Discover how these plants and animals are adapted to live on the hot, wind-swept prairie. Find plants that were used by Native Americans and pioneers for medicine. Your students may go back in time and see how pioneers once lived on the prairie in sod houses. Find out how the Shaw Nature Reserve and others are using fire to restore Missouri's prairie. *Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student*

Wetland Ecology (SNR)

Grades: 4-8; May

Like any other ecosystem, a wetland is a complex and active habitat! Observe diverse plants and animals and learn about the unique characteristics that help them survive in this watery environment. Use microscopes to compare the structures of terrestrial and aquatic plants. Students will learn about how wetlands protect plants, animals, and humans by using a wetland model. Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student

Canopy Climb for Schools (SNR)

Grades: 6-12; September-November, March-May

In this all-day program, students will learn treeclimbing basics including climbing techniques, balance, and safety from a certified tree climbing instructor. They will also experience a guided hike and learn about local and global canopy/forest research and real-world conservation careers. *Capacity: 24* students; length of program: 9 a.m. to 2:30 p.m.; fee: \$40 per student

Programs for Students

at the Dana Brown Overnight Center (DBOC)

Located at Shaw Nature Reserve

Looking for a deeper, more immersive experience for your students? Come spend a day—or more—at Shaw Nature Reserve's Dana Brown Overnight Center! Using inquiry and standards-based science and math concepts, teachers and students have unique opportunities to enhance classroom learning with field investigations in the natural world. Classes are available on a day-use basis or as a component of an overnight experience. Reserve staff will work with you to design a comprehensive program for your students.

The Dana Brown Overnight Center is a cluster of historic log, or post-and-beam, structures, dating back to the 1800s. Originally located at various sites within 100 miles of the Shaw Nature Reserve, these historic buildings were carefully dismantled, transported, and reconstructed at the Center in 2003 with only slight modifications to make them into comfortable accommodations for visiting groups. Many of the modifications to the buildings were made using salvaged materials.

Overnight facilities at the Center can handle group sizes from 15 to 60. Daytime programs can accommodate up to 100 students. For more information, visit our website at

shawnature.org/danabrown





Registration Information

- All groups who register for a program at the DBOC have access to the Adlyne Freund Center or the Assembly Building.
- Overnight guests may use up to four lodges, each housing between 14–19 students for a total of 60 students and four adults. Descriptions and photos of our lodges can be found on our website at **shawnature.org.**
- Groups may register their stay up to 1 year prior to their intended visit. Availability is limited and programs are scheduled on a first-come, first-served basis. To register, contact Aileen Abbott at (314) 577–9528 or e-mail **aabbott@mobot.org**
- Program fees (day use or overnight) are \$5/student.
- Lodging fees for overnight groups are \$20/student for a 1-night stay or \$30/student for a 2-night stay. For pricing information about longer stays, please call (314) 577–9528.

Programs for Students at the Dana Brown Overnight Center cont'd

Navigation Classes

Introduction to Compass (DBOC)

Grades: 3-12; Year-round

Students will learn about true north versus magnetic north, the different parts of a magnetic compass, topographic maps, and the ever-important rhyme: "Put red in the shed and follow Fred." They will use their own compass to create a course for other students to complete. *Capacity: 25 students: length of program:* 120 minutes; fee: \$5 per student

Compass and Orienteering (DBOC)

Grades: 4–12; January, February, March, December

Students need to have completed the Compass Introduction class prior to this class. During this 2- to 3-hour session, students will go on an orienteering course through the Nature Reserve, off trail! They will traverse from point to point until the end is reached. Capacity: 25 students; length of program: 120 minutes; fee: \$5 per student

Global Positioning System (GPS) (DBOC)

Grades: 4-12; Year-round

This class offers students the chance to learn how to use a GPS unit. Students will then be divided into small groups of four or five students with one adult from the school going with each group. Each group will complete a GPS course around the Nature Reserve. Each group will have a key with waypoints they need to follow to reach a specific destination. Capacity: 40 students; length of program: 150 minutes; fee: \$5 per student

Ecology Classes

Winter Ecology (DBOC)

Grades: 3-12; January, February, March

Students will learn what animals and plants do to survive the cold winter months. We will discuss winter tree identification using bark and branching. Other concepts covered may include migration, hibernation, dormancy, brumation, diapause, ectothermic animals, and endothermic animals. This class may include a visit to our tapped maple trees where students learn about the process of making maple syrup. Capacity: 40 students; length of program: 180 minutes; fee: \$5 per student

Aquatic Ecology (DBOC)

Grades: 4-12: Year-round

A whole tiny world lives in the lake community. In small groups, your students will sample the pond for diverse organisms living in various zones. They will observe some of the distinguishing adaptations that allow aquatic organisms to survive underwater. Using various magnification tools and identification guides, students will identify a wide variety of organisms, focusing on structures used for feeding, moving through the water, and breathing. Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student

Forest Ecology (DBOC)

Grades: 3–12; Year-round

How are forest trees like apartment buildings? Why do many wildflowers bloom in the spring? Why do some animals live only in the forest? Answers to these and other questions will be discovered as your students explore the upland forest and bottomland forest. Through forest floor investigations and comparing abiotic factors in different areas of the forest, students will develop an understanding that the forest is a diverse and fascinating ecosystem. Capacity: 40 students; length of program: 120 minutes;

fee: \$5 per student

River Ecology (DBOC)

Grades: 4-12; Year-round

This 3-hour class includes a hike down to the Meramec River and back. Students will investigate and explore macro-invertebrates, fish, reptiles, birds, and other creatures living in and around the river. Depending on water levels, students may be asked to bring water shoes to use kick nets in a shallow area to collect organisms. The class also includes bottomland forest tree ID, animal tracking, and gravel bar exploration! Capacity: 40 students; length of program: 180 *minutes*: fee: \$5 per student



Stream Ecology (DBOC)

Grades: 4-12; Year-round

Students will have an opportunity to explore and investigate the life in and around a stream community. They will collect and identify organisms living in the stream. They will also learn about adaptations organisms that live in moving water have versus those found in ponds and lakes. Students may bring an extra pair of water shoes, but the shoes must cover their toes and heels: no sandals, flip flops, or crocs. *Capacity: 40 students; length of program: 180 minutes;*

fee: \$5 per student

Wetland Ecology (DBOC)

Grades: 4–12; Year-round

Like any other ecosystem, the wetland is a complex and active place! A wide variety of plants and animals live in this special natural community. Observe some of the inhabitants up close and discover some of their distinguishing characteristics that allow them to survive in this watery environment. Use microscopes to compare the structure of terrestrial plants and aquatic plants. Using a wetland model your students will understand how a wetland functions and why they are so valuable to the inhabitants and humans, alike! Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student

Tallgrass Prairie (DBOC)

Grades 4-12; September-November

Explore the fascinating ecosystem that once covered 40 percent of Missouri. Learn about the history of this unique grassland community and investigate some of the inhabitants that live there. Discover the unique adaptations that allow plants and animals to survive on the hot, windswept prairie. Find plants that were used by Native Americans and pioneers for medicine. Visit our sod house to go back in time to see how pioneers once lived on the prairie. Learn how the Nature Reserve manages prairie ecosystems with prescribed burns and habitat restoration. *Capacity: 40 students, length of program: 180 minutes; fee: \$5 per student*



Night Programs

Owl Prowl (DBOC)

Grades: 3–12; Year-round

This fun event introduces students to learn about Missouri's native owl species. We'll meet at the Dana Brown Overnight Center at Shaw Nature Reserve and watch a short presentation on owls, where we will learn about each species and their special adaptations. You will also meet local raptors from the neighboring World Bird Sanctuary and may witness a live flyover! Following the presentation, we'll take a walk outside, into the owl's natural habitat where we will demonstrate a few different calls. We will also listen for "Whooo" might call back! Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student. This program pending availability of owls from the World Bird Sanctuary.

Astronomy (DBOC)

Grades: 4-8; Year-round

There are few things more mysterious than gazing up into a limitless night sky filled with stars, planets, moons, nebulas, and more! Our astronomy class begins to unravel the mysteries surrounding our solar system, our galaxy, and the universe at large. On clear evenings, participants will be able to look through a telescope to get an up-close look at the many wondrous sites of our night sky. This class is weather permitting.

Capacity: 40 students; length of program: 120

minutes; fee: \$5 per student

Programs for Students at the Dana Brown Overnight Center cont'd

Frog Watch (DBOC)

Grades: 3–12; March, April, May

Students will learn about the frogs and toads of the Shaw Nature Reserve. They will learn to identify species by sight and by their individual calls. Students will collect data in the wetland area, including which species of frogs and toads are heard as well as an estimated population count. Shaw Nature Reserve staff enters this data in a national database through the St. Louis Zoo. *Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student*

Night Hike (DBOC)

Grades: 4-12; Year-round

Evenings are a great time to be at the Nature Reserve. It is easy to appreciate the beauty of nature as the sun drops below the western horizon. Our night hike class is from 7 to 9 p.m., unless special arrangements have been made in advance. This gives participants the opportunity to be out during the transition of day to night. Our hike helps participants appreciate and understand the night. Activities focus on our five senses with emphasis on night vision and how our eyes change. Diurnal, crepuscular, and nocturnal animals are discussed, heard, and sometimes seen! This is a quiet, educational hike with no flashlights allowed. *Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student*

History

Living Off the Land (DBOC)

Grades: 4-12; Year-round

Students will discover how the early pioneers of westward expansion used their natural resources in order to survive. Some of the activities may include making their own hand-dipped candle, natural dyeing, and studying medicinal plants. Students may also have the opportunity to use period tools such as: crosscut saw, draw knife and shaving mule, a froe and mallet, and an auger to do actual wood chores. Students will gain an understanding of the past, be able to appreciate the present, and look forward to the discoveries of the future! *Capacity: 25 students; length of program: 120 minutes; fee: \$5 per student*



Wildlife Ecology

Birds of a Feather (DBOC)

Grades: 3-12; Year-round

Students will learn about the birds of the Nature Reserve. We will be discussing specific adaptations that aid the birds getting food, habitats of different species of bird, and how to identify birds using their shape, color pattern, call, and range. A bird ID walk will accompany this program. Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student

Ecology of Wolves (DBOC)

Grades 3-12; September-March, June-August

Start your journey at the Dana Brown Overnight Center for a 2-hour Forest Ecology class that will focus on the habitat of the Missouri-native red wolf, then head over to the Endangered Wolf Center to see and hopefully hear wolves and other wild canids. Learn about the canids' value to the ecosystems of the world and the challenges these animals face today. Capacity: 40 students; length of program: 360 minutes; fee: \$5 per student

Insect Ecology (DBOC)

Grades: 4–12; *Year-round*

During this class, students will be introduced to the world of insects. Concepts include anatomy, classification, habitat and food requirements, life cycles, and adaptations such as mimicry and camouflage. Students may also participate in an ant-baiting activity focusing on observation, data recording, and identification of various ant species found at the Reserve. *Capacity: 40 students; length: 120 minutes; fee: \$5 per student*

Outreach Programs

delivered by Missouri Botanical Garden

While visiting our sites offers students an opportunity to immerse themselves in botanical and ecological experiences, the nature in your neighborhood is just as important and fascinating! Let us bring our educational programs to your school and give your students an opportunity to explore plants, local biodiversity, global ecology, and sustainability within the familiar surroundings of your school and classroom!



MBG Outreach Programs

Missouri Botanical Garden outreach programs are available year-round to early childhood providers. Each of our program sessions lasts between 45 minutes and 1 hour, and facilitates up to 25 students. Teachers may request multiple sessions of the same program during a single visit, up to three sessions in one day (in such cases, a dedicated space for the program is preferred).

Outreach program fees run \$100 for the first session and \$50 for additional sessions of the same program held on the same day at the same site. (Please note that an additional mileage fee may apply for schools located more than 20 miles from the Missouri Botanical Garden.)

Registration Information

- Registration for Fall 2018 programs will open on July 16, 2018. Registration for Spring will open November 1, 2018 and registration for summer will open March 4, 2019. All registrations are accepted on a first-come, first-served basis.
- Outreach sessions must be booked at least three weeks in advance of your intended program date. Dates and times are subject to availability, so registering early is strongly advised.
- For fastest service, submit your registration request online at **mobot.org/schoolprograms**. You may also call our office at (314) 577-5185 to book your program.



Seasonal Schoolyard Explorations (MBG)

Grades: PreK–K; September–December and February–May

Discover the nature in your neighborhood! This series of seasonally-appropriate outreach programs will get your students outdoors and exploring your schoolyard in a whole new way. During the fall, we'll explore leaves and how they provide food not just for plants but for animals and insects as well. In the winter, we'll make a simple bird feeder and look at the ways plants and animals in our area respond to cold weather. In the spring, we'll look at the life that thrives in the dirt under our feet. Schedule one outreach, or even all three, for a year-long outdoor adventure! *Capacity: 20 students; length of program: 60 minutes*



Honeybees Abuzz (MBG)

Grades: PreK-1; Year-round

Explore the simple, natural process of pollination! Have you ever stopped and watched honeybees in action? Has it made you think about what the bees were doing and why? Read a vibrantly illustrated story, observe a honey hive found in an old log, become pollinating bees, dance like the bees, and put your fun facts about bees into song. An informational booklet will go home with students so they can share what they learned with others at home! *Capacity: 20 students; length of program: 60 minutes*



A Garden Sensory Adventure (MBG)

Grades: PreK; Year-round

Explore the five senses with the Missouri Botanical Garden! Using songs, literature, and plant smelling stations, your students will learn which part of the body is responsible for each sense and discover the wonderful world of plants. Each student will plant basil seeds and receive a special five senses journal to take home and share with their parents. *Capacity: 20 students; length of program: 60 minutes*



Outreach Programs

delivered by EarthWays Center



Bring sustainability topics to life where they stand to impact you and your students most: in your own classroom! From recycling to energy conservation, waste management, and a host of other topics, the EarthWays Center's education team will engage your students in STEM learning using real-world problem-solving situations that stand to make a positive difference in your school, community, and world!

Registration Information

- Program fees vary by offering. See descriptions below for more information.
- · All programs are available year-round.
- Registration for programs is ongoing, but programs are booked on a first-come, first-served basis. Early registration is encouraged to ensure your desired date and time are available.
- Call (314) 577-0207 or e-mail earthways.edu@mobot.org to book your program.



Waste, Recycling, and Composting

Classroom Presentations On-Demand

Grades: K-12; Year-round

- Topics include recycling, reducing waste, composting, HHW, making recycled paper, and many others
- Activities are hands-on, and can be customized by topic and grade level
- Classes are 45-60 minutes
- 30 student maximum per class
- FREE for schools within the St. Louis City, St. Louis County, St. Charles County, and Jefferson County area. Fees apply for schools outside this region.

LEAP Student Action Projects

September-May

Year/semester long partnership between school and EarthWays Center focused on engaging students in waste reduction and minimization projects in their school

- Includes informative, engaging and hands-on presentations related to waste reduction and recycling topics
- Ongoing support and mentorship of students to meet project goals
- Support for optional schoolwide waste audit
- Access to resources such as field trip experiences to MBG, recycling centers, and local landfills as scheduled
- Two special projects will be selected each year
- FREE. Selected schools must be located within St. Louis City, St. Louis County, St. Charles County, or Jefferson County.

Leadership in Environmental Action Projects (LEAP) is a K–12 student action program that reduces, reuses, and recycles trash from schools and communities and informs people about local solid waste and resource issues. LEAP uses student/community partnerships and cooperative learning to achieve these goals. Using landfill tipping-fee surcharges, the St. Louis–Jefferson Solid Waste Management District has funded LEAP for more than 23 years. LEAP programs are free for schools within the St. Louis City, County, St. Charles County, or Jefferson County area.

For more information regarding participation in the LEAP Program, contact EarthWays' Education Coordinator at **earthways.edu@mobot.org** or call (314) 577-0207.

Outreach Programs for Students at EarthWays Center cont'd

Investigate Green Schools (EWC)

Grades: K-12; September-May

Investigate Green Schools is a multi-session program to increase knowledge of what makes a "green school," outline actions that students can take to "green" their buildings, and show how schools can lead community-wide sustainability efforts. A "green school" is a school building or facility that creates a healthy environment that is conducive to learning while saving energy, resources, and money. Teachers and students will assume the roles of energy auditors, building designers, and community advocates as Green Building Ambassadors to present the benefits of going "green" through school board meetings, class projects, public service announcements, and more.

Components of Investigate Green Schools:

- Logistical meetings to review the program, associated activities, and requirements
- Classroom lessons that include background on sustainability, waste, energy production and consumption, and more
- A student-friendly benchmarking audit to collect data about the school
- Student-developed recommendations and presentations for school building improvements to school/district stakeholders, classmates, and the community to suggest potential changes that will reduce the school's environmental impact

For more information regarding participation in the Investigate Green Schools Program, contact EarthWays' Education Manager at **earthways.edu@ mobot.org** or call (314) 577-0207.

Personalized Sustainable Classroom Presentation

Grades: K-12: Year-round

EarthWays can offer personalized presentations on a variety of topics including (but not limited to) energy efficiency, renewable energy, waste reduction, recycling, composting, air quality, and household hazardous waste. Sample lessons could include:



- Design a Blade for a Windmill
- Solar Energy
- Design an Energy-Efficient Home
- · Energy Sources and Forms
- Investigate Decomposers Up-close
- Lunch Waste Reduction Design Lab

Capacity: one class or a whole grade-level of classes; length of program: 1-3 hours. For more information regarding participation in the Personalized Sustainable Classroom Presentation Program, contact EarthWays' Education Coordinator at earthways.edu@mobot.org or call (314) 577-0207.

Green Schools Quest

Through the Green Schools Quest, the U.S. Green Building Council—Missouri Gateway Chapter challenges public and private schools in Missouri and southern Illinois to devise and implement, with the help of Green Mentors, the most creative, effective and no or low cost sustainable practices for



their schools. Each school forms a Green Team, which may be a single classroom, a grade level, an entire school, or a student club. Each team selects a low or no cost sustainability project to begin in October and conclude in mid-March. Participating schools have the opportunity and flexibility to engage in projects fitting their schools' unique needs and resources. With the help of their mentor, each Green Team documents their impact during the project and submits their project's process and impact at the conclusion of the Ouest for judging by an impartial panel. Cash awards and trophies are presented to three participants in each category: Elementary, Middle, and High School. Five additional awards will be presented across the categories: Rookie of the Year (new to the GSO), Sustainability Champion (3 or more years of GSQ participation), Focus of the Year (Focus is Community Engagement. Registration for both schools and mentors for the 2018-19 Green Schools Ouest closes September 2018. For more information on this free program, visit usgbc-mogateway.org/green-school-quest/

The Green Schools Quest requires only one member of a school's faculty to serve as the facilitator.

For more information regarding participation in the Green Schools Quest Program, contact EarthWays' Education Manager at **earthways.edu@mobot.org** or call (314) 577-0207.

Outreach Programs

delivered by the Butterfly House

Butterfly House outreach programs are available year-round to school groups, libraries, and summer camp programs. Standard programs run 45 minutes each and can accommodate up to 35 students. Flexible timing is available with advance notice. Please contact us for details. Up to three programs may be scheduled during a single visit. Please plan to provide a 10-minute break between program sessions. A dedicated program space is preferred. Outreach program fees run \$150 for the first session and \$50 for additional sessions of the same program held on the same day at the same site. (Please note that an additional mileage fee may apply for schools located more than 20 miles from the Butterfly House.)

Registration Information

- Registration for Fall 2018 programs will open on May 1, 2018. Registration for Spring and Summer 2019 programs will be available beginning November 1, 2018. All registrations are accepted on a first-come, first-served basis.
- Outreach sessions must be booked at least 2 weeks in advance of your intended program date. Dates and times are subject to availability, so registering early is strongly advised.

To book your outreach program online visit **butterflyhouse.org/outreach** or call (314) 577–0888 ext.2 to book your program.

Story of a Butterfly

Grades PreK-K, Year-round

Young children will learn about metamorphosis and the butterfly life cycle, the parts of a butterfly's body, and learn how its survival needs are similar to and different from those of plants and other animals. Capacity: 35 students; length of program: 45 minutes

Hide a Butterfly

Grades PreK-1, Year-round

Learn to identify parts of a flower, create a naturescene mural, and learn about camouflage of butterflies. Capacity: 35 students; length of program: 45 minutes

A-MAZE-ing Cockroaches (BH)

Grades: K-5; Year-round

Can cockroaches learn or will they stay lost? Replicate a famous study by one scientist Charles Henry Turner. Capacity: 35 students; length of program: 45 minutes

Butterfly Biology (BH)

Grades: K–5; Year-round

Metamorphosis, anatomy, and butterfly behaviors are discussed with hands-on demonstrations. *Capacity: 35 students; length of program: 45 minutes*

The World According to Insects (BH)

Grades: K-5; Year-round

Learn the exciting and valuable jobs insects have while interacting with living insects. This program features our largest variety of living animals. *Capacity: 35 students; length of program: 45 minutes*

Arthropod Anatomy

Grades 6-12; Year-round

Become an entomologist and take a closer look at what makes insects similar to and different from other animals. Learn to identify their unique body parts, and discuss the roles each plays in the insect's survival. *Capacity: 35 students; length of program: 45 minutes*



Family and Community Engagement

School Community Engagement Events

The Center for Nature-Inspired Learning teams are happy to help with school-based events that engage your student families and school communities! Whether your plans call for speakers, tabled demonstrations, make-and-take activities or formal presentations, we will work with you to create an engaging experience around plants, local ecology and sustainability! Consider inviting us to be a part of your next STEM fair, Math and Science Night, Career Day, or school assembly!

Visit **mobot.org/schoolprograms** to learn more and submit your request! Requests are honored on a first come, first served basis, and are subject to staff and resource availability.



Dig-In Events at your School (MBG)

You value your school's grounds—help your students' families and local community do the same by hosting a "Dig-In" event at your school during spring and fall.

Dig-Ins are designed to bring together a school community around maintaining and improving the school's grounds, either through basic maintenance, planting, or even construction of enhancements for teacher and student use. In addition, these events can be a great opportunity to provide training for community members who might be interested in learning tips and tricks for maintaining their own green spaces.

The Missouri Botanical Garden is happy to partner with you to organize your Dig-In event! Our education staff can provide training, equipment, and gloves, as well as guidelines for event planning and suggested materials sources. Call (314) 577-5185 for more information.



Project Pollinator (BH)

In 2016, the Butterfly House and the St. Louis County Parks system partnered to issue a challenge to the municipalities of St. Louis County to plant pollinator gardens in public spaces. St. Louis County schools can join in the effort by planting pollinator gardens in their schoolyards. The Butterfly House's education team offers outreach programming and garden design support through this partnership. Contact the Butterfly House at (314) 577-0888 ext. 2 or visit the Project Pollinator website at **butterflyhouse.org/projectpollinator** for more information. Together, we can work to restore habitats and improve the health of native pollinators!



Programs for Teens

MBG Teen Network



MBG's Teen Programs engage teens in a network of opportunities through foundational programming based in several core areas: environmental education, field research, service learning, gardening, and connecting with nature. We engage and equip teens with the knowledge, understanding, skills, and passion to make environmentally informed, sustainable decisions that are needed now more than ever. For more information on these programs, visit **mobot.org/teenprograms**.

Teen Service Opportunities







Butterfly House



Shaw Nature Reserve



The "Students as Garden Educators" (SAGE) program provides students ages 14–18 with an opportunity to lead fun activities about plants and nature in the Children's Garden during the summer. Students earn service hours while developing public speaking and teaching skills and help families learn about topics like habitats, pollination, or plants we eat. Contact the Missouri Botanical Garden at (314) 577-5185 for more information.



The MANTIS (Making Advocates of Nature Loving Teens in Service) program was created to invite students ages 14–18 to gain knowledge about plants and animals through environmental stewardship, and to develop leadership skills while assisting with visitor engagement at the Butterfly House. MANTIS volunteers teach visitors about plants, butterflies, and other invertebrates, as well as the ecosystems they live in. Contact the Butterfly House at (314) 577-0888 for more information.

SNR ECOLOGY

Beginning in the 4–5 grades, the Shaw Nature Reserve Ecology Club teams experience a series of outdoor-focused programs to engage student curiosity, grow connections to nature, and develop leadership skills and self-confidence. They begin learning about Missouri's diverse habitats as Habitat Helpers. They can then graduate to the H₂Os program (6–8 grades), in which they will learn about conservation efforts. Contact the Shaw Nature Reserve team at (314) 577–9523 for more information.

Field Science Opportunities

SIFT (Shaw Institute for Field Training) is an informal field-based education program for high school students who apply during the spring of their freshman or sophomore year. Participants are introduced to a variety of Missouri ecosystems and gain skills necessary to conduct field research including plant and animal identification, biotic sampling and census techniques, testing of abiotic factors, and GPS training. Contact the Shaw Nature Reserve Team at (314) 577-9528 for more information.

The MBG Teen Network also includes student participants in our ECO-ACT program. Please see page 36 for more information!

Programs for Schools & Teachers

Teacher Professional Development Workshops

As fellow educators, the Garden's team of environmental instructors, naturalists, early childhood specialists, teen program coordinators, and other professionals consider our relationships with local teachers among the most important, powerful, and gratifying elements of our work. Throughout our efforts, we strive to complement, support, and celebrate the work of classroom teachers in ways that enable life-shaping learning experiences while deepening connections with plants and the natural world. In this spirit, we consider our ever-evolving work with teachers, schools, and entire districts among our most important partnerships, and invite all educators to do the same.





Educator Memberships

Join the Garden and help realize the mission set forth by Henry Shaw to discover and share knowledge about plants and their environment in order to preserve and enrich life.

Members receive great benefits including:

- Free admission to all of our attraction sites
- · Retail discounts
- Access to special members-only events and much more!

Educators who become MBG members also receive:

- Discounted rates on professional development workshops and public programs classes
- Priority booking for field trips and special school group events
- Free membership to the Stupp Teacher Resource Center

Visit mobot.org/membership to learn more!

Schoolyard STE(A)M Workshops

Interested in infusing your school curriculum with more STE(A)M-based content, but concerned about the equipment and costs? Believe it or not, your school already offers you a fully-equipped STE(A)M laboratory right outside your door! Every schoolyard, whether a lush lawn or a concrete jungle, offers rich opportunities for students to explore ecology, solve real-world problems, and even experiment with urban planning.

These workshops are designed to show your teachers some of the possibilities! Schedule them as a series, or as standalone experiences.

Registration Information

- You may register up to 1 year prior to your desired program date. Requests must be received at least 4 weeks prior to your intended program date to allow for prep time. Dates and times are subject to availability.
- Workshops can be scheduled at your site as part of a school-wide Professional Development day, after school, or on weekends.
- Workshops can be scheduled at your school or at the Missouri Botanical Garden, per your preference.
- Cost: \$150 per workshop for up to 30 teachers, plus mileage charges for workshops held at sites more than 20 miles from the Missouri Botanical Garden. Up to 3 workshops can be scheduled on the same day at the same site.

Schoolyard Field Guide

Appropriate for Grades: K-12; September-November, March-May, Summers

Odds are you walk past your schoolyard every day as you enter and leave school, but how much do you and your students really know about what grows there? Using citizen science tools and easy-to-access online resources, teachers can guide students through the techniques real botanists use, integrating math, science, and engineering principles to observe and interpret data about plant populations and biodiversity in your schoolyard. Students then use literacy and communication skills to create a documented field guide to their schoolyard. *Capacity: 30 teachers; length of program: 90 minutes*



Schoolyard Phenology

Appropriate for Grades: PreK-12; September-May, Summers

The term "phenology" may be unfamiliar to many, but odds are teachers are already talking about it with their students every day! Phenology is the study of seasonal phenomena, specifically how plants and animals respond to the changing seasons throughout the year. In recent years the field has received increasing attention as scientists use phenological data to track climactic changes. The best part—phenology is a year-round study that can be undertaken by students as young as preschool! In this workshop, we'll talk about the major phenomena students observe in your schoolyard, and how to use phenology as a means of introducing principles related to data collection and participation in global citizen science efforts. Capacity: 30 teachers; length of program: 90 minutes

Schoolvard Action Planning

Appropriate for Grades: K–12; September–November, March–May, Summers

Would teaching students outdoors be easier if only your school had... an outdoor classroom? Raised beds? A butterfly garden? Whatever your aspirations, this workshop will help your teachers and staff to take a critical look at what assets your school's grounds and community already offer, explore possibilities and develop ideas, and collaborate to create an action plan that can be presented to community members and funders to gain support. *Capacity: 30 teachers; length of program: 90 minutes*

Programs for Schools & Teachers cont'd

Summer Workshops and **Summits**

Each summer, we offer a series of workshops and summits that reflect input from teachers, previous programs, and timely events. As such, our offerings refresh each summer. To check out the newest "crop" of summer programming for educators, visit us online at **mobot.org/schoolprograms.**

MBG Education E-Scoop

Teachers are encouraged to register at **mobot.org/school programs** to receive our monthly e-newsletter, the Education E-Scoop. This resource features outdoor learning tips, science and literacy links, as well as news about upcoming programs for teachers, students, and families at the Missouri Botanical Garden.



Internships and Practicums

The Missouri Botanical Garden's sites offer a variety of professional experience opportunities that provide on-the-job learning, networking prospects and mentorship across a variety of fields. Students will have opportunities to be mentored by leaders in their field, to experience strategies and best practices firsthand, and to make professional connections. Here are just a few of the opportunities currently available:

Missouri Botanical Garden

- School Programs—PreK-8th Grade
- School Programs—Teens
- Horticulture
- Communications
- Sustainability—US Green Building Council
- Sustainability Education—EarthWays Center

Butterfly House

- Education
- Entomology
- Project Pollinator

Litzsinger Road Ecology Center

• Place-Based Education

Shaw Nature Reserve

Education

Interns receive free admission to the Garden, as well as discounts at our retail shops and Sassafras café during the internship period. While most internship opportunities are unpaid, paid opportunities are sometimes available as well.

Visit **mobot.org/jobs** to see a complete list of current internship opportunities and to apply online.



Sustainability Professional Development Programs from the EarthWays Center



EarthWays Sustainability Network (ESN)

The EarthWays Sustainability Network is a yearlong professional development opportunity designed to help schools build effective Green Teams, and make organized, impactful changes. As part of the Network, a teacher from the school will be provided with background information, materials, lessons and training on a range of strategies for helping students complete projects at the school that reduce the amount of solid waste generated and become more sustainable. With the help of EarthWays staff, the school will measure the success of their initiatives through waste audits, assessments, and surveys.

Teaching Beyond the 3 Rs Workshop for Educators

Available to all educators (formal and informal) and administrators of all grade levels.

The "Thinking Beyond the 3 Rs" workshop will be held at the Missouri Botanical Garden in February of 2019. This workshop will explore current issues in waste management and develop a better understanding of an individual's waste stream. Attendees will learn how to develop an action plan for making the concepts of reducing, reusing, and recycling relevant to their students. Participants will take a special field trip to a local landfill to see the operation firsthand. Teachers will receive the opportunity for continued project mentoring during the school year as a result of completing the workshop.

Sustainability Institute for Educators

June 18–20, 2019 Available to teachers and administrators of all grade levels.



Since 2011 the Sustainability Institute for Educators has

helped prepare educators to understand the science, economics, and social implications of our world. This 3-day Institute challenges participants to examine current issues in sustainability while considering how people and schools are connected to these issues. Through hands-on activities, special guest lecturers, certificate programs, and more educators build awareness, increase knowledge and demonstrate understanding of core concepts, content, and habits in sustainable learning and living. Participants leave with tools, resources, and new perspectives about the world around them to take back to their school community.

The 9th annual Institute will take place June 18–20, 2019 and is produced in partnership by Webster University, Missouri Botanical Garden, U.S. Green Building Council—Missouri Gateway, Madison County Planning and Development, St. Louis Zoo, and Mary Institute and Country Day School. The fee is \$150 for 3 days. Full and partial scholarships are available. Graduate credit is available. More details at webster.edu/sie

For more information regarding participation in EarthWays Center Sustainability Professional Development Programs, contact EarthWays' Education Manager at **earthways.edu@mobot.org** or call (314) 577-0207.

Professional Development Outreach: Sustainability:

For Teachers of Grades K-12; August-May; Available Year Round

EarthWays offers a variety of teacher professional development opportunities focused on integrating sustainability into the K-12 classroom including energy, energy efficiency and conservation, waste reduction, recycling, human effects on the environment, green cleaning alternatives, stormwater management, and green living through customized opportunities on demand. Teacher professional development workshops can be held on any scale from a single school, group of schools or for a team of teachers. To develop a unique professional development for your school contact us today!

Capacity: 5 to 100 teachers; length of program: 1/2 day or full day opportunities.

Programs for Schools & Teachers

School Partnership Opportunities

The Saigh Foundation



The Saigh Foundation Environmental Leadership Program (Eco-Act)

Overview

Eco-Act is an environmental leadership program for juniors and seniors in high school, operated by the Missouri Botanical Garden in partnership with St. Louis area schools and districts that has been around since 1981. Students enroll for a full year and receive course credit or community service credit from their schools. During the program participants:

- Teach 4th grade classes an ecology lesson once a week during the school year.
- Research and present on local environmental issues.
- Attend outdoor adventure activities to increase ecology knowledge, to communication and teamwork skills, and to gain confidence

Program Components

- 1. Participants complete 3 weeks of summer training lead by MBG staff.
- 2. Participants have a class period scheduled into their course load for Eco-Act to teach in prepare for teaching, teach in the 4th grade classroom, and complete group projects.
- Participants attend a monthly afterschool workshop at the Garden.
- 4. Participants attend a weekend outing once a semester.

Get Involved

Discussions begin with new high schools for the 2019–2020 school year this fall.

For more information, contact the Eco-Act Program Manager at (314) 577-0241 or **eco-act@mobot.org**. Visit **mobot.org/teenprograms** for more information.







Programs for Schools & Teachers cont'd

Litzsinger Road Ecology Center (LREC)

Teacher Partnerships in Place-Based Education

for teachers in grades 3 and above

Learn how to engage your students in the community and improve the environment as you achieve your curriculum goals. You'll also be joining a regional network of place-based educators committed to engaging students in the community.

LREC currently offers three different models for year-long collaboration. All partnerships begin with **Effective Outdoor Learning (EOL)**. Two advanced programs, **Sustainable Schoolyards (SS)** and **Place-based Learning (PBL)**, are available to EOL graduates. *Programs through LREC are offered at no cost, including bus transportation*.







All partnerships begin with **Effective Outdoor Learning**

Effective Outdoor Learning graduates may choose from

Sustainable Schoolyards

Place-based Learning

Effective Outdoor Learning

This program consists of a summer workshop, school year expectations, class visits to Litzsinger Road Ecology Center and a staff mentor. In this entry-level program, teachers are introduced to techniques for using the schoolyard and community as a rich learning environment.

Sustainable Schoolyards

In this advanced program, teachers develop plans to guide students as they create and maintain a a schoolyard natural habitat while addressing learning standards across the curriculum.

Place-based Learning

In this advanced program, teachers reflect on their practice and deepen their capacity to apply principles of experiential learning. Teachers work as a professional community to develop and offer feedback on curriculum designs that draw on the unique resources of each participant's community.

Contact Eddie Jones, Program Manager, at eddie@lrec.net or visit litzsinger.org for more information.

COMMECTIME SCOUTS TO MATURE

Programs and Workshops



Explore the world of insects, go for a hike, or get your hands dirty planting a seed!

Scouts enjoy a variety of hands-on, nature and STEM-based programming at all three of our sites: Missouri Botanical Garden, Shaw Nature Reserve, and the Butterfly House.

Programs are aligned with badge and award requirements.

- Programs for Troops
- Badge Workshops for Individual Scouts
- Scout Night at the Missouri Botanical Garden
- Merit Badge Skill Centers for Boy Scouts
- Overnights at the Missouri Botanical Garden and Shaw Nature Reserve



Treat Yourself!

Enjoy some well-deserved time away from your hectic life. Indulge in garden therapy or learn a new craft for gifting or home decorating. No matter what you pick, it will be a relaxing, fun experience you'll never forget!



Registration
Begins August 1

mobot.org/adultclasses



did you know?

Members always recieve discounted prices on classes.

Become a member today!

(314) 577-5118 membership@mobot.org mobot.org/membership

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The Garden's education programs, serving local students, teachers, and schools, are made possible with the generous support of:

















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