Missouri Botanical Garden

SHAW **NATURE** Reserve Butterfly House



School Programs 2017-2018





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

www.mobot.org/schoolprograms



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School Programs 2017–2018



- mission of the Missouri Botanical Garden

SHAW NATURE

₩ Missouri Botanical Garden



www.mobot.org/schoolprograms

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 literally transform landscapes and lives.

How will you discover + share?

Missouri Botanical Garden

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.

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

Who We Are

To answer the "who we are" question is not as simple as it seems. Yes, we are educators who love plants, nature, and the great outdoors. We are also sons, daughters, sisters, brothers, parents, spouses, and partners. We are artists, musicians, gardeners, chefs, birders, hikers, readers, writers, and day-dreamers. We are problem-solvers, tinkerers, and collaborators. We are citizens.

But as you review this catalog of our experiences designed for students, teachers, and schools, please know this: We are your colleagues. And on behalf of the super-talented, passionate, and purposeful team of educators listed below, thank you for all you do and how you do it. We are so looking forward to another year ahead of worthy, meaningful work with you.

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Our Sites



Missouri Botanical 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

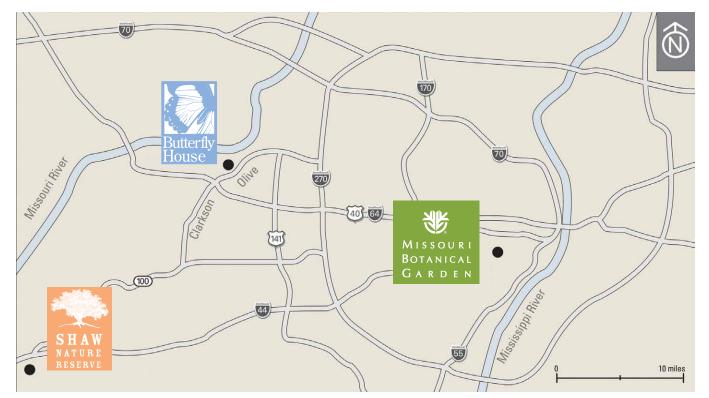
- Located in Chesterfield, Missouri.
- Celebrates the role that butterflies and other insects play in our everyday lives and global world.
- Offers unique opportunity to observe butterflies in 2 distinct habitats: native and tropical.
- The first dedicated all-insect facility in the U.S. accredited by the Association of Zoos and Aquariums.
- Partners with a sustainable butterfly farming operation, El Bosque Nuevo in Costa Rica.



Shaw Nature Reserve

- Located in Gray Summit, 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.



Programs for Students

The Garden's work with students spans the early childhood years through graduate fellowships and post-doctoral studies, and 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 multi-disciplinary 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, and
- 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.







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* These programs are offered during specific months of the school year. See program description for details.

| 4th Grade | 5th Grade | Middle School | High School | | | |
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biodiverse *City*

Throughout St. Louis, every day, people are making big and small changes to their backyards, balconies, streetscapes, schoolyards, parking lots, and play areas. Some are doing this because they love nature and want to experience more of it in their daily lives.

Others recognize that native plants in the right places help prevent flooding, clean and cool our air and improve human health and well-being.

Still others embrace the positive impact that leafy streets, accessible parks, hiking/biking trails and other quality green spaces have on property values and the economic vibrancy of our region.

Get involved with this evergrowing network of people and organizations committed to transforming landscapes and lives!

BiodiverseCitySTL School Network page 37



Interested in an Internship? See page 38 for more information!

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* These programs are offered during specific months of the school year. See program description for details.

| 4th Grade | 5th Grade | Middle School | High School | |
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Interested in an Internship? See page 38 for more information!



There are so many ways to **volunteer** at the Garden, Butterfly House, or Shaw Nature Reserve!

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

Interested? Please visit www.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 school group visits throughout the year. Our programs introduce students to the Garden's historic and scientific significance using inquiry-based, standards-aligned activities. For up-to-date information about our programs, upcoming events, and policies, please visit our website at **www.mobot.org/schoolprograms** or call our office at (314) 577-5185.

Zoo-Museum District Schools (ZMD)

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 thanks to the support of the Metropolitan Zoo-Museum District.

Onsite Visit Options:

- Self-Guided Visits Design your own experience! Resources can be found at www.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 NEW! 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 planting 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. Cost: \$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. *Cost: \$3/student, payable upon arrival.*

How to Register:

- Registration for Fall 2017 programs will open on July 17, 2017. Spring 2018 programs will be available beginning November 1, 2017. All registrations are accepted on a first-come, first-served basis.
- For fastest service, submit your registration request online at **www.mobot.org/schoolprograms**. You can also book by calling (314) 577-5185.
- Plan to bring **1 adult for every 5 students.** Program fees for tours and classes include admission for up to 6 adults with a standard program and 12 adults for a large program. One adult is also admitted free of charge for every 5 students attending a self-guided visit. All additional adults are admitted at standard admission prices.



Seasonal Programs (Early Childhood)

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 (Elementary)

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: 60 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*

Programs for Students at the Missouri Botanical Garden cont'd

Soil: From the Ground Up (MBG)

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

Soil is everywhere, but how did it get there? Why it is so important to plants and people? Students will explore the processes that create and maintain the essential components of healthy soils, then head out into the Garden to investigate how soil differs across different environments. *Capacity: 60 students; length of program: 120 minutes*

PlantLab Programs (Intermediate)

Flower Physiology (MBG)

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

Extend your students' study of flower anatomy and pollination at the Garden. Students will examine flower parts to expand their understanding of the interaction between form and function. *Capacity: 30 students; length of program: 50 minutes*

Survivor (MBG)

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

Why are leaves scented? Why do some plants eat insects? Why do cacti have spines? Learn about the challenges plants face to survive day to day, and the adaptations that help them do so. *Capacity: 30 students; length of program: 60 minutes*



Multidisciplinary Classes (Middle/High School)

Asian Gardens: Science and Culture (MBG)

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

Explore Far 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, get a glimpse of 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 that spreads out over 8.5 acres and includes 23 demonstration gardens! During the tour, students will learn about the 6 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 going on a seed hunt 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 rain forest complete with waterfalls, tropical birds, and some 1,500 plants. Students will see firsthand the structure of the rain forest, plant adaptation, and the diversity of tropical plants. *Capacity: 30 students; length of program: 60 minutes*

Foodology Guided Tour (MBG)

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

Tour the Center for Home Gardening and learn the origins of our favorite foods. Witness modern-day agricultural practices and learn about 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 www.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 **www.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 www.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 **www.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

EarthWays Center is 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 www.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.

Sustainability and Science:

Grades: 6-8; September-December and Februrary–May

This 3-hour experience in science and sustainability connections at the Garden highlights real-world science, conservation, and sustainability (initiatives, careers, and programs). Students will build a better understanding of the principles of sustainability as they work together to define the term and understand its meaning. Local scientists will share their stories of field work and educational experiences related to science and conservation. The program will conclude with a guided tour of the Garden and a hands-on activity to help students make connections between the field of science and sustainable living.

Programs for Students at the Butterfly House

School group classes at the Sophia M. Sachs

Butterfly House include hands-on, inquiry-based investigations that align with the Missouri Science Standards. We use living animals and real specimens, not easily obtained for classroom use, and each class includes an unforgettable trip through our tropical conservatory of living butterflies. Groups are also welcome to come for a self-guided visit. We encourage teachers to book as early as possible, given limited capacity on high-demand dates.



Onsite Visit Options:

- **Docent-Led Classes**—Classes run 90 minutes and include hands-on activities, animal encounters, and a guided walk through the tropical conservatory. *Standard (up to 35 students): \$150; Large (up to 70 students divided into 2 groups): \$300*
- Self-Guided Visits—Design your own experience! Cost is \$4 per student. Scavenger hunts and other resources may be downloaded at our website: www.butterflyhouse.org/schoolprograms.
- **Guided Tours**—Learn about our facility, our butterflies, and our conservation efforts in a guided tour led by Butterfly House staff. *Fee: \$6 per student, \$9 per adult.*

How to register:

- Registration for Fall 2017 programming opens on May 1, 2017. Registration for Spring 2018 programming opens on November 1, 2017. Please register at least 2 weeks in advance of your desired program date. All registrations are accepted on a first-come, first-served basis.
- Classes are offered Tuesdays through Fridays, with sessions beginning at 9:30 and 11:30 a.m.
- Fees for docent-led classes include up to 7 adults for a standard class, and up to 14 adults for a large class. (Please note that due to space considerations, a maximum of 10 adults will be permitted in the Lopata Learning Lab during field trip classes.) Additional adults are admitted at normal admission rates.
- Self-guided groups are admitted at standard group rates: \$4 per child (ages 2–12), and \$7 per adult (13 and up). Teachers and paraprofessionals are admitted free of charge.
- Visit our website at **www.butterflyhouse.org/schoolprograms** or call us at (636) 530-0076 extension 10 for more information or to request a class.

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: 70 students; length of program: 60 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: 70 students; length of program: 90 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*

Living the Butterfly Life (BH)

Grades: 3–5; Year-round

Students observe living insects to compare and contrast different life cycles. We will discuss the role of plants, insects, and decomposers in the environment, and learn how matter moves through these organisms. Students will then use a dichotomous key to identify species of butterflies and learn what it takes for a species to have variations. *Capacity: 70 students; length of program: 90 minutes*

Take a Walk with Butterflies (BH)

Grades: 3-5; Year-round

Learn the butterfly's body parts, adaptations, and life cycle at a series of hands-on stations. Students will compare the ways butterflies survive to the survival strategies used by other insects. We will examine many of the special body structures that help them in different environments, and use magnifying lenses to view them in detail. We will also explore the insects' senses and the ways they respond to their environment. *Capacity: 70 students; length of program: 90 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 **www.shawnature.org** or call our office at (636) 451–3512.

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 2017 programs will open on May 1, 2017. Registration for Maple Syrup classes in January of 2018 opens on October 1, 2017. Registration for all other Spring 2018 programs will open on November 1, 2017. All registrations are accepted on a first-come, first-served basis.
- Call (636)-451-3412 ext. 6008 or e-mail karen.bryan@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 | Bug Buddies Trees and Me | On the Water's Edge | Aquatic Ecology | |
| October | Earthwalks | Trees and Me SNR Critters | Little Houses on the Prairie | Tallgrass Prairie | |
| November | Earthwalks | | In Plain Sight | Animal Adaptations People and the Prairie | |
| December | NO CLASSES | | | | |
| January | | | | Maple Syrup Making | |
| February | | | | Maple Syrup Making | |
| March | Earthwalks | Trees and Me | In Plain Sight | Animal Adaptations People and the Prairie | |
| April | Earthwalks | Trees and Me | Our Forest Neighbors | Forest Ecology | |
| Мау | Earthwalks | Bug Buddies | On the Water's Edge | Wetland Ecology | |

Programs for Students at Shaw Nature Reserve cont'd



Little Acorns Trail (SNR) Grades: PreK–1; 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*

Bug Buddies (SNR)

Grades: PreK; September, May

Come discover what creepy, crawly critters call Shaw Nature Reserve home. We will explore what helps these creatures to survive. Students will have a chance to explore the world of bugs up close. *Capacity: 24 students; length of program: 60 minutes; fee: \$2 per student*

SNR Critters (SNR)

Grades: PreK; October

What kind of animals can be found at the Nature Reserve? Do they stick around for the winter, migrate south, or just hibernate? Join us to find out what the critters of the Shaw Nature Reserve will be doing to get ready for cold weather. *Capacity: 24 students; length of program: 60 minutes; fee: \$2 per student*

Trees and Me (SNR)

Grades: PreK-K; September-October, March-April

In this fun, hands-on class students will learn about the different parts of a tree. Participants will use a combination of observation, discovery, and exploration to expand their knowledge. This class will be held in the forests of the Shaw Nature Reserve, where something interesting is always happening. *Capacity: 24 students; length of program: 60 minutes; fee: \$2 per student*

Earthwalks

Grades: PreK-8; September-November, March-May

An introductory exploration into the wonders of the natural world. Instructors will lead your students through special activities using the five senses. Depending on the season, your students might use their sense of touch to identify a natural object, make tea, or use a mirror to simulate how different animals see. The five senses will be awakened during this light and comfortable approach to nature. *Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student*

In Plain Sight (SNR)

Grades: 1-3; November, March

This class teaches young learners all about camouflage. Through a series of fun games and activities, students will learn about a wide variety of animals and how camouflage helps them to survive. This class also covers predator/prey relationships, with an emphasis on how camouflage is used by both predators and prey in their daily struggle to survive. In addition, the class will explain 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

This class is based on the book *Little House on the Prairie* written by Laura Ingalls Wilder. Excerpts from the book are matched with hands-on activities. Students will have a chance to see what it was like for people settling out on the prairie. They will compare the benefits and disadvantages of living in a tipi to those of living in a sod house. *Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student*

On the Water's Edge (SNR)

Grades: 1-3; September, May

On The Water's Edge is based on the book *Around the Pond: Who's Been Here?* by Lindsay Barrett George. Hands-on activities are used as students compare the terrestrial community to the aquatic community. Students will be exploring the Wolf Run Lake area. *Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student*

Our Forest Neighbors (SNR)

Grades: 1–3; April

Who lives in the forest in Missouri? Come explore the forest ecosystem and learn about some of the residents and how their unique adaptations help them to survive in this special community. *Capacity: 60 students; length of program: 120 minutes; fee: \$2 per student*

Bugs, Beaks, and Beasties: Animal Adaptations (SNR) *Grades: 4–5; November, March*

In this class students explore, through hands-on activities, some of the fascinating adaptations animals have for surviving in their environment. How are different bird beaks adapted to eating certain foods? What special adaptations do humans have that allow us to do everyday tasks? Students learn about camouflage on the "Un-nature Trail" and see examples of organisms that depend on this adaptation for protection. *Capacity: 60 students; length of program:* 120 minutes; fee: \$2 per student

Aquatic Ecology: Wet and Wild (SNR)

Grades: 4-8; September

A whole tiny world lives in the lake community. In small groups, your students will sample the pond for the diversity of organisms living in various zones. They will observe some of the distinguishing characteristics that allow organisms to live underwater and interact with each other. 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: 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? Answers to these and other questions will be discovered as your students explore the upland forest. Through investigations of decomposing logs, comparing and contrasting different areas of the forest using simple equipment such as thermometers, and a variety of other hands-on activities, students develop an understanding that the forest is a diverse and fascinating ecosystem. *Capacity: 60 students; length of program:* 120 minutes; fee: \$2 per student

Programs for Students at Shaw Nature Reserve cont'd



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. Explore the fields and woodlands as your students discover these processes. The annual cycle of sap movement and the importance of sap to trees will be investigated. Help with the collection and cooking down of the sap, and enjoy a sample of this delicious syrup. *Capacity: 60 students; length of program: 120 minutes; fee: \$3 per student*

People and the Prairie (SNR)

Grades: 4-8; November, March

Explore the fascinating history of the people who lived on the prairies in the United States. Discover what type of people called the hot and windy prairie home. Learn how atlatls and rabbit sticks were used and discover what part the trading post played. Try a skill that the cowboys needed to make their way to the railroad lines. Your students will learn about the plants that were used by people on the prairie and will visit 2 types of homes on the prairie. They will learn how fire is used to restore Missouri's prairie today as they discover what an important part the prairie has played in our past and plays in our future. *Capacity: 40 students; length of program: varies; fee: \$2 per student*

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, 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 the 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 to humans alike! *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 a few—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 www.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 make use of up to 4 lodges, each housing between 14 and 19 students for a total of 60 students and 4 adults. Descriptions and photos of our lodges can be found on our website at **www.shawnature.org/danabrown**
- 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 (636) 451–3512 ext. 6081 or e-mail **aileen.abbott@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 (636) 451–3512 ext. 6081.

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



Introduction to Compass (DBOC) Grades: 3–5; Year-round

After a lesson on true north vs. magnetic north, the different parts of a magnetic compass, and after learning the ever important rhyme: "Put red in the shed and follow Fred," students will have their own compass and set of bearings to follow a course around the Nature Reserve in order to find specific destinations. *Capacity: 25 students; length of program: 120 minutes; fee: \$5 per student*

Compass/Orienteering (DBOC)

Grades: 3–5; 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*

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*

Winter Ecology (DBOC)

Grades: 3-5; 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 also includes 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*

Owl Prowl

Grades: 3-12; Year-round

Join us at Shaw Nature Reserve for an Owl Prowl! 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 a local raptor from the neighboring, World Bird Sanctuary, and 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.*

Aquatic Ecology (DBOC)

Grades: 4–8; Year-round

A whole tiny world lives in the lake community. In small groups, your students will sample the pond for the diversity of organisms living in various zones. They will observe some of the distinguishing characteristics that allow aquatic organisms to live underwater and interact with each other. 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*

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*

Birds of a Feather (DBOC)

Grades: 4-8; 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*

Forest Ecology (DBOC)

Grades: 4-8; 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. Through investigations of decomposing logs, comparing and contrasting different areas of the forest using simple equipment, such as thermometers, and a variety of other hands-on activities, students develop an understanding that the forest is a diverse and fascinating ecosystem. *Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student*

Frog Watch (DBOC)

Grades: 4-8; 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 then go to our wetland area to collect data including which species of frogs and toads are heard as well as an estimated population count. This information will then be submitted to the national database via the Saint Louis Zoo. *Capacity: 40 students; length of program: 120 minutes; fee: \$5 per student*

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*

Night Hike (DBOC)

Grades: 4-8; 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 night 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*

River Ecology (DBOC)

Grades: 4-8; 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*



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

Stream Ecology (DBOC)

Grades: 4–8; Year-round

Students will have an opportunity to explore and investigate the life in and around a stream community, and to 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: 4-8; 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*

Insect Ecology

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*

Global Positioning System (GPS) (DBOC)

Grades: 5-8; 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*

Tallgrass Prairie

Grades 6-12; 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 how these plants and animals adapt 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 Reserve uses fire to manage the prairies. *Capacity: 40 students, length of program: 180 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 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 2017 programs will open on July 17, 2017. Registration for Spring and Summer 2018 programs will be available beginning November 1, 2017. 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 **www.mobot.org/schoolprograms**. You may also call our office at (314) 577-5185 to book your program.

Assemblies and Special Events

Interested in including the Missouri Botanical Garden in an assembly other other school event? See page 38 for more information on tabling and presentation options.





Outreach Programs for Students at the Missouri Botanical Garden cont'd

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 1 outreach, or even all 3, for a year-long outdoor adventure! *Capacity: 25 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: 25 students; length of program: 60 minutes*



A Garden Sensory Adventure (MBG) Grades: PreK; Year-round

Explore the 5 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 5 senses journal to take home and share with their parents. *Capacity: 25 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
- On-going support and mentorship of students to meet project goals
- · Support for optional school-wide waste audit
- Access to resources such as field trip experiences to MBG, recycling centers, and local landfills as scheduled
- Approximately 2 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.

www.mobot.org/schoolprograms

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 communitywide 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 USGBC-MISSOURI GATEWAY 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 Quest 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 GSQ), 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 2017–18 Green Schools Quest opens in spring 2017 and closes September 2017. For more information on this free program, visit http://www.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. Programs run 1 hour each and can accommodate up to 35 students. Up to 3 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 2017 programs will open on May 1, 2017. Registration for Spring and Summer 2018 programs will be available beginning November 1, 2017. All registrations are accepted on a first-come, first-served basis.
- Outreach sessions must be booked at least 3 weeks in advance of your intended program date. Dates and times are subject to availability, so registering early is strongly advised.

You may submit your registration request online at **www.butterflyhouse.org/outreach** or call (636) 530-0076 ext. 10 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: 30 students; length of program: 60 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: 30 students; length of program: 60 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 African-American, Charles Henry Turner. *Capacity: 30 students; length of program: 60 minutes*

Butterfly Biology (BH)

Grades: K-5; Year-round

Metamorphosis, anatomy, and butterfly behaviors are discussed with hands-on demonstrations. *Capacity: 30 students; length of program: 60 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: 30 students; length of program: 60 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: 30 students; length of program: 60 minutes*



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 as they grow to solve the complex inter-related social, environmental, and economic problems of our world.

The MBG Teen Network includes the following volunteer programs for students. For more information on these programs, **visit mobot.org/teenprograms**.

Teen Service Opportunities



Missouri Botanical Garden











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 in the Butterfly House conservatory. Contact the Butterfly House at (636) 530-0076 for more information.

SNR ECOLOGY CLUB

Beginning in the 4th and 5th 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, in which they will learn about conservation efforts. H2O participants can then progress into the TEDs (Teen Environmental Detectives) program, during which they will learn about and participate in citizen science efforts that promote Missouri's ecological systems. Contact the Shaw Nature Reserve team at (636) 451-3512, ext. 6008 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.

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, gratifying part of what we do. 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 **www.mobot.org/membership** to learn more!

Pick-Your-Own PD

From gardening practices to nature study and everything in between, the Missouri Botanical Garden offers a full range of weekend, evening and weekday classes, and programs year-round! Classes are available at our 3 campuses throughout the St. Louis area:



the Missouri Botanical Garden, the Shaw Nature Reserve, and the Sophia M. Sachs Butterfly House. Our BiodiverseCity St. Louis "Pick-Your-Own PD" program for educators couples your choice of adult classes and programs with readings in the field and action planning around your chosen topics and their applications for a school environment. Participants who complete the program receive their BiodiverseCity St. Louis Educator certificate and are eligible to apply for up to 3 hours of graduate credit in a given semester. For more information on the classes available, visit www.mobot.org/classes. New program catalogs are published twice yearly in February and August. For more information about the PYOPD program, visit www.mobot.org/schoolprograms and click on "Teacher Professional Development."

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*

Schoolyard 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 **www.mobot.org/schoolprograms.**

MBG Education E-Scoop

Teachers are encouraged to register at **www.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

Theas for Resource Giale

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 **www.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 R's Workshop for Educators

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

The 2018 "Thinking Beyond the 3'Rs workshop will be held at the Missouri Botanical Garden on February 24, 2018. 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 19–20, 2018 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 8th annual Institute will take place June 19–21, 2018 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. Partial scholarships are available. Graduate credit is available. More details at www.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 three 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.
- 3. 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 2018–2019 school year this fall.

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



Litzsinger Road Ecology Center

Litzsinger Road Ecology Center (LREC) helps teachers engage their students in place-based education: using local ecology as a framework for studying a variety of subjects while interacting with the community. LREC and teachers commit to a year-long professional growth partnership.

Teachers who partner with LREC agree to develop and use local outdoor learning spaces that are easily accessible to their students. This work is complemented by targeted field experiences at LREC to advance the learning goals being pursued in the community. LREC staff are prepared to assist with the development and implementation of a curriculum plan. This assistance may include:

- Integrating the field experiences into your curriculum
- Co-leading the field investigations
- Making effective use of the schoolyard or other outdoor spaces
- Developing your own outdoor teaching and learning skills

In order to establish an LREC Teacher Partnership, teachers are required to attend one of our summer workshops during which the partnership proposal process will take place.

BiodiverseCity St. Louis—Schools Network



A community-wide network to increase nature in our everyday lives.

BiodiverseCity St. Louis is a growing network of organizations and individuals throughout the greater St. Louis region who strive to improve quality of life for all through actions that welcome nature into our urban, suburban, and rural communities.

As community "hubs" and "anchors," schools play a critical role in this effort. Consider:



- Are you routinely using your schoolyard and local outdoors as an extension of the classroom? Why or why not? How?
- Would you love to pursue action projects with your students that could transform your schoolyard or community into a "nature park," featuring native wildlife gardens, wildlife homes or feeders, woodlands, wetlands, and trails?
- Are you seeking more hands-on, authentic, science-rich, stewardship-driven, place-based experiences for your students and yourselves?
- To what extent does your own schoolyard and campus reflect what your school and student community are? Diverse? Colorful? Resilient? Connected?
- In what ways could increased quality of everyday life be achieved and sustained if we all lived in, cared for, and connected with each other in a vibrant, leafy green, biodiverse city?

If intrigued with any or all of the above, we encourage you and your peers to stay connected by joining this growing network. Visit **www.mobot.org/schoolprograms** to learn more!



Programs for Families and Community Engagement cont'd

Event Participation

Planning a school assembly? A family engagement night? A career day? Consider making the Missouri Botanical Garden's education teams a part of your day! Whether your event calls for activity tables, assembly programs or formal presentations, we can help!

Visit **www.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

You value your school's grounds—help your student 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.



COMMECTING SCOUTS TO MATURE

Programs and Workshops







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

Notes



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!

Learn more about our Pick-Your-Own PD offer for teachers page 32

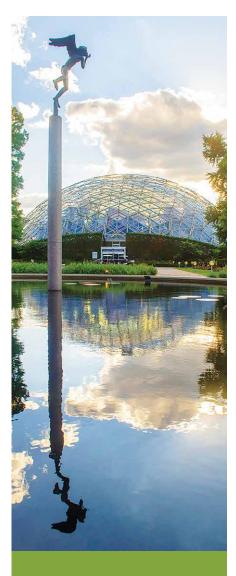
Registration Begins August 1

www.mobot.org/adultclasses

Notes

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Notes



did you know?

Members always recieve discounted prices on classes.

Become a member today!

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



Education Department • www.mobot.org 4344 Shaw Blvd. St. Louis, MO 63110

🖐 Missouri Botanical Garden

Butterfly House

SHAW NATURE

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

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BOEING

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