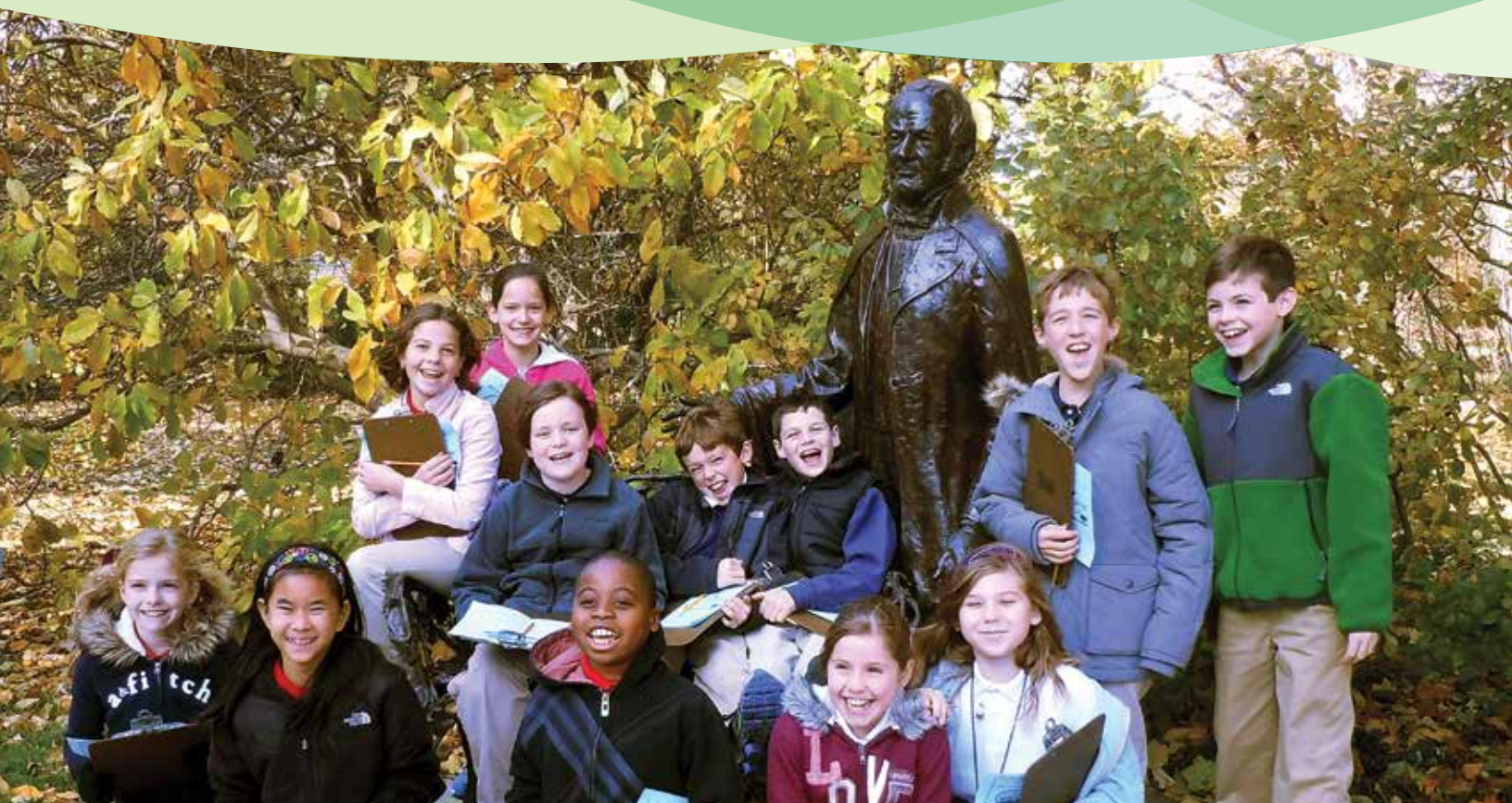




## School Programs 2015–2016



MBG CENTER FOR  
**NATURE-INSPIRED  
LEARNING**

*Transformative experiences for PreK–12  
students, teachers, and schools*

[www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms)





# MBG CENTER FOR NATURE-INSPIRED LEARNING

*Transformative experiences for PreK–12  
students, teachers, and schools*

## School Programs 2015–2016

“ **DISCOVER & SHARE**  
**KNOWLEDGE ABOUT PLANTS &**  
**THEIR ENVIRONMENT**  
**IN ORDER TO & ENRICH LIFE** ”

*– mission of the Missouri Botanical Garden*



MISSOURI BOTANICAL GARDEN



Butterfly  
House

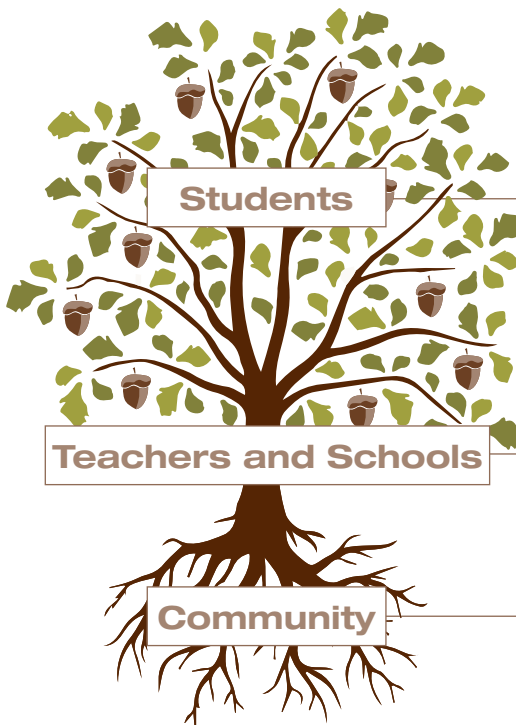


SHAW NATURE  
RESERVE

[www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms)

# What we do

The Missouri Botanical Garden's Center for Nature-Inspired Learning represents the combined efforts of educators from the Missouri Botanical Garden, the Butterfly House, and Shaw Nature Reserve, to promote the development of **curious, creative, informed citizens and communities who are ready, willing, and able to live in sustainable ways.**



To this end, we seek to provide not only learning experiences for students,

but also professional development and institutional support for teachers and schools,

and engagement opportunities for families and communities.

# Our mission

A WORLD OF  
**CURIOUS CREATIVE INFORMED**  
CITIZENS & COMMUNITIES WHO ARE  
**READY WILLING & ABLE TO LIVE**  
IN MORE **SUSTAINABLE WAYS**





# Our programs



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# Who we are

Across our St. Louis-area sites, we have a team of staff and volunteers who bring the Garden's mission to life for a diversity of audiences, from general public visitors to broader community groups. To best serve these audiences, we focus our work on: 1. Visitor Engagement, 2. Student/Teacher/School Engagement, and 3. Community Engagement.

Representing a subset of this broader team, the individuals listed below focus on our work with students, teachers, schools, and districts.

## **Sheila Voss**

Vice President of Education

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## **Missouri Botanical Garden Team**

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Programs

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### **Katherine Golden**

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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.



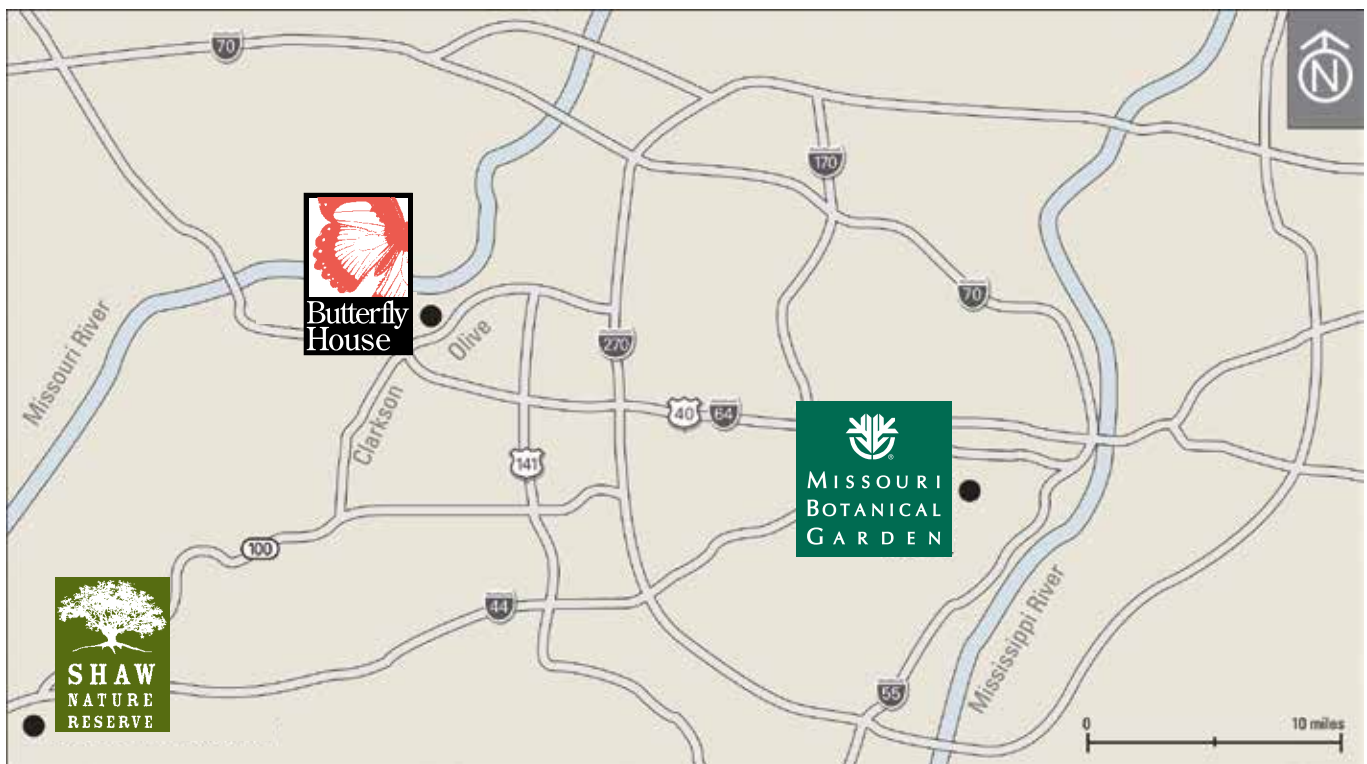
## Butterfly House

- 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 only 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 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.





	Pre-K	Kindergarten	1st Grade	2nd Grade	3rd Grade
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		Heaps of Seeds, 13			
		Tops and Bottoms, 13			
				Soil: From the Ground Up, 13	
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Guided Tours	Curiosity Collectors, 14				
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		Plants from Top to Bottom, 14			
		Tropical Rainforest, 14			
		Sensational Seed Hunt, 14			
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Satchels		In the Garden, 14			
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			Our Forest Neighbors, 17		
			In Plain Sight, 17		
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THE BUTTERFLY HOUSE					
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			Buzzing a Hive, 27		
					Living the Butterfly Life

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<b>MISSOURI BOTANICAL GARDEN</b>						
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				Asian Gardens: Science and Culture, 13		
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	Maple Syrup Making, 17					
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	Wetland Ecology, 18					
	Pond Ecology: Wet and Wild, 18					
	Canopy Climb, 16					
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	Astronomy, 22					
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	Living off the Land, 23					
	Introduction to Compass, 22					
	Compass/Orienteering, 22					
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	Birds of a Feather, 22					
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	Stream Ecology, 24					
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<b>THE BUTTERFLY HOUSE</b>						
Classes	Living the Butterfly Life, 20					
Outreaches	Anansi: the Original Spider Man, 27					
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	Butterfly Biology, 27					
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Internships						School Programs
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<b>SHAW NATURE RESERVE</b>						
Dana Brown Overnight Center	Ecology of Wolves, 22					
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<b>THE BUTTERFLY HOUSE</b>						
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	Arthropod Anatomy					
Internships						Education
						Entomology
						Guest Relations
						Special Events
						Horticulture



# 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](http://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 for a 50% discount on Guided Tour and Garden Class fees and other considerations, as described below, thanks to the generous support of the Metropolitan Zoo-Museum District.

### Onsite Visit Options:

- **Guided Tours** – Take a stroll through the Garden with one of our knowledgeable guides. Tours typically last for 1 to 1.5 hours. Standard (up to 30 students): \$60; Large (up to 60 students): \$120
- **Garden Classes** – Our signature Garden Class programs include both indoor and outdoor activities around a given topic. Programs typically last 2 to 2.5 hours and include a take-home planting for each student. Standard (up to 30 students): \$100; Large (up to 60 students): \$200
- **Self-Guided Visits** – Design your own experience! Resources can be found at [www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms). Admission is free for all ZMD students and non-ZMD students in grades PreK–8th grade. Non-ZMD students in grades 9 and above are admitted at \$6/student.
- **Shaw's Satchels** – Lead your own program using our handy activity satchels! Each satchel contains the materials necessary to accommodate up to 10 students. Checkout fee: \$5/satchel (This fee is waived for ZMD school groups.)
- **Children's Garden** visits (April through October) may be scheduled as a standalone experience or in addition to Garden Classes, Guided Tours, or Self-Guided Visits. Admission cost is \$3 per student. Groups **MUST** pre-register to be admitted at this reduced rate, and capacity is limited.

### How to Register:

- Registration for Fall 2015 programs will open on July 13, 2015. Registration for Spring 2016 programs will be available beginning November 2, 2015. All registrations are accepted on a first-come, first-served basis.
- For fastest service, submit your registration request online at [www.mobot.org/schoolprograms](http://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. 1 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.

### **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*

### **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 and traditions that influenced each garden's design. 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; length of program: 150 minutes*

### **Foodology (MBG)**

*Grades: 3–8; 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 ecological considerations like pollination and soil ecology. *Capacity: 60 students; length of program: 120 minutes*

### **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 floral show! This unique program includes a guided tour of the show, during which you and your students can see our 6 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.

Each classroom that attends receives a free themed resource kit to take back to the classroom. *Capacity: 25 students; length of program: 45 minutes*

### **Heaps of Seeds (MBG)**

*Grades: K–2; September–December*

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*

### **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*

### **Soil: From the Ground Up (MBG)**

*Grades: 2–5; 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*

### **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*

## Programs for Students at the Missouri Botanical Garden con't

### 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: 60 students; length of program: 60 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: 60 students; length of program: 60 minutes*

### Sensational Seed Hunt Guided Tour (MBG)

*Grades: K-2; September-December*

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 throughout the Garden! *Capacity: 60 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 first-hand the structure of the rain forest, plant adaptation, and the diversity of tropical plants. *Capacity: 60 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: 60 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 "wet strolling garden," to discover how Japanese traditions are reflected in that garden's design. *Capacity: 60 students; length of program: 60 minutes*

### 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. *Capacity: 60 students; length of program: 60 minutes*

### Shaw's Satchels (MBG)

Are you interested in exploring the Garden with your students on your own, but not sure where to start? Consider reserving Shaw's Satchels for your visit. Each pack contains maps, activity suggestions, and enough materials for 10 students to complete them. Educator's guides for our satchels can be downloaded from our website at [www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms)

### Available satchels include:

- Grades K–2: In the Garden – Explore the Garden using your 5 senses.
- Grades 3–5: Horticulture – Learn how gardens grow
- Grades 3–8: Tree Trek – Learn the history of trees, practice identifying them, and other activities.
- Grades 6–8: The Rainforest – Investigate this unique, exotic habitat and learn about how its inhabitants interact and survive.



# 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. The Nature Reserve is 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](http://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 2 classes with a lunch in between to make the most of your Shaw Nature Reserve experience. Class fees are \$2 per student, with the exception of the Maple Syrup class. 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 include a climbing session, a 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. (Approximately \$38 per student.)

### How to register:

- Registration for Fall 2015 programs will open on May 1, 2015. Registration for Maple Syrup classes in January of 2016 opens on October 1, 2015. Registration for all other Spring 2016 programs will open on November 2, 2015. All registrations are accepted on a first-come, first-served basis.
- Call (636) 451-3512 to book your visit.
- Groups of students aged PreK–3rd grade should plan to bring 1 adult for every 8 students. Groups of students in 4th grade and above should plan to bring 1 adult for every 10 students. Required adult chaperones are admitted at no extra charge. Additional adults are admitted at standard admission rates.

	<i><b>Earthwalks</b></i>	<i><b>PreK–K</b></i>	<i><b>1st–3rd</b></i>	<i><b>4th–8th</b></i>
<b>September</b>	Earthwalks	Bugs Buddies Trees and Me	On the Water's Edge	Pond Ecology
<b>October</b>	Earthwalks	Bugs Buddies Trees and Me	Little Houses on the Prairie	Tallgrass Prairie
<b>November</b>			In Plain Sight	Animal Adaptations People and the Prairie
<b>December</b>	<b>No Classes</b>			
<b>January</b>				Maple Syrup Making
<b>February</b>				Maple Syrup Making
<b>March</b>	Earthwalks	Trees and Me	In Plain Sight	Animal Adaptations People and the Prairie
<b>April</b>	Earthwalks	Trees and Me	Our Forest Neighbors	Forest Ecology
<b>May</b>	Earthwalks	Bugs Buddies	On the Water's Edge	Wetland Ecology

## Programs for Students at Shaw Nature Reserve con't



### **Bug Buddies (SNR)**

*Grades: PreK; September and May*

Come discover which creepy, crawly critters call the 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*

### **Bugs, Beaks, and Beasties: Animal Adaptations (SNR)**

*Grades: 4–8; March, December*

In this class students use hands-on activities to explore 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*

### **Canopy Climb for Schools (SNR)**

*Grades: 6–12; September–November, March–May*

In this all-day program, students will learn tree-climbing 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.–2:30 p.m.; fee: \$40/student*

### **Earthwalks (SNR)**

*Grades: PreK–8; September–November, March–May*

On this introductory exploration into the wonders of the natural world, instructors will lead your students through special activities using the 5 senses. Depending on the season, your students might use their sense of touch to identify a natural object or make a scented “teabag” to take home or use a mirror to simulate how different animals see. The 5 senses will be awakened during this light and comfortable approach to nature. *Capacity: 60 students; length of program: 120 minutes*

### **Forest Ecology (SNR)**

*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: 60 students; length of program: 120 minutes*

### **In Plain Sight (SNR)**

*Grades: 1–3; March, November*

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*

### **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. It contains everything you'll need to unlock the 7 activity boxes along your hike. Each activity box contains 2 activities which are designed to help children learn about the plants, animals, and habitats of Missouri. *length of program: varies*

### **Little Houses on the Prairie (SNR)**

*Grades: 1–3; October*

This class is based on the book *Little House on the Prairie* 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*



### **Living Off of the Land (SNR)**

*Grades: 4–8; Year-Round*

Students will discover how the early pioneers of westward expansion used their natural resources 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: a cross-cut 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! Students will be divided into 2 groups with 1 adult from the school with each group. This class takes place at the DBOC. Groups will have use of the Assembly Building for lunch and restrooms. *Capacity: 60 students; length of program: 150 minutes*

### **Maple Syrup Making (SNR)**

*Grades: 4–8; February*

Celebrate the coming of spring! Learn about maple syrup by exploring the 2 processes that make it all possible: photosynthesis and the water cycle. Explore the fields and woodlands as your students discover the annual cycle of sap movement and the importance of sap to trees. 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*

### **On the Water's Edge (SNR)**

*Grades: 1–3; May, September*

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*

### **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*



## Programs for Students at Shaw Nature Reserve con't



### People and the Prairie (SNR)

*Grades: 4–8; September–November, March–May*

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 atlats 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 visit 2 types of prairie homes. 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*

### Pond 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*

### 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 Nature Reserve will be doing to get ready for cold weather. *Capacity: 24 students; length of program: 60 minutes*

### 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 Nature Reserve and others are using fire to restore Missouri's prairie. *Capacity: 60 students; length of program: 120 minutes*

### Trees and Me (SNR)

*Grades: PreK; September, October*

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 Nature Reserve, where something interesting is always happening. *Capacity: 24 students; length of program: 60 minutes*



### 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*

# Programs for Students

## at the *Butterfly House*

School group classes at the Sophia M. Sachs Butterfly House include hands-on, student-driven investigations that connect them with the world of butterflies and other insects. 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 Butterfly Conservatory. Standard (up to 30 students): \$150; Large (up to 60 students divided into 2 groups): \$300
- **Self-Guided Visits** – Design your own experience! Scavenger hunts and other resources may be downloaded at our website: [www.butterflyhouse.org/schoolprograms](http://www.butterflyhouse.org/schoolprograms). Self-guided groups are admitted at standard group rates of \$3 per child (ages 2-12) and \$5.50 per adult (13 and up).

### How to register:

- Registration for Fall 2015 programming opens on May 18, 2015. Registration for Spring 2016 programming opens on November 2, 2015. 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 on Mondays, Tuesdays, and Wednesdays at 9:30 and 11:30 a.m. and Thursdays and Fridays at 10 a.m. and noon.
- Fees for classes include up to 6 adults for a standard class, and up to 12 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.
- Visit our website at [www.butterflyhouse.org/schoolprograms](http://www.butterflyhouse.org/schoolprograms) or call us at (636) 530-0076 extension 13 for more information or to request a class.

## **Programs for Students at the Butterfly House con't**

### **Story of a Butterfly (BH)**

*Grades: PreK–K; Year-Round*

PreKers become involved in the butterfly life cycle. Puppet-model caterpillars present metamorphosis. Students “grow” a butterfly of puzzle pieces. A 5-minute video will lead the students to the tropical conservatory to find examples living and non-living, 5 senses and colors on the tropical butterflies. *Capacity: 60 students; length of program: 60 minutes*

### **Adventures in a Butterfly Garden (BH)**

*Grades: K–3; Year-Round*

Discover pollination as we explore the life cycles of butterflies, honeybees, and their favorite plants. Apply what you learned to design a unique pollinator of your own. Each student will create a pollinator to take home. *Capacity: 60 students; length of program: 90 minutes*

### **Wings of Wonder (BH)**

*Grades: K–3; Year-Round*

Observation skills are put to the test with real samples of butterfly eggs, larvae, pupae, and adults. Complete a scientific experiment with us as we look at butterfly behaviors, collect data, and graph our results. *Capacity: 60 students; length of program: 90 minutes*

### **Living the Butterfly Life (BH)**

*Grades: 3–5; Year-Round*

Students use living insects to compare and contrast complete and incomplete metamorphosis. The Butterfly Effect is used to discuss the life cycles, protective behaviors, and coloration of butterflies. Students will then identify specific butterflies with a dichotomous key and collect data on butterfly biology. *Capacity: 60 students; length of program: 90 minutes*

### **Take a Walk with Butterflies (BH)**

*Grades: 3–5; Year-Round*

Learn the butterfly’s body parts and life cycle with the aid of microscopes and real specimens. We will watch the film *The Butterfly Effect*, then journey to the tropical conservatory for observations and a scavenger hunt. *Capacity: 60 students; length of program: 90 minutes*





# Programs for Students

## at the Dana Brown Overnight Center

### 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 used 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](http://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](http://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](mailto: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 con't



### **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*

### **Birds of a Feather (DBOC)**

*Grades: 4–8; Year-Round*

Students will learn about the birds of the Nature Reserve. We will discuss specific adaptations for food collection, different species' habitats, 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: 180 minutes*

### **Compass/Orienteering (DBOC)**

*Grades: 3–5; January, February, March, December*

Students must complete the Compass Introduction class prior to this class. During a 2–3 hour session, students will go on an orienteering course through the Nature Reserve, off trail! They will traverse from point to point to reach the final destination. *Capacity: 25 students; length of program: 150 minutes*

### **Ecology of Wolves (DBOC)**

*Grades: 3–12; Year-Round*

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*

### **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 students explore the upland forest. Students will investigate decomposing logs and compare and contrast different areas of the forest using simple equipment, such as thermometers. Through a variety of hands-on activities, students develop an understanding that the forest is a diverse and fascinating ecosystem. *Capacity: 40 students; length of program: 120 minutes*



### **FrogWatch (DBOC)**

*Grades: 4–8; March, April, May*

Students will study the frogs and toads of the Nature Reserve. They will learn to identify species by sight and by their individual calls. Students will collect data from our wetland area based species heard and estimated population density. This information will then be submitted to the national FrogWatch database. *Capacity: 40 students; length of program: 120 minutes*

### **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 4 or 5 students with an adult from the school. Each group will complete a GPS course around the Nature Reserve. They will use a key with waypoints to reach a specific destination. *Capacity: 40 students; length of program: 150 minutes; fee: \$5/student*



### **Introduction to Compass (DBOC)**

*Grades: 3-5; Year-Round*

Students will learn about true north vs. magnetic north, the different parts of a magnetic compass, and the ever important rhyme: “Put red in the shed and follow Fred.” Then they will use their own compass and set of bearings to follow a course around SNR to find specific destinations. *Capacity: 25 students; length of program: 150 minutes*

### **Living Off the Land (DBOC)**

*Grades: 4-8; Year-Round*

Students will discover how the early pioneers of westward expansion used natural resources to survive. Some activities may include making hand-dipped candles, natural dyeing, and studying medicinal plants. Students may also have the opportunity to use period tools, such as a cross cut 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, gain an appreciation the present, and look forward to the discoveries of the future! *Capacity: 25 students; length of program: 150 minutes*

### **Night Hike (DBOC)**

*Grades: 4-8; Year-Round*

Evenings are a great time to be at the 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 are made in advance. This timeframe gives participants the opportunity to be out during the transition from day to night. Our night hikes focus on helping participants appreciate and understand the night. Activities focus on our 5 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*

### **Pond Ecology (DBOC)**

*Grades: 4-8; Year-Round*

A whole tiny world lives in the lake. Working in small groups, students will sample the pond for a diversity of organisms from various zones. They will observe the distinguishing characteristics that allow aquatic creatures to live underwater and interact with each other. Using magnification tools and 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*



## **Programs for Students at the Dana Brown Overnight Center con't**

### **River Ecology (DBOC)**

*Grades: 4–8; Year-Round*

This 3-hour class includes a hike 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 use kick nets in a shallow area to collect organisms (water shoes needed). The class also includes bottomland forest tree ID, animal tracking, and gravel bar exploration! *Capacity: 40 students; length of program: 180 minutes*

### **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 use to live in moving water versus those used in still 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*

### **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 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, discover how a wetland functions and why they are so valuable to the inhabitants and humans alike! *Capacity: 40 students; length of program: 120 minutes*

### **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 features 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*





# 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 and global ecology within the familiar surroundings of your school and classroom! Missouri Botanical Garden outreach programs are available year-round to school groups, libraries, and summer camp programs.



### Multi-Session Experiences

Take learning to the next level by creating a multi-session experience for your students! Several of our outreach programs can also serve as the first of a three-session experience. In addition to our initial visit to your school, these experiences include a photography field trip to the Missouri Botanical Garden and a follow-up outreach program at your school. See program descriptions for more information.

### Registration Information

- Outreach program sessions last between 45 minutes and 1 hour, and facilitate a maximum of 30 students. The fee is \$100 per class plus mileage costs for schools located more than 20 miles from the Missouri Botanical Garden.
- Schools may book up to three sessions of the same program in a given day at \$50 per additional session.
- Multi-session experiences are available only with specific programs and only as a complete, 3-part package. The cost is \$200 for the first class of up to 30 students, and \$100 for each additional class up to a maximum of 3 classes. (Please note that schools located within St. Louis City and County receive a \$50 ZMD discount on these fees.)
- Registration for Fall 2015 programs will open on July 13, 2015. Registration for Spring 2016 programs will be available beginning November 2, 2015. Registration for Summer 2016 programming will open on February 15, 2016. 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.
- During the school year, K-8 outreach programs must be scheduled between noon and 4:30 p.m.
- For fastest service, submit your registration request online at [www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms). You may also call our office at (314) 577-5185 to book your program.



## Outreach Programs for Students at the Missouri Botanical Garden con't



### 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 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 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: 30 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: 30 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: 30 students; length of program: 60 minutes*

### Plant Part Palooza (MBG)

*Grades: K–2; September–May*

What do apples and tomatoes have in common? How are white potatoes and sweet potatoes different? Students will love learning about plant parts and their functions through this hands-on exploration in their classroom. *Capacity: 30 students; length of program: 60 minutes*

***This outreach may be extended into a multi-session experience!***

### Survivor (MBG)

*Grades: 3–8; September–May*

Why are leaves scented? Why do some plants eat insects? Why do some trees lose their leaves in the winter? Learn about these and other ways plant structures aid a plant species' survival. *Capacity: 30 students; length of program: 60 minutes*

***This outreach may be extended into a multi-session experience!***

### Flower Physiology (MBG)

*Grades: 6–8; September–December, 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: 60 minutes.*

***This outreach may be extended into a multi-session experience!***

### Meeting Miss N.—Assembly Program (MBG)

*Grades: K–8; September–December, February–May*

In this outreach program designed for multi-grade assembly sessions, students will help bring a neighborhood landscape, and a timely story, to life. With the help of a slightly wild storyteller and audience participation, the tale of a young boy and his outlook on life unfolds through a series of walks through his neighborhood. Not your typical assembly presentation, Meeting Miss N. is an interactive experience that reveals lessons from which people of all ages can benefit: Slow down. Look around you. Stay curious. Ask “why” and “how” more often. Make room for nature in your everyday life. Never stop discovering.

*Capacity: up to 100, length of program: 60 minutes*

# Outreach Programs

## *delivered by Butterfly House*

Butterfly House outreach programs provide unique experiences, bringing children into the amazing world of insects and their relatives. Participants in our programs get the chance to see insects up close and to use their scientific observation skills to learn about more about them, their life cycles, and their importance to our planet. Programs employ hands-on, student-driven activities, which can include living insects (a live animal can be included with any program upon request). They are a great supplement to life science lessons, caterpillar rearing, or a butterfly gardening project.

### Registration Information

- 1-hour programs accommodate up to 35 students. Up to 3 programs may be scheduled during a single visit. Plan 10-minute breaks between sessions. A dedicated program space is preferred.
- Outreach program fees are \$150 for the first session; \$50 for additional sessions (same program held on the same day at the same site). Additional mileage fees may apply for locations more than 20 miles from the Butterfly House.
- Registration for Fall 2015 programs opens May 18, 2015. Registration for Spring 2016 programs opens November 2, 2015. Registration for Summer 2016 programs opens February 15, 2016. All registrations are accepted on a first-come, first-served basis.
- Outreach sessions must be booked at least 3 weeks in advance. Dates and times subject to availability. Registering early is strongly advised.

You may submit your registration request online at [www.butterflyhouse.org/outreach](http://www.butterflyhouse.org/outreach) or call (636) 530-0076 ext. 13 to book your program.

#### Ant Homes Under the Ground (BH)

*Grades: PreK–1; Year-Round*

Introduce young children to ant behavior using role play and cooperative exercises. (Live ants are not a part of this unit.) *Capacity: 30 students; length of program: 60 minutes*

#### Ladybugs (BH)

*Grades: PreK–1; Year-Round*

Children learn about ladybug structure, life cycle, behavior, and foods. Discover how these fascinating insects help us and protect our crops. *Capacity: 30 students; length of program: 60 minutes*

#### Anansi: The Original Spider Man (BH)

*Grades: K–5; Year-Round*

Explore spider behaviors and adaptations through the tales of Anansi, an African folk character. These stories lead to learning about real spiders. *Capacity: 30 students; length of program: 60 minutes*

#### A-MAZE-ing Cockroaches (BH)

*Grades: K–6; Year-Round*

Can cockroaches learn or will they stay lost? Replicate a famous study by prominent zoologist, Charles Henry Turner. Students will work in teams to build a maze and run living cockroaches through them. *Capacity: 30 students; length of program: 60 minutes*

#### Butterfly Biology (BH)

*Grades: K–6; 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–6; Year-Round*

Learn how insects are unique, from the tip of their antennae to the scales on their wings. *Capacity: 30 students; length of program: 60 minutes*

#### Buzzing a Hive (BH)

*Grades: 1–3; Year-Round*

Explore the complex social behavior, communication, and hive environment of the honeybee. (Live bees are not a part of this unit.) *Capacity: 30 students; length of program: 60 minutes*

#### What the World Eats (BH)

*Grades: 8–12; Year-Round*

Explore insect foods from around the world through artifacts, pictures, and a PowerPoint. A cooking demonstration of how to prepare crickets can be included for an additional \$25. *Capacity: 30 students; length of program: 60 minutes*

# Outreach Programs

## 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 Saigh Foundation Environmental Leadership Program (ECO-ACT)

**What is it?** ECO-ACT (Ecology in Action), an environmental leadership program, is a collaboration between the Missouri Botanical Garden and area high schools, in which students receive course credit or community service hours. The course is interdisciplinary and student-driven combining sustainability studies with teaching and service learning. High school students become effective educators as they teach basic ecology and environmental science topics in an elementary classroom once a week during the school year. Research, adventure, and study experiences in nature and the urban environment add to our students' first-hand experience of environmental science concepts and their competency as knowledgeable ecologists and innovative leaders.

The Saigh Foundation

# ECO ACT

Environmental Leadership Program

**How does the program work?** ECO-ACT participants earn elective science credit (or community service hours) from their high school and have a class period scheduled into their course load. Garden instructors give assignments, feedback, coaching, and grades while the high school teachers facilitate the class at school. Students attend 3 weeks of intensive training over the summer in order to prepare for the school year ahead. In addition, participants continue their training during the school year at monthly after-school workshops at the Garden in order to gain more in-depth understanding of science content and further development of classroom instruction and leadership skills.

**How do I become a partner?** Discussions begin with new high schools in the fall. Recruiting presentations take place at schools from January through April. Students must submit an application, gather references from teachers, and interview with staff as part of the application process.

Please contact the ECO-ACT Program Supervisor at (314) 577-0241 or [eco-act@mobot.org](mailto:eco-act@mobot.org). Visit [www.mobot.org/teenprograms](http://www.mobot.org/teenprograms) for more information.



The MBG Teen Network includes the following programs for students from 6th through 12th grades. For more information on these programs, visit **[mobot.org/teenprograms](http://mobot.org/teenprograms)**.



### **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.



**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 years. 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 Teen Reserve Environmental Education Service (TREES)**

offers students in grades 9–12 the opportunity to become more familiar with their natural surroundings through engaging weekend activities that focus on the plants, animals, ecosystems, and service at Shaw Nature Reserve.



**Habitat Helpers** is designed to help kids in grades 4–5 build knowledge of the natural world by exploring the Shaw Nature Reserve's prairies, woodlands, and aquatic communities.  $H_2O$  is a fun and educational program for kids in grades 6–8 to become more familiar with natural settings by focusing on ecosystems and outdoor skills at the Shaw Nature Reserve.



# 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 one of the most powerful and gratifying parts of what we do. Through 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](http://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](http://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](http://www.mobot.org/schoolprograms) and click on "Teacher Professional Development".

## Schoolyard STEM Workshops

Interested in infusing your school curriculum with more STEM-based content, but concerned about the equipment and costs? Believe it or not, your school already offers you a fully-equipped STEM 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 stand-alone 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 PD 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. *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 con't

### Summer Workshops, Expos, and Summits

Each summer we offer a series of workshops and summits that reflect previous programs, timely events, and input from teachers, so our offerings stay fresh. To check out the newest “crop” of summer programming for educators, visit us online at [www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms).

### MBGNet

What's it like where you live? Find out how those who live in various world biomes would answer that question! Visit MBGNet with your students at [www.mbgnet.net](http://www.mbgnet.net) and learn about the climate and ecology of a rainforest, a tundra, a taiga, a desert, a grassland, and a temperate forest. MBGNet's units are arranged in an easily navigable, information-rich format that will engage your students as they learn about these diverse environments.

### MBG Education E-Scoop

Teachers are encouraged to register at [www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms) to receive our monthly e-newsletter, the Education E-Scoop. This resource features outdoor learning tips and science and literacy links, as well as news about upcoming programs for teachers, students, and families at all of our sites.



### Stupp Teacher Resource Center (STRC) DVDs and Classroom Kits

Stupp-sponsored teacher resource activity kits, models, and DVDs/videos are circulated to teachers for strengthening and enhancing their science instruction. For more information, call the Resource Center Instructor at (314) 577-9501.

Circulating items may be picked up at the Garden's Commerce Bank Center for Science Education, located at the corner of Shaw and Kingshighway (4651 Shaw Blvd.), through the west entrance doors. Use the Welcome Desk phone to dial extension 125 for assistance.

Circulation fees (non-refundable):

- GEMS or Discovery Unit Kits: \$25
- Suitcase Science/WONDERWISE Kits: \$5
- Models and Display Materials: \$5
- DVDs/Videos: \$3

Schools may purchase a 1-year membership to check out any STRC materials for free.

For an up-to-date list of STRC materials, please visit [www.mobot.org/schoolprograms](http://www.mobot.org/schoolprograms) and click on Educational Resources.

### Pre-Service Internship

Are you an aspiring teacher interested in gaining some experience with informal education and life science? As a practicum student working with the Garden's School Programs team, you will have a unique opportunity to gain experience with:

- Program instruction and design
- Inquiry-based approaches for teaching Life and Earth Science concepts
- Hands-on teaching and interpretation
- Field Trip planning and execution

In addition, our semester-long Pre-Service Internship experience will give you an opportunity to meet current teachers and visit their classrooms during outreach programs.

We work directly with you and your university regarding degree alignment and course credit. Call (314) 577-0819 or email [teachertraining@mobot.org](mailto:teachertraining@mobot.org) for more information.

- Fall practicums: September–December
- Spring practicums: February–May.



# Programs for Schools & Teachers

## *School Partnership Opportunities*

### **The Saigh Foundation Environmental Leadership Program (ECO-ACT)**

**What is it?** ECO-ACT (Ecology in Action), an environmental leadership program, is a collaboration between the Missouri Botanical Garden and area high schools, in which students receive course credit or community service hours. The course is interdisciplinary and student-driven combining sustainability studies with teaching and service learning. High school students become effective educators as they teach basic ecology and environmental science topics in an elementary classroom once a week during the school year. Research, adventure, and study experiences in nature and the urban environment add to our students' first-hand experience of environmental science concepts and their competency as knowledgeable ecologists and innovative leaders.

**How does the program work?** ECO-ACT participants earn elective science credit (or community service hours) from their high school and have a class period scheduled into their course load. Garden instructors give assignments, feedback, coaching, and grades while the high school teachers facilitate the class at school. Students attend 3 weeks of intensive training over the summer in order to prepare for the school year ahead. In addition, participants continue their training during the school year at monthly after-school workshops at the Garden in order to gain more in-depth understanding of science content and further development of classroom instruction and leadership skills.

**How do I become a partner?** Discussions begin with new high schools in the fall. Recruiting presentations take place at schools from January through April. Students must submit an application, gather references from teachers, and interview with staff as part of the application process.

Please contact the ECO-ACT Program Supervisor at (314) 577-0241 or [eco-act@mobot.org](mailto:eco-act@mobot.org). Visit [www.mobot.org/teenprograms](http://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 is 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 a LREC Teacher Partnership, teachers are required to attend one of our summer workshops during which the partnership proposal process will take place.





## Programs for Schools & Teachers con't

### LEAP Special Projects

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 10 years. LEAP Lessons bring the topic of solid waste to the classroom through in-depth exploration of solid waste topics including: the 3-Rs, composting, and household hazardous waste (HHW). Lessons are available as On-Demand outreach programs, part of a 3-Part Program series, or an extended Special Project. LEAP programs are free for schools within the St. Louis City, County, or Jefferson County area.

#### LEAP On-Demand

- Available for K–12
- Topics include recycling, composting, HHW
- Classes are 45–60 minutes
- 30 student maximum
- Also available as a 3-Part Program series focused on recycling, composting, or HHW

#### LEAP Special Projects

- Available for K–12
- Year/semester long
- Several LEAP lessons delivered
- Student action projects focus on waste reduction and minimization in their school.
- Approximately 2 special projects will be selected each year.

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



### Investigate Green Schools (EWC)

Investigate Green Schools is a program available to middle school teachers that will increase knowledge of what makes a “green school,” outline steps districts 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:

1. Logistical meetings to review the program, associated activities, and requirements
2. Classroom lessons that include background on energy production and consumption, a student-friendly energy/environmental school audit, and a student-generated cost/benefit analysis of green school improvements.
3. 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.center@mobot.org](mailto:earthways.center@mobot.org) or call (314) 577-0281

# Programs for Schools & Teachers

## *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?

### **Benefits of joining the BiodiverseCity St. Louis network:**

- Monthly e-news highlighting local volunteer stewardship/service opportunities, happenings, and events.
- Invitations to participate in community workshops designed to envision and cultivate more nature-rich neighborhoods.
- Networking opportunities with peers and local conservation organizations.
- Customized assistance with your school’s/community’s action project planning.
- Connections with local grant opportunities and awards that support projects that enable more biodiverse landscapes.

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](http://www.mobot.org/schoolprograms) to learn more!

# Programs for Family and Community Engagement



## Family Engagement Night Activities

Make the Missouri Botanical Garden a part of your family engagement event! The Garden Education team offers a variety of table-rotation activities that are ideal for open house events, literacy, math and science nights, school festivals, and more. Call (314) 577-5185 to discuss activity options and pricing.



## Dig-In Events at your School

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 the spring and fall. Dig-Ins are designed to bring together a school community to maintain and improve the school's grounds, through basic care, 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.



## Scout Programs

Calling All Scout Leaders! Join us at the Missouri Botanical Garden, Shaw Nature Reserve, or Butterfly House for a variety of programs and overnights that align with badge and award requirements. Experience hands-on nature and STEM-based programs that bring science to life! Explore the world of insects, become a naturalist, learn about flowers, trees, or water conservation, and much more. Find a program that is perfect for individual scout by visiting [www.mobot.org/scouts](http://www.mobot.org/scouts)

## Notes

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