



School Programs 2014–2015



MBG CENTER FOR
**NATURE-INSPIRED
LEARNING**

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

www.mobot.org/schoolprograms

Our passion&purpose

// **DISCOVER&SHARE**
KNOWLEDGE ABOUT PLANTS&
THEIR ENVIRONMENT
IN ORDER TO
PRESERVE & ENRICH LIFE //

– mission of the Missouri Botanical Garden

Dear Educator,

To what extent do you consider the greater St. Louis community your extended classroom? How often do you use your school's neighborhood—its schoolyard, streets, stores, city parks—as local learning environments where your students could tackle real-world problems? Throughout the seasons, do you intentionally plan outdoor investigations that challenge the senses, hone observation skills, and cultivate connections with nature? Do you consider the educators at St. Louis' world-renowned cultural destinations—from the Missouri Botanical Garden and Saint Louis Zoo to the Saint Louis Art Museum, St. Louis Science Center, and Missouri History Museum—as your colleagues?

We hope your answer is yes, but if it's not, you're not alone. Given the multiple demands on every classroom minute, we respect the time and energy it takes to plan, prepare for, and successfully pull off meaningful outdoor explorations and visits to places like ours. But as evidence mounts about the impact of out-of-school learning experiences on shaping learners' interests and reinforcing core concepts, we remain your partner, constantly asking ourselves: How can we complement, extend, and deepen classroom learning? Infuse ecological learning experiences and environmental problem-solving across the curriculum? Redevelop and design learning experiences to help meet new standards?

In this spirit, we're pleased to share our **2014-2015 PreK–12 School Programs** with you, designed to align with and meet state standards while also streamlining the ways that make the whole experience easier for you and more meaningful for your students. These programs are part of the **MBG Center for Nature-Inspired Learning**, which aims to infuse STEM-driven ecological and environmental learning experiences throughout the curriculum in creative and cohesive ways that inspire the next generation of thinkers, doers, and problem-solvers.

On behalf of the educators at the Missouri Botanical Garden, Shaw Nature Reserve, and the Sophia M. Sachs Butterfly House, I invite you to peruse this year's offerings, plan multi-season experiences aligned with your classroom units, take advantage of our classroom kits and other resources (page 24), encourage your middle school and high school students to become part of the Garden's growing Teen Network (page 22), and even become a Partner School (page 26).

We invite you to think of our greater St. Louis community not only as your extended classroom, but also as your dream classroom, complete with meaningful learning experiences and resources just waiting for you and your students. We look forward to working with you!

Regards,

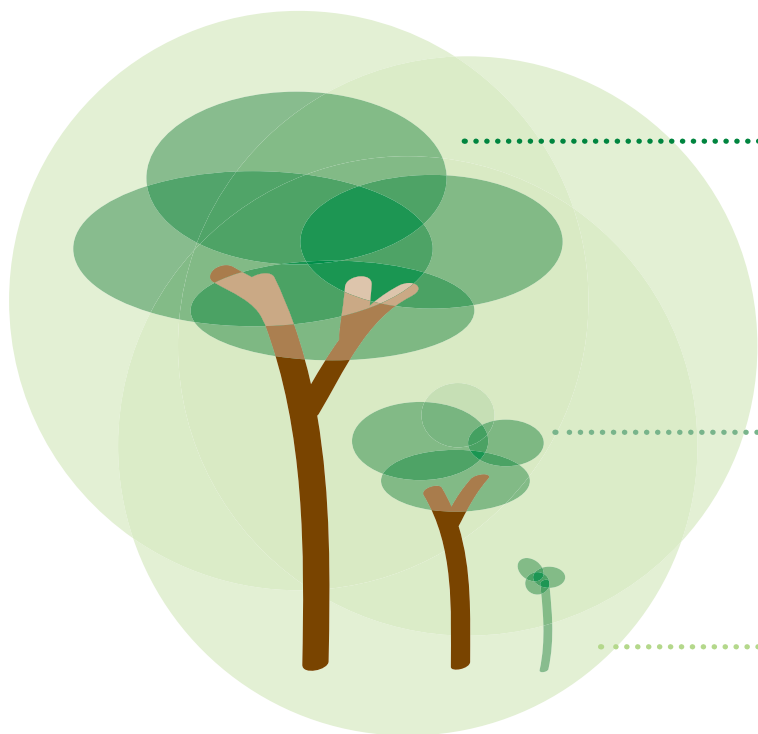


Sheila S. Voss

Vice President of Education, Missouri Botanical Garden

Our priorities

Our community is a forest of learners...



Teachers

- **Priority:** Inspire, equip, and support teachers to use their local communities as extended classrooms for real-world environmental exploration, discovery, and problem-solving.

Teens

- **Priority:** In the formative teenage years, ignite interest in plants, the natural world, and sustainability in ways that influence academic, professional, and personal pursuits.

Young children

- **Priority:** For the youngest among us, enable positive, memorable, frequent experiences with nature and the great outdoors. Model how natural sciences can be integrated into core curriculum objectives in ways that deepen understanding and spark lifelong curiosity.

Our places



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 two 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.

Our programs

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Our mission

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



Early Childhood&Elementary

“One of our children spotted a turtle that everyone else had passed by. Our leader stopped and picked it up and taught the children a great mini lesson on turtles—fantastic job seizing the teachable moment!”

—Field Trip Participant, 2013

As teachers of the youngest among us, you have the extraordinary ability to transform curious kids into knee-high naturalists and lay the foundation for a lifelong love of nature. And by enabling fun, frequent, positive experiences with nature and the outdoors, you’re also making a huge difference in your students’ health, well-being, and capacity to learn.

Dig deeper with us...

Across all sites, you’ll find a diversity of classes, tours, and outreach programs designed for these formative years. While the grid on page 7 gives you an at-a-glance perspective on these programs, our expert educators can help you dig deeper and design engaging, sustained learning experiences that are relevant to your students’ lives. To get you started, here are a few themes worth exploring in the coming year:



Nature in my neighborhood: What is living around me? How aware are we of the plants and other living organisms that share our space? What are they? How many are there? Why are they important? Why should I care?

The roots of my food: Where does our food come from? How and where is it grown? What do my favorite foods look like in plant-form? What makes fruits and vegetables nutritious? What are pollinators and how much do we depend on them?

The living world around me: Can we turn our own schoolyard into a thriving wildlife habitat and outdoor classroom? What happens when our schoolyard’s turf-grass lawn is replaced with a diversity of native plants? What seasonal changes can we observe? How can learning outdoors help learning overall?

**GO
BEYOND**

Take your students’ learning experience beyond the classroom!
See pages 20–22 for our K–12 Extended Learning opportunities, including MBGNet, Investigate Green Schools, scout programs, and more!

	Pre-K	K	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	
Missouri Botanical Garden (MBG)								
Garden Classes		Heaps of Seeds; A Seasonal Snapshot; Tops & Bottoms <i>pg. 8</i>						
				Dr. Carver: Soil Scientist <i>pg. 8</i>				
					Rainforest Rendezvous <i>pg. 8</i>			
					Today's Special: Food Chains <i>pg. 8</i>			
Guided Tours		Discover the Missouri Botanical Garden; Tropical Rain Forest <i>pg. 8</i>						
		Sensational Seed Hunt <i>pg. 8</i>						
		Plants from Top to Bottom <i>pg. 9</i>						
					Fabulous Food Chains <i>pg. 9</i>			
		Green is Here for Good <i>pg. 9</i>						
Self-Guided Visits		In the Garden <i>pg. 9</i>						
					Horticulture Walk; Tree Trek <i>pg. 9</i>			
Outreaches	A Garden Sensory Adventure <i>pg. 9</i>							
	Honeybees Abuzz <i>pg. 9</i>							
		Plant Part Palooza <i>pg. 10</i>						
					Survivor MBG: Plant Adaptations <i>pg. 10</i>			
Butterfly House (BH)								
Butterfly House Classes	Story of a Butterfly <i>pg. 10</i>							
		Adventures in a Butterfly Garden; Wings of Wonder <i>pg. 10</i>						
				Living the Butterfly Life <i>pg. 10</i>				
Outreaches	Story of a Butterfly <i>pg. 11</i>							
	Ladybugs <i>pg. 11</i>							
	Ant Homes Under the Ground <i>pg. 11</i>							
	Hide a Butterfly <i>pg. 11</i>							
		Buzzing a Hive <i>pg. 11</i>						
		Anansi: The Original Spider Man <i>pg. 11</i>						
		The World According to Insects <i>pg. 11</i>						
		Butterfly Biology <i>pg. 11</i>						
		A-MAZE-ing Cockroaches <i>pg. 11</i>						
Shaw Nature Reserve (SNR)								
Shaw Nature Reserve Classes	Bug Buddies; Trees and Me <i>pg. 12</i>							
	SNR Critters; Nature's Buddies <i>pg. 12</i>							
	Earthworms: Nature's Recyclers <i>pg. 12</i>							
	Earthwalks <i>pg. 12</i>							
			Our Forest Neighbors <i>pg. 12</i>					
			Little Houses on the Prairie; In Plain Sight <i>pg. 12</i>					
			On the Water's Edge <i>pg. 13</i>					
						Maple Syrup Making <i>pg. 13</i>		
	Forest Ecology <i>pg. 13</i>							
	Wetland Ecology <i>pg. 13</i>							
Pond Ecology: Wet and Wild <i>pg. 13</i>								
Canopy Climb <i>pg. 13</i>								
Tallgrass Prairie <i>pg. 13</i>								
Animal Adaptations: Bugs, Beaks, and Beasties <i>pg. 13</i>								
Dana Brown Overnight Center					See pages 18–19 for Dana Brown Overnight Center offerings for 4th and 5th grades.			
Extended Learning					Habitat Helpers <i>pg. 22</i>			

Early Childhood&Elementary

Missouri Botanical Garden Classes

Garden Classes represent our signature field trip programming. Classes vary in duration from 2 to 2.5 hours, but all include indoor, hands-on learning opportunities, a guided tour of the Garden, and a planting for each student to take home!

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 discover that stored inside every seed are all the parts of a plant. They will explore the Garden in search of seeds that travel by wind, water, and wildlife.

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. Out in the Garden, students will practice their observation skills as they compare and contrast the current season with other times of year.

Tops & Bottoms (MBG)

Grades: K–2;

September–December and February–May

In this class, based on Janet Stevens' book *Tops & Bottoms*, students identify and compare the physical structures of edible plants. Students will learn about the variety of plant parts we eat during their visit through the William T. Kemper Center for Home Gardening, where they will observe how familiar fruits and vegetables grow.

Dr. Carver: Soil Scientist (MBG)

Grades: 2–5;

September–December and February–May

It has been said that “anyone can have dirt, but gardens have soil.” Why is soil important to plant and food production? Dr. George Washington Carver discovered why, and so will your students as they conduct hands-on soil experiments. As we tour the Carver Garden, students learn about both scientific and humanitarian contributions made by Dr. Carver.

Rainforest Rendezvous (MBG)

Grades: 3–5;

September–December and February–May

Escape to the Climatron® to learn how plants cope with over 80 inches of rain each year and compete for light in a dense forest. Giant leaves, climbing vines, and epiphytes are just a few of the features of the rainforest your students will observe and photograph as they research the ways in which this productive biome is unique and important.

Today's Special: Food Chains (MBG)

Grades: 3–5;

September–December and February–May

What's on today's menu? Seeds, leaves, and worms! The Garden abounds with the makings of a great meal for birds, squirrels, and other native animals. Students will investigate producers, consumers, and decomposers, and explore the Garden in search of evidence of plant and animal interdependence.

Missouri Botanical Garden Guided Tours

Sign your class up for a content-themed tour of our gardens, ranging from 1 to 1.5 hours. Each tour is led by one of our knowledgeable and passionate volunteers.

Discover the Missouri Botanical Garden (MBG)

Grades: K–5;

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.

Tropical Rain Forest (MBG)

Grades: K–5;

September–December and February–May

This tour of the Climatron® transports students to a lush lowland rainforest 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.

Sensational Seed Hunt (MBG)

Grades: K–4; 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 through the Missouri Botanical Garden!



Plants from Top to Bottom (MBG)

Grades: K–4; February–May

Come and enjoy a tour through the Center for Home Gardening that spreads out over 8.5 acres and includes 23 demonstration gardens! During the tour, students will learn about the six major parts of a plant and how each part plays a vital role in the plant's survival.

Fabulous Food Chains (MBG)

Grades: 3–5;

September–December and February–May

Come explore the garden with us to investigate interdependence! Students will seek out food chains in action within the Garden and explore the ways that animal life depends on plants and vice versa.

Green is Here for Good (MBG) **NEW!**

Grades: K–5;

September–December and February–May

How “green” are you? Sustainability-themed visits to the Garden integrate an interpretive tour of the site 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 that would be relevant to the teachers and students that will be in attendance.

Missouri Botanical Garden Self-Guided Visits & Shaw's Satchels

For those wishing to explore the Garden on their own, Shaw's Satchels provide activity suggestions and all of the equipment necessary to meet the needs of up to 10 students each.

In the Garden (MBG)

Grades: K–2

Explore the Garden's shapes, colors, and textures!

Horticulture Walk (MBG)

Grades: 3–5

Explore the Center for Home Gardening and keep a nature journal.

Tree Trek (MBG)

Grades: 3–5

Identify trees, learn how they grow, investigate their history, and explore tree bark.

Missouri Botanical Garden Outreach Programs

If you can't come to us, we'll bring the world of plants to you!

Early Childhood Outreach Programs:

For **early childhood**, we offer one-time visits to your school (available year-round):

A Garden Sensory Adventure (MBG)

Grade: PreK

Explore the five senses with the Missouri Botanical Garden! Using songs, literature, and plant-smelling stations, your students will learn which part of the body is responsible for each sense and discover the wonderful world of plants. Each student will plant basil seeds and receive a special five senses journal to take home and share with their parents. Capacity: 25 students per session.

Honeybees Abuzz (MBG)

Grades: PreK–1

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 per session.

Early Childhood&Elementary

Grades K–5 Outreach Programs:

For **grades K–5**, we offer both one-time and multi-session outreach programs throughout the school year, during which we engage your students in ways that complement and energize your curriculum. Programs available:

Plant Part Palooza (MBG)

Grades: K–2; September–December, February–March

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 per session.

Survivor MBG: Plant Adaptations (MBG)

Grades: 3–5; September–December, February–March

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 per session.

Multi-Session Outreach Programs

You can choose to have your program presented as either a one-time or a multi-session outreach. Multi-session outreach programs include:

Initial Outreach (at your school)

Select one K–5 outreach for your first experience.

Photography Tour (MBG)

During this 1-hour guided tour at the Missouri Botanical Garden, led by one of our knowledgeable instructors, students will take part in a “photography scavenger hunt” that will enable them to focus on those plants at the Garden that exemplify the concepts covered in the outreach.

Follow-up Outreach (at your school)

Your Garden instructor will return to your classroom with a customized presentation using your students' photographs! During this 45-minute session, students will plant their own plants to take home. Note: The presentation and all student photographs taken during the visit will be emailed to the teacher following the tour as well.

Butterfly House Classes

The Butterfly House offers classes on butterflies, life cycles, plants, gardens, and other topics. Preschool classes are 1-hour programs while all others are 90 minutes. Students learn through 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.

Story of a Butterfly (BH)

Grades: PreK–K; September–May

Preschoolers 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 conservatory to find examples of the living and non-living, the five senses, and colors on the butterflies.

Adventures in a Butterfly Garden (BH)

Grades: K–3; September–May

Learn about pollination as we explore the life cycles of butterflies, honeybees, and the plants they care for. Then, apply your newfound knowledge to create a unique pollinator of your own design. Each student will create their own pollinator to take home with them.

Wings of Wonder (BH)

Grades: K–3; September–May

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.

Living the Butterfly Life (BH)

Grades: 3–5; September–May

Students use living insects to compare and contrast complete and incomplete metamorphosis. Our film *The Butterfly Effect* introduces students to life cycles, protective behaviors, and coloration of butterflies. Students will then identify specific butterflies with a dichotomous key and collect data on butterfly biology.

Butterfly House Outreach Programs

Let us come to your school and bring the wonders of the Butterfly House to your class. Many program topics are available for preschool through middle school students (available year-round). We can tailor programs to your specific needs and add to topics you are already studying at school.

Story of a Butterfly (BH)

Grades: PreK–1

Watch our butterfly puppet grow from an egg. Then puzzle together a butterfly and finish with a caterpillar craft. Capacity: 35 students per session.

Ladybugs (BH)

Grades: PreK–1

Children learn about ladybugs and their structure, life cycle, behavior, and foods they eat. Discover how these fascinating insects help us and protect our crops. Capacity: 35 students per session.

Ant Homes under the Ground (BH)

Grades: PreK–1

Introduce young children to ant behavior using role-play and cooperative exercises. Note: Live ants are not a part of this unit. Capacity: 35 students per session.

Hide a Butterfly (BH)

Grades: PreK–1

Learn to identify parts of a flower, create a nature-scene mural, and learn about camouflage of butterflies. Capacity: 35 students per session.

Buzzing a Hive (BH)

Grades: 1–3

Explore the complex social behavior, communication, and hive environment of the honeybee. Note: Live bees are not a part of this unit. Capacity: 35 students per session.



Anansi: The Original Spider Man (BH)

Grades: K–5

Explore spider behaviors and adaptations through the tales of Anansi the Spider, an African folk character. These tales lead to learning about real spiders. Capacity: 35 students per session.

The World According to Insects (BH)

Grades: K–5

Learn how insects are unique—from the tip of their antennae to the scales on their wings. This class includes the widest variety we offer of living insects and their relatives. Capacity: 35 students per session.

Butterfly Biology (BH)

Grades: K–5

Metamorphosis, anatomy, and butterfly behaviors are discussed with hands-on demonstrations. Preserved specimens of caterpillars, chrysalids, and butterfly wings are provided for students to examine. Capacity: 35 students per session.

A-MAZE-ing Cockroaches (BH)

Grades: K–5

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: 35 students per session.

Early Childhood&Elementary

Shaw Nature Reserve Classes

Shaw Nature Reserve Classes represent the Reserve's signature field trip programming. Classes vary in duration from 1 to 2 hours, but all include hands-on learning and active discovery of nature and the great outdoors.

Bug Buddies (SNR)

Grades: PreK–K; September and May

Through hands-on activities, students will have the opportunity to explore the world of insects up-close! Discover where they live and how they survive. Capacity: 24 students.

Trees and Me (SNR)

*Grades: PreK–K;
September, October, March, and April*

In this fun, hands-on class, students will learn about the different parts of a tree through observation and discovery. Class is held in the woodlands of the Reserve where something interesting is always happening! Capacity: 24 students.

Nature's Buddies (SNR)

Grades: PreK–K; May

Join us as we investigate different habitats and discover what animal babies make Shaw Nature Reserve their home. We'll learn about their life cycles and see if these young resemble their parents. Capacity: 24 students.

Earthworms:

Nature's Recyclers (SNR)

Grades: PreK–K; April

Have you ever had an earthworm wiggle in your hand? Have you ever wondered how they work their way through the soil? Join us as we investigate these wiggly creatures and learn why they are so important. Capacity: 24 students

SNR Critters (SNR)

Grades: PreK–K; Tuesdays in October

Who lives at the Reserve and where can they be found? What do they do when winter is approaching? Do they migrate south, hibernate, or just stay put? Join in the fun, hands-on class to discover some of their strategies for survival. Capacity: 24 students.



Earthwalks (SNR)

(class will be grade appropriate)

Grades: PreK–5;

September–November and March–May

Join us for this introductory exploration into the natural world. Your students will be led through special activities focusing on the five senses. Students might use their sense of touch to identify a natural object or use a mirror to simulate how animals see. The five senses will be awakened during this light and comfortable approach to nature. Capacity: 60 students.

Our Forest Neighbors (SNR)

Grades: 1–3; April

Join us for this fun, hands-on class as we explore the forest ecosystem and learn about some of the residents who live there and how their unique adaptations help them survive in this special community. Capacity: 60 students.

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 paired with hands-on activities. While learning about the prairie ecosystem and the plants and animals that live there, students will also have the opportunity to discover what it might have been like to be a pioneer on the prairie. A visit to a sod house and tipi are part of the class. Capacity: 60 students.

In Plain Sight (SNR)

Grades: 1–3; November and March

Through fun activities and games, students will learn about a variety of animals and how camouflage helps them survive. Predator/prey relationships are covered with an emphasis on the importance of camouflage to both. Students will also learn about mimicry and how some animals use it to fool potential predators. Capacity: 60 students.

On the Water's Edge (SNR)

Grades: 1–3; September and May

This class is based on the book *Around the Pond: Who's Been Here?* by Lindsay Barrett George. Engaging hands-on activities help students discover the differences between terrestrial and aquatic communities. Predator/prey relationships and adaptations are also covered in this class. Capacity: 60 students.

Maple Syrup Making (SNR)

Grades: 4–5; Late January–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 the sap to the trees will be investigated. Help with the collection and cooking down of the sap and enjoy a sample of this delicious natural food! Capacity: 60 students.

Forest Ecology (SNR)

Grades: 4–5; April

How are trees like apartment buildings? Why do many wildflowers bloom in the early spring? Who lives in the forest ecosystem? Discover the answers as your students explore the upland forest. Through investigations of decomposing logs, comparing and contrasting different areas of the forest, and other engaging activities, students develop a better understanding of this diverse and fascinating ecosystem. Capacity: 60 students

Wetland Ecology (SNR)

Grades: 4–5; 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 enable them to survive in this watery environment. Using microscopes, your students will discover the structural differences of terrestrial and aquatic plants. A wetland model will demonstrate how wetlands function and why they are so valuable to their inhabitants and humans alike. Capacity: 60 students.

Pond Ecology: Wet and Wild (SNR)

Grades: 4–5; September

A whole tiny world lives in the pond community. Using nets, students sample the pond and discover the diversity of organisms living there. They will observe some of the distinguishing characteristics that allow

organisms to live in this watery environment. Using various magnification tools and identification guides, students will identify these organisms and focus on adaptations for breathing, eating, and moving through the water. Capacity: 60 students.

Canopy Climb for Schools (SNR)

Grades 4–5; September–November and March–May

This all-day program is designed to immerse your students in the world of trees and forests like never before. Students will learn the basics of tree climbing mechanics, including climbing techniques, balance, and safety from a certified tree climbing instructor, and also experience a guided forest ecology hike. At the culmination of the program, students will reconvene to learn about local and global canopy/forest research and real-world conservation careers. Capacity: 24 students

Tallgrass Prairie (SNR)

Grades: 4–5; October

Explore the fascinating ecosystem that once covered 40% 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 have adaptations allowing them to survive on the hot, wind-swept 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: 60 students.

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

Grades: 4–5; March and November

Through engaging activities, students discover some of the fascinating adaptations animals have for surviving in their environment. How are different bird beaks adapted to eating certain foods? Learn about camouflage on the “Un-Nature Trail” and see examples of organisms that depend on this adaptation for protection. Capacity: 60 students.

Classes at the Dana Brown Overnight Center (DBOC) at Shaw Nature Reserve

The DBOC offers school groups in grades 4 and 5 the opportunity to engage in more in-depth explorations of Missouri's native ecosystems. Classes are available on a day-use basis or as a component of an overnight experience. Classes may be customized to meet your objectives. For a list of programs, see pages 18–19.

Middle&High School

“This was a great outdoor learning experience for our students. The volunteers ...shared a wealth of knowledge and stories with our young people!”

—Field Trip Participant, 2013

Considering the most pressing global challenges of our time, we recognize that teens are our future problem-solvers. With low rates of environmental and ecological literacy among teens, a lack of interest in STEM learning and careers, and a growing disconnection with the natural world, programs that equip teens with the knowledge, understanding, skills, and desire to make ecologically informed, sustainable decisions are needed now more than ever. With focused intent and effort, we can engage, inspire, and empower teens to live their best life via environmental education and leadership programs, capacity-building and STEM career-sampling, and community-focused service and action projects.

Dig deeper with us...

Across all sites, our expert educators stand at the ready to enable engaging, sustained learning experiences for your teen students that can help deepen engagement, strengthen community connections, and cultivate career interests. While the grid on page 15 gives you an at-a-glance perspective on these programs, here are a few dig-deep questions and topics of interest worth considering this year:

How exactly does becoming more knowledgeable about plants help me strengthen my own community?

How can plant-based solutions help make my community a better, healthier place to live?

How sustainable is *my* life?

How much of my life—what I eat, what I wear, how I get places, what I buy—comes from sustainable sources?

How does this compare to others in the U.S. and around the world?

What are my options if I want to save the world and earn a paycheck at the same time?

What real-world career options are out there for those with a passion for nature, environmental stewardship, and conservation?



	6th Grade	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Missouri Botanical Garden (MBG)							
Garden Classes	Asian Gardens: Science and Culture <i>pg. 16</i>						
Guided Tours	Asian Gardens Tour <i>pg. 16</i>						
	Green is Here for Good <i>pg. 16</i>						
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Middle&High School

Missouri Botanical Garden Classes

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 by the koi or moss garden. They will try their hand at an abacus and make additional connections across Social Studies, Fine Arts, and Literacy. Students will assemble a Zen “dry garden” to take home.

Missouri Botanical Garden Guided Tours

Asian Gardens 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.

Green is Here for Good (MBG)

Grades: 6–12;

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 efficiency, and resource conservation. Students will discover simple things they can do to live more sustainably. Tours can be customized to focus on the specific topics that would be relevant to the teachers and students that will be in attendance.

Missouri Botanical Garden Self-Guided Visits

Teachers wishing to lead their own group tour of the Garden are encouraged to visit the Garden's School Programs website, www.mobot.org/schoolprograms, and explore our current list under Self-Guided Visits. These tours are updated seasonally and include pre- and post-visit classroom activities, suggested activities during your visit, important guidelines, and up-to-date information about the plants currently on display. For more information or questions, please call (314) 577-5185.

Missouri Botanical Garden Outreach and Multi-Session Classes

Survivor MBG: Plant Adaptations (MBG)

Grades: 6–12;

September–December and February–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.

Flower Physiology (MBG)

Grades: 6–12;

September–December and February–May

Explore the diverse and fascinating world of plant life cycles with this 1-hour outreach presentation. Students will dissect a flower and compare reproductive structures from a variety of plant types. This outreach experience may be extended to include a photography tour at the Missouri Botanical Garden and a follow-up outreach experience that explores the progression of flowers to fruits. See page 10 for more information. Capacity: 30 students per session

Butterfly House Outreach Programs

The World According to Insects (BH)

Grade: 6–7; Year-round

Learn how insects are unique—from the tip of their antennae to the scales on their wings. This class includes the widest variety we offer of living insects and their relatives. Capacity: 35 students per session.

Butterfly Biology (BH)

Grade: 6–7; Year-round

Metamorphosis, anatomy, and butterfly behaviors are discussed with hands-on demonstrations. Preserved specimens of caterpillars, chrysalids, and butterfly wings are provided for students to examine. Capacity: 35 students per session.

A-MAZE-ing Cockroaches (BH)

Grade: 6–7; 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: 35 students per session.

What the World Eats (BH)

Grades: 8–12; Year-round

Explore actual insect foods from around the world through artifacts, pictures, and a PowerPoint presentation. A cooking demonstration of actual crickets can be included for an additional \$25. Capacity: 35 students per session.

Arthropod Anatomy (BH)

Grade 8–12; Year-round

We bring living insects, spiders, scorpions, millipedes, and other animals to your classroom to demonstrate the diversity and adaptations of the arthropods. This class is a wonderful supplement to any biology unit as students will be able to see arthropod behaviors and body parts in action. Capacity: 35 students per session.

Shaw Nature Reserve Classes

Maple Syrup Making (SNR)

Grades: 6–8; Late January–early February

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 the annual cycle of sap movement and the importance of the sap to the trees. Help with the collection and cooking, and enjoy a sample of this delicious natural food! Capacity: 60 students.

Forest Ecology (SNR)

Grades: 6–8; Year-round

How are trees like apartment buildings? Why do many wildflowers bloom in the early spring? Answers to these and other questions will be discovered as your students explore decomposing logs, compare and contrast different areas of the forest using simple equipment, and develop a better understanding of this diverse and fascinating ecosystem. Capacity: 60 students.

Earthwalks (SNR)

(Class will be grade appropriate)

Grades: 6–8; September–November and March–May

In this introductory exploration into the natural world, your students will be led through special activities focusing on the five senses. Students might use their sense of touch to identify a natural object or use a mirror to simulate how animals see. The five senses will be awakened during this light and comfortable approach to nature. Capacity: 60 students.

Wetland Ecology (SNR)

Grades: 6–8; September–November and March–May

Observe some of the wetland inhabitants up close, discover some of the characteristics that enable them to survive in this environment, and learn about the structural differences of terrestrial and aquatic plants. A wetland model will demonstrate how they function and why they are so valuable. Capacity: 60 students.

Pond Ecology: Wet and Wild (SNR)

Grades: 6–8; September–November and March–May

A whole tiny world lives in the pond community. Using nets, students will sample the pond, discover the diversity of organisms living there, and observe some of the adaptations for breathing, eating, and moving through the water that allow them to live in this watery environment. Capacity: 60 students.

Tallgrass Prairie (SNR)

Grades: 6–8; September–November and March–May

Explore the fascinating ecosystem that once covered 40% of Missouri, learn about its history, and discover how its plants and animals adapt to survive on the prairie. Visit our sod house to see how pioneers once lived here and learn how the Reserve uses fire to manage the prairies. Capacity: 60 students.

Canopy Climb for Schools (SNR)

Grades 6–12; September–November and 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

Dana Brown Overnight Center at Shaw Nature Reserve

Classes at the Dana Brown Overnight Center at Shaw Nature Reserve

The Dana Brown Overnight Center (DBOC), located within Shaw Nature Reserve, offers school groups an opportunity to engage in more in-depth explorations of Missouri's native ecosystems. Classes are available on a day-use basis or as a component of an overnight experience. Working with staff, classes may be customized to meet your objectives. For more information, visit www.shawnature.org/danabrown.

Ecology of Wolves (SNR-DBOC)

Grades: 4–12;

January–March and June–December

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 these canids' value to the ecosystems of the world and the challenges these animals still face today. Capacity: 40 students.

Astronomy (SNR-DBOC)

Grades: 4–12; Year-round

(offered only with overnight, weather permitting)

There are few things more mysterious than gazing up into a limitless night sky filled with stars, planets, moons, nebulae, and more! Our astronomy class begins to unravel some of the mysteries surrounding our solar system, our galaxy, and the universe. 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! Capacity: 40 students.

Night Hike (SNR-DBOC)

Grades: 4–12; Year-round

(offered only with overnight)

Evenings are a great time to appreciate the beauty of nature as the sun drops below the horizon. The 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. Activities focus on the five senses with

emphasis on night vision. Diurnal, crepuscular, and nocturnal animals are discussed, heard, and sometimes seen! This is a quiet, educational hike with no flashlights allowed. Capacity: 40 students.

Living off the Land (SNR-DBOC)

Grades: 4–12; Year-round

Students will discover how the early pioneers of westward expansion used their natural resources for survival. Activities may include making hand-dipped candles, natural dyeing, and medicinal plants. Students will also use period tools such as a cross-cut saw, drawknife and shaving mule, a froe and mallet, and an auger. They will gain an understanding of the past, be able to appreciate the present, and look forward to the discoveries of the future! They will be divided into two groups with one adult from the school required for each group. Capacity: 25 students.

Introduction to Compass (SNR-DBOC)

Grades: 4–12; September–May

After a lesson on true north vs. magnetic north, parts of a compass, and the ever-important rhyme “put red in the shed and follow Fred,” students will use the skills just learned in a variety of fun activities and games. Capacity: 25 students.

Compass/Orienteering (SNR-DBOC)

Grades: 4–12; December–March

Prerequisite: Introduction to Compass

During this 2- to 3-hour session, students will go on an off-trail orienteering course through the Reserve. Using skills introduced during the *Introduction to Compass* class, students traverse from point to point through the course. Capacity: 25 students.

Insect Ecology (SNR-DBOC)

Grades: 4–12; Year-round

During this 2-hour 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.

Birds of a Feather (SNR-DBOC)

Grades: 4–12; Year-round

During this 2-hour class, students will learn about the birds of the Reserve. Concepts covered will include adaptations for getting food, habitat preferences for resident species, and bird identification using body shape, color pattern, call, and habitat. A bird ID walk will accompany this program. Capacity: 40 students.

River Ecology (SNR-DBOC)

Grades: 4–12; Year-round

During this 3-hour class, students will hike to the Meramec River to begin their investigation. Concepts will cover plants and organisms living in and around the river ecosystem including macroinvertebrates, fish, reptiles, and birds. Depending on water levels, students will have the opportunity to wade in shallow water to use kick nets for collecting. Also included will be riparian tree identification, animal tracking, and gravel bar ecology. Students should bring an extra pair of water shoes that cover their heels and toes; no crocs or flip flops. Capacity: 40 students.

Stream Ecology (SNR-DBOC)

Grades: 4–12; Year-round

During this 3-hour class, students will hike to Brush Creek to investigate the life in and around a stream community. Using kick nets and other techniques, students will collect and identify macroinvertebrates and other organisms living in the stream. Adaptations for breathing, getting food, moving through water, and camouflage will be covered. Adaptation comparisons between organisms living in moving water versus standing water will be included. Students may bring an extra pair of water shoes that cover their heels and toes; no crocs or flip flops. Capacity: 40 students.

FrogWatch Citizen Science (SNR-DBOC)

*Grades: 4–12; March–May
(offered only with overnight)*

During this evening program, students will learn about the frogs and toads of the Reserve by sight and by individual calls. On a short walk to the wetland, students will make observations and collect data focusing on species heard and estimated population density. This information will be submitted to the national FrogWatch database. Capacity: 40 students.

Tallgrass Prairie (SNR-DBOC)

Grades: 6–12; September–November

Explore the fascinating ecosystem that once covered 40% 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, wind-swept 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.

Pond Ecology: Wet and Wild (SNR-DBOC)

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

A whole world lives in the pond community. Using nets, students will sample the pond, discover the diversity of organisms living there, and observe some of the characteristics that allow them to live in this watery environment. Using various tools and guides, students will identify these organisms and focus on adaptations for breathing, eating, and moving through the water. Capacity: 40 students.

Forest Ecology (SNR-DBOC)

Grades: 6–12; Year-round

How are trees like apartment buildings? Why do many wildflowers bloom in the early spring? Who lives in the forest ecosystem? 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, and a variety of activities, students develop a better understanding of this diverse and fascinating ecosystem. Capacity: 40 students.

Wetland Ecology (SNR-DBOC)

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

The wetland is a complex and active place! Observe some of the inhabitants up close and discover some of the characteristics that enable them to survive in this watery environment. Using microscopes, students will discover the structural differences of terrestrial and aquatic plants. A wetland model will demonstrate how wetlands function and why they are so valuable to their inhabitants and humans alike. Capacity: 40 students.

Extended Learning

MBGnet

Visit **www.MBGnet.net** and discover the natural world! Investigate biomes by looking at their climate, plants, and animals. Each biome section includes maps that help students place the biome in the world, a climate description, plant adaptation examples, information about selected animals of that biome, and links to other resources to extend study. A separate Biology of Plants portion of the website teaches younger students about plants using graphics, video clips, songs, and lesson plans.

Affiliate Programs

Beyond the core Center for Nature-Inspired Learning programs based at the Missouri Botanical Garden, Shaw Nature Reserve, and Butterfly House, we work closely with colleagues from the EarthWays Center and Litzinger Road Ecology Center in our efforts to best serve area students, teachers, and schools. These expert teams offer specific niche expertise and resources in the fields of sustainability science and schoolyard ecology, respectively.

EarthWays Center

The EarthWays Center (EWC), a division of the Missouri Botanical Garden, promotes sustainability through environmental education and improving the built environment. EWC programming primarily focuses on energy efficiency, recycling and solid waste reduction, air quality, and green building, all relating to resource use and how it affects the environment. EWC has delivered energy and recycling education in area K–12 schools since 1988. Staff and programs have been recognized regionally for educational leadership.

EarthWays Center staff work directly with the general public and other audiences, including kindergarten through 12th grade (K–12) educators and students, college and university students, instructors, staff, and community educators. They offer both classes and guided tours at the Garden's main campus as well as one-time outreach programs and year-long school-based sustainability programs. For more information, please contact the EWC's Education team at **earthways.center@mobot.org** or (314) 577-0207. You can also visit **www.mobot.org/sustainability**.

LEAP Program (EWC)

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 three-part 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 long
- 30 students max.
- Also available as a three-part series focused on recycling, composting, or HHW

LEAP Special Projects

- Available for K–12 year- and semester-long
- Several LEAP Lessons delivered
- Student Action Project
- Approximately 2 Special Projects will be selected each year.

For more information regarding participation in the LEAP Program, contact the EWC's Education Coordinator at **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. Lessons that include background on energy production and consumption, a student-friendly energy/environmental school audit, and a student-generated analysis cost/benefit 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, contact the EWC’s Education Manager at earthways.center@mobot.org or call (314) 577-0847.

Litzsinger Road Ecology Center

The Litzsinger Road Ecology Center (LREC) is an established educational site dedicated to promoting science teaching and learning, environmental literacy, and stewardship of the Earth. While located in the heart of the metropolitan area—just 10 miles west of downtown St. Louis—this unique 34-acre study center encompasses a rich variety of habitats including bottomland forest, restored prairie, and an urban creek. In addition, classrooms and an on-site computer laboratory offer research and instructional experiences that increase the scope of learning for students and teachers.

LREC, under the management of the Missouri Botanical Garden, is available to educators and students for research and field science programs. Financial support is offered on a competitive basis to promote and support educational activities performed at the site. Grants may fund transportation costs, scientific supplies, and teacher release time. For information, call (314) 540-4068, email martha@litzsinger.org, or visit www.litzsinger.org.



Youth Programs

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-based programs that bring science to life. Dig into soil, become a naturalist, learn about flowers, trees, or water conservation, and much more! Find a program that is perfect for your group by visiting www.mobot.org/scouts.

MBG Teen Network

The Missouri Botanical Garden’s Teen Network engages teens through foundational programming based in several core areas: environmental education, field research, service learning, urban agriculture, 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 these students grow to solve the complex inter-related social, environmental, and economic problems of our world. See page 22 for more information.

Teen Network

ECO ACT

The Saigh Foundation
**Environmental
Leadership
Program**

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, combining sustainability studies with teaching and service learning. High school students become educators as they teach basic ecology and environmental science topics in an elementary class once a week during the school year. Research, adventure, and study experiences in nature and the urban environment add to our students' first-hand exposure to environmental science concepts.

How does the program work?

ECO-ACT participants earn science elective 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 teacher facilitates the class at school. Students are asked to attend three 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 January through April. Students must submit an application, gather reference forms from teachers, and interview with Garden staff as part of the application process.

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

The Garden's Teen Network includes the following programs for students in grades 4–12. More information at www.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 helping families learn about habitats, pollination, plants we eat, and more.

The **Shaw Institute for Field Training (SIFT)** 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 **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.

The **Youth Garden Program** provides the opportunity for students ages 14 and up to explore urban agriculture over the summer. Participants will plan, plant, and care for an existing school food garden, attend weekly enrichment sessions, and learn about a variety of topics including gardening, urban agriculture, native plants, urban ecosystems, and nutrition.

Habitat Helpers is designed to help kids in grades 4–5 build knowledge of the natural world by exploring Shaw Nature Reserve's prairies, woodlands, and aquatic communities.

H2O is a fun and educational program for kids in grades 6–8 to become more familiar with natural settings by focusing on ecosystems at Shaw Nature Reserve and instruction in outdoor skills.

Teachers

“[The summit] has spawned MANY amazing things at our school. It was incredibly powerful! My fellow teacher and I learned about food insecurity in America and programs that are addressing the problem. Afterward, we launched a whole month-long interdisciplinary program with our 6th graders!”

–Foodology Summit for Schools Participant, 2013

All teachers should feel like their community is there to help and support them. In this spirit, we strive to work with teachers in new ways to help them better utilize the Garden and other scientific/cultural institutions, as well as their local community, as seamless extensions of their classroom. We aim to collaborate with them to better integrate ecological learning across core curricula in ways that provide a real-world context for exploring important issues and ideas. We aspire to increase teacher confidence and comfort with effective outdoor learning while deepening their natural science content understanding. We seek to recognize and reward Teacher Leaders who exemplify and model the very best ways to enable students to make meaningful, emotional, personally relevant, lasting connections with the natural world.



Dig deeper with us...

Across all sites, we stand at the ready to help you grow, evolve, adapt, and thrive as an educator and community leader. Specifically, ask yourself:

Are we doing all we can to ensure all students know how the natural world works? Is ecological literacy and ethos integrated throughout your classroom curriculum, your school’s culture, and your family and community engagement efforts?

Are students enabled to investigate and tackle local challenges? What’s going on around you? Vacant lots? Flooding? Access to healthy, fresh food? Stream pollution? Air quality issues? Loss of native wildlife?

To what extent are you and your students tapping into and benefitting from your community’s extraordinary resources, from science and cultural institutions to local businesses and government agencies?

Teachers

Teacher Professional Development Opportunities

Looking for unique, in-depth, personalized professional development opportunities? We will come to your school, or you can come to us. While we can develop customized programs for your specific needs, we regularly provide professional development on the following topics:

- Plants and Plant Science
- Effective Outdoor Learning
- STEM and Inquiry-Based Science Education
- Schoolyard Gardens
- Schoolyard Ecology
- Science of Sustainability

The program costs for professional development programs are:

- \$125 for the first hour and \$50 for each additional hour.
- Mileage fees for outreach programs: \$1 per mile over 20 miles from the Garden or Butterfly House.
- A materials fee may apply in some cases, depending on the activities desired. We will quote all anticipated costs to you prior to the program.

Please call (314) 577-0819 or send an email to **teachertraining@mobot.org** to discuss your needs and schedule a program.

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** for more information.

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

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 one-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** and click on Educational Resources.

Education E-Scoop

Check out our monthly e-newsletter featuring outdoor learning tips, science and literacy links, and upcoming programs. Throughout the year, we'll spotlight teachers and students who are connecting with, caring for, and conserving the natural world. To sign up, visit **www.mobot.org/schoolprograms**.

Schools&Districts

“Children are born with a sense of wonder and an affinity for Nature. Properly cultivated, these values can mature into ecological literacy, and eventually into sustainable patterns of living.”

–Zenobia Barlow



Schools and school districts play a critically important, central role in the health, prosperity, and well-being of a community. In many ways, they are the tallest and most influential trees in a community forest's emergent layer, under which young seedlings sprout, grow, and thrive.

We aim to encourage, equip, and motivate individual schools and entire districts to better utilize Garden people, places, and programs for maximum student/school benefit. We also aim to help schools, teachers, students, and families to think about and use their local communities as extended classrooms for real-world environmental learning and problem-solving.

Schools&Districts

Partner School Program

We are constantly seeking new ways to engage our young visitors and their chaperones and to provide them with the richest and most enjoyable experiences possible. To that end, we invite schools to become our partners in evaluating and improving our programming and operations by taking advantage of our offerings, providing us with constructive feedback, and suggesting ways in which we can serve our teachers and students better.

Opportunity

- **Field Trip Opportunities:** Each classroom will have the opportunity to take part in:
 - One free Guided Tour field trip experience at the Missouri Botanical Garden for up to 30 students and 6 adults.
 - Discounted pricing on one Garden Class field trip experience at the Garden for up to 30 students and 6 adults, or one Outreach program in your classroom.
 - Discounted Class Rate: \$30 for ZMD
\$60 for Non-ZMD (up to 30 students)
 - Advance registration on all field trips.
 - A complete list of currently available tours and class options is available at **www.mobot.org/schoolprograms**.
- **FREE Use of the Stupp Teacher Resource Center (STRC):** Teachers at participating schools will be permitted to check out any STRC materials they wish at no cost. For more information on the STRC, please see page 24.
- **Family Science Night:** Students, teachers, and staff will be invited to bring their families to our annual Family Science Night. This after-hours event takes place during an evening in early May and includes free admission to the Garden and the Children's Garden for all attendees.
- **Professional Development Opportunities:** Teachers will be given the opportunity to audit one evening or weekend Professional Development session of their choice during the school year.

Commitment

- Make use of pre- and post-visit suggested activities connected with the field trip programming appropriate to their visits with us.
- Arrange for transportation to and from the Garden field trip experiences.
- Participate in post-field trip surveys following visits to the Garden and outreach programs to provide constructive feedback on registration, on-site programming, and in-classroom learning experiences such as pre- and post-visit suggested activities.
- Conduct one set of anonymous content pre- and post-tests with students attending a Garden field trip during the year and report the results to School Programs for the purpose of evaluating the effectiveness of our programs and delivery.
- Distribute the Garden's Family Engagement newsletter to students once per quarter.
- Expand effective outdoor learning in some meaningful way at your school over the course of the year. We encourage you to incorporate urban biodiversity studies throughout your curriculum! At the end of the year or throughout, send us a photo, updates, or a paragraph summary on what is happening at your school.

For more information, please contact **schoolprograms@mobot.org**.

Registration Information

Missouri Botanical Garden

How to register:

- All groups planning to visit the Missouri Botanical Garden are encouraged to register before they visit. Capacity within the Garden is limited, so please register to ensure your group will be admitted. Unregistered groups may be turned away on high-traffic days.
- For a complete list of available programs, booking information, including dates and times, and to register, visit **www.mobot.org/schoolprograms**.
- Online registration is available for Garden Classes, Guided Tours, and Self-Guided Visits.
- To register for Multi-Part Classes and Outreach programs, you must register by phone by calling the School Programs department at (314) 577-5185.

When to register:

- For Fall 2014 programming: July 15, 2014.
- For Spring 2015 programming: November 3, 2014.
- For Summer 2015 programming: February 14, 2015.
- Garden Classes, Guided Tours, Outreach, Multi-Part Classes, and Canopy Climbs must be booked at least six weeks in advance.
- Self-Guided Visits should be booked at least two weeks in advance.
- Children's Garden visits may be scheduled as a stand-alone experience or in addition to other programming such as Garden Classes, Guided Tours, or Self-Guided Visits. Please be aware that only school groups who have pre-registered can be admitted to the Children's Garden. As capacity is limited, registering early is recommended.
- Registrations for all programs are accepted on a first-come, first-served basis.

Scholarships:

Scholarships are available on a first-come, first-served basis. Call (314) 577-5185 for more information.

Zoo-Museum District Schools (ZMD):

Schools located within St. Louis City and St. Louis County are eligible for ZMD pricing and other considerations thanks to the support of the ZMD. Call (314) 577-5185 for information or to see if your school qualifies.

Chaperones:

- For the safety of all students, teachers should plan to bring at least one chaperone for every five students who attend, especially if visiting the Children's Garden.
- You may bring additional chaperones, but they will be admitted at the normal admission price.

Field Trip Pricing:

- Garden Classes and Guided Tours may be booked as Standard (up to 30 students) or as Large (up to 60 students). Please note that ZMD schools receive a 50% discount on program fees.

- Garden Class or Guided Tour—Standard:

Up to 30 students and 6 adults	Garden Class: \$100 Guided Tour: \$60
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- Garden Class or Guided Tour—Large:

Up to 60 students and 12 adults	Garden Class: \$200 Guided Tour: \$120
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Self-Guided Visits:

- Self-guided visits include free admission for one adult for every five students attending.
- Shaw's Satchels should be requested prior to your visit. Shaw's Satchel rental incurs a \$5/satchel fee for non-ZMD schools. ZMD schools may reserve satchels free of charge. Please be aware that supplies are limited.
- Free self-guided activities for all groups are available for download at **www.mobot.org/schoolprograms**.

Children's Garden visits: \$3 per student. Please note that school groups **must** pre-register to enter the Children's Garden during their visit.

Outreach Programs:

- \$100 per class of up to 30 students
- \$50 for additional classes conducted on the same date in the same location.
- Schools located more than 20 miles from the Missouri Botanical Garden incur a mileage charge of \$1/mile over 20 miles.
- Please note that a maximum of three programs can be scheduled on a given day.

Multi-part Outreach Packages:

- ZMD: \$150 for the first class of up to 30 students, \$100 for each additional class up to three.
- Non-ZMD: \$200 for the first class of up to 30 students, \$100 for each additional class up to three.
- Please note that any applicable mileage charges apply to both outreach programs. (See Outreach Programs above).
- A maximum of three outreach programs can be scheduled on a given day. Field trip scheduling is subject to availability. Teachers are strongly encouraged to register early in order to facilitate scheduling.

Registration Information

Sophia M. Sachs Butterfly House

How to register:

- For Field Trip Classes and Outreach Programs, all registration must be done through the Butterfly House by calling (636) 530-0076, ext. 13. Programs must be requested by name when scheduling.
- Prior to calling to book an Outreach Program, please check your school calendar and be aware of special programs, testing days, holidays, and fire/tornado drills that may conflict with scheduling an Outreach Program.

When to register:

- For Fall 2014 programming: May 19, 2014.
- For Spring 2015 programming: November 3, 2014.
- For Summer 2015 programming: February 2, 2015.
- Classes are available August to May.
- Outreach Programs are available year-round.
- 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.
- Please register at least two weeks in advance of your desired program date. We encourage you to book as early as possible, given limited capacity on high-demand dates.

Capacity:

Field Trip Class capacity is 30 students per program, but split session classes of up to 60 students per program may be considered. Call (636) 530-0076, ext. 13 for more information.

Chaperones:

- For Field Trip Classes, chaperones are required at a minimum of one adult for every five students.
- Chaperones in excess of the required ratio will be admitted at normal admission rates.
- Please note that due to space considerations in the Lopata Learning Lab, a maximum of 10 adults will be allowed in the Lab during programs.

Field Trip Pricing:

- Field Trip Classes: \$150 for up to 30 students and six adults.
- Additional adults may be admitted at normal admission rates.
- Self-guided visits may be scheduled by calling (636) 530-0076, ext. 10. Pricing may vary.

Outreach Programs:

- All programs are 1 hour long and cost \$150 for the first program and \$50 for each additional program scheduled for the same day.
- A maximum of three 1-hour programs can be scheduled on each day. If more than one program is offered on the same day, a minimum 10-minute break is required between programs.
- Outreach sites located more than 20 miles from the Butterfly House will be asked to pay an additional fee of \$1/mile over 20 miles.
- Student participation is limited to 35 per program. Teachers/staff are required to stay in the room during the presentation.



Shaw Nature Reserve

How to register:

- All groups, whether led by a Reserve instructor or self-guided, must make reservations for their visit. To schedule a visit, please call (636) 451-3512.
- When calling to register, please have the following information ready:
 - School name, address, and phone number
 - Contact person's name for confirmation
 - Program choice(s): make sure that the program is available the month you need it
 - Date and time (please have alternatives)
 - Grade and number of students
 - Teacher's name and home phone number
 - Will you be eating lunch in our picnic areas?

Scholarships:

Scholarships for groups interested in programs at Shaw Nature Reserve or the Dana Brown Overnight Center are available on a first-come, first-served basis. Call (636) 451-3512 for more information.

When to register:

- October 1 for January Maple Syrup classes
- November 1 for spring classes (March–May)
- May 1 for fall classes (September–November)
- If the first of the month falls on a weekend, registration will begin the following Monday.

Pricing:

- Classes for grades PreK–8: \$2 per student.
- Maple Syrup Making for grades PreK–8: \$3 per student.
- Canopy Climbs: \$40 per student.
Minimum per program: 20 students (24 maximum).

Chaperones:

- Chaperones are required. Required chaperones receive free admission. Please recruit the required number of chaperones by grade level:

Grades PreK–3: 1 adult per 8 students

Grades 4 and above: 1 adult per 10 students

Dana Brown Overnight Center

The Dana Brown Overnight Center is located within Shaw Nature Reserve and offers both daytime and overnight programming. All buildings within the Center are climate-controlled and include indoor restrooms.

Amenities:

- All groups who register for a program at the Dana Brown Overnight Center have access to the Adlyne Freund Center or the Assembly Building.
- Overnight guests may make use of up to four lodges, each housing between 14 and 19 students for a total of 60 students and 4 adults.
- Please visit www.shawnature.org/danabrown for more information, including descriptions of all facilities.

How to register:

- Groups may register for a day program, a one-night stay, or a multiple-night stay.
- To register, contact Aileen Abbott at (636) 451-3512, ext. 6081 or aileen.abbott@mobot.org.

When to register:

- Groups may register up to one year prior to their intended visit. Availability is limited and programs are scheduled on a first-come, first-served basis. Please register early!
- Registrations will not be accepted fewer than 60 days prior to the date of the group's intended visit.

Pricing:

- Lodging: \$20 per student for a one day/night stay, \$30 per student for a two-night stay
- Day use groups pay program costs only.
- Programs: \$5 per student, day or night.

Registration Information



4344 Shaw Boulevard
St. Louis, MO 63110
(314) 577-5100
www.mobot.org

From East via I-44

Take I-70 west across the Poplar Street Bridge. Merge onto I-55 south to I-44 west. Exit at Vandeventer/Kingshighway (Exit #287 B-A) and turn left. Then turn left on Shaw Blvd. The Garden will be on your right.

From West via I-64/40

Take I-64 east. Take the Kingshighway North & South exit (Exit #36 A-B) and turn right. Turn left at the stoplight for Southwest/Vandeventer. Turn right onto Shaw Blvd. The Garden will be on your right.



Hwy. 100 & I-44, Exit #253
Gray Summit, MO 63039
(636) 451-3512
www.shawnature.org

From East via I-44

Take exit ramp #253, turn left, crossing over I-44. Turn right at the intersection (at the Phillips 66) and go 50 yards to the large iron gates on the left side of the road.

From West via I-44

Take exit ramp #253, turn right at the top of ramp and then another right at the intersection (at the Phillips 66) and go 50 yards to the large iron gates on the left side of the road.



Faust Park, 15193 Olive Blvd.
Chesterfield, MO 63017
(636) 530-0076
www.butterflyhouse.org

From West via I-64/40

Take the Clarkson/Olive exit (Exit #19 B). Turn left at the stoplight and you will be on Olive Blvd. after crossing under I-64. The Butterfly House is about 1.2 miles on the left inside Faust Park.

From East via I-64/40

Travel west on I-64 past I-270 to the Clarkson/Olive exit (Exit #19 B) and turn right at the stoplight. The Butterfly House is about 1.2 miles on the left inside Faust Park.



MBG CENTER FOR
NATURE-INSPIRED
LEARNING

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



MISSOURI BOTANICAL GARDEN



SHAW NATURE
RESERVE