



## Arboriculture Education Grant Application

If you have any questions, please email [dhettinger@treefund.org](mailto:dhettinger@treefund.org) or call 630-369-8300 x204.

Applicant

### **Organization**

Organization name	Toledo Botanical Garden
Mailing address	5403 Elmer Drive
Mailing address line 2	
City	Toledo
State/province	OH
Zip/post code	43615
Country	US
Has this organization received previous funding from the TREE Fund?	No
If yes, was the funding for this project?	
Previous TREE Fund awards	

### **Contact Person**

Prefix	Ms.
First name	Diane
Last name	Thurber
Title	Environmental Educator
Email address	diane.thurber@toledogarden.org
Phone number	419-536-5589

### **Person Responsible for the Project**

Prefix	Ms.
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First name	Karen
Last name	Ranney Wolkins
Title	Director, Toledo Botanical Garden
Email address	karen.ranneywolkins@toledogarden.org
Phone number	419-536-5566
Degrees and related experience	Yvonne Dubliak- Masters of Science in Educational Administration. Tiffany Jenkins- Master of Arts in Education Doug Conley - Master of Science- Public Horticulture Diane Thurber- Associates, Agricultural Technology Education staff combines over 50 years of experience in environmental and elementary education, certifications in Projects Wet, Wild, Growing up Wild, Leopold and Healthy Water/Healthy People as well as Naturalist, Master Gardener and Interpretive training.
Project	
Project title	From TREEs to STEM!
Type of request	Project support
Description of the project for which funds are requested	With these funds we will partner with an inner city school system of 400 students. We propose to provide each grade level with a field trip to TBG and a follow up school visit. During the 1/2 day field trip students will explore sites on our 60 acre campus to learn about the arboriculture practices we use and to be introduced to a grade level science concept. A follow up in-school activity will enhance the science concept AND underscore the principals of aboriculture and urban forestry. Using the following outline we will tie Ohio science requirements to age appropriate principals of aboriculture. Kdgt- (Ohio Core Concept) Living things respond to stimuli and plants make their own food. Gr 1 - Living things use the environment to acquire what they need to survive. Gr 2- Interdependence of living things. Gr3- Food webs and energy transfer. Gr 4- Decoding the Earth's history .Gr. 5- As environments change so do organisms that survive. Gr 6-. All organisms are composed of cells. We are very excited about the "scavenger hunt" exploration we hope to develop for this purpose. Our horticulture staff has brainstormed with our education department to identify places on the campus demonstrating selection, training, pathogen control, pruning, shaping and fertilization used with our trees, shrubs and vines. Students will follow maps on Ipads to find then photograph the locations and determine which management practice was being used. Emailing the photos to the classroom will reinforce learning.
What makes this project unique?	We strongly support the current initiative to increase student achievement in STEM subjects to insure a generation of scientifically literate students interested in pursuing careers in Science. From TREEs to STEM uses, as its foundation, the required Ohio science content then connects it to real life learning when students visit our 60 acre outdoor campus and explore the role of aboriculture in maintaining our plant collections. The follow up visit in the classroom will clarify and enrich the content understanding. Using aboriculture to expand and explore grade specific science

content, we believe, is a unique yet well suited way to expose students to the enjoyment, protection and benefit trees provide in our lives in an age appropriate ways. For example using Johnny Appleseed as a base for 1st grade and dendrocronology for 6th grade provides ways to connect aboriculture to state science content. We have a successful history of taking the unique aspects of TBG and turning them into relevant learning experiences for area students. For ex: an EPA stream restoration project inspired our educators to create a watershed education program that is now part of our permanent curriculum. Likewise, our educators leveraged a storm-water management grant used to create a rain-garden on our property into a rain garden education program, linked to our pond water testing program. We hope to now create a link between our aboriculture practices and the standards teachers are looking to cover when choosing field trips and guest speakers.

Why is it needed?

Students in the Central City Ministries school system rank in the highest "at risk" population of the Toledo area. Due to financial challenges they currently do not take field trips or have fee based presenters visit the schools. TBG has been able to use outside funding to provide them programming in the past and the staff and administration are extremely engaged, enthusiastic and professional in working with us. Partnership with them fills a vital need for their students, and offers us a chance to work with a controlled population to create and tweak new programming ideas that can then be added to our regular programming. TBG strives to bring new and unique environmental education opportunities to the Toledo area and securing a TREE's grant is a perfect opportunity to use cultivation and management techniques already in use on our campus and transform them into engaging, real world, content correlated, science experiences. No other nature education programs in Toledo area have made this connection for k-6 grade learners. Targeting Central City Ministries with this grant also enhances the outreach of our Toledo GROWs urban gardening program. Students at these schools have been working with our urban garden coordinator to add planting spaces, raised beds and Monarch Way Stations on the school grounds. This grant would allow us to expand that relationship.

Description of what outcomes are expected as a result of this project

From TREES to STEM will at the very minimum expose 400 inner city students to examples of aboriculture and urban forestry. We strongly feel that it will also increase fluency of grade level life sciences core content, and excite student enthusiasm for plants and nature. Exposing students to the role of trees in our urban environment is critical to their life long appreciation of maintaining a natural balance within a healthy urban setting. Depending on grade level, students will tie their new experience with aboriculture to other life science concepts through games, activities and experiments about photosynthesis, adaptations, interdependence, pollination, food webs, composting, resource conservation, plant and animal characteristics, watersheds, weathering and sedimentation. We expect that our pre and post assessments will show a measurable and quantifiable increase in student aptitude about what aboriculture is and what role it plays in our urban environment. Additionally, student competency with regard to the grade specific science concept will be enhanced at the same time.



At least 3 measurable goals to determine the success of this project	<p>1) Increase in student competency in answering the pre and post assessment probes.</p> <p>2) Teacher evaluations of the field trip and classroom visit will provide professional input regarding efficacy of the program.</p> <p>3) During the follow up classroom visit, educators will review main concepts introduced at the preceding field trip and quantify numbers of students able to answer key questions.</p>
Method for assessing achievement of project goals	<p>While student assessments, like pre and post probes, are a great tool for tracking specific student learning, it is also our belief that tracking students enthusiasm, curiosity, question asking etc. is an equally critical tool to assess the more intangible goals of increasing a love of nature, and of learning in real world settings. These are best captured through careful observation from teachers, chaperons and educators working with the students. Teacher evaluations will hope to capture achievements associated with these goals.</p> <p>Also, by having students follow maps, photograph plants and identify plant management techniques, we will collect immediate data to assess their understanding of that portion of the program, as it is happening and while it can be corrected or enhanced.</p>
Plans for sustaining the project after the grant	<p>Using the TREES to STEM grant as a pilot program will allow us to improve or modify where needed using a small controlled target audience. This information will then be used to create a permanent addition to our curriculum. TBG's Children's Education program reaches about 5000 students each year. Approx. 60% of those pay a fee for services, while our staff works hard to find outside funding for the other 40% through area businesses and other sources used specifically for schools in at-risk areas. Whenever a new program topic is added to the curriculum, area teachers are notified through our email distribution list. We also partner with area environmental organizations who advertise our projects in their email newsletters. Schools with the means will be able to sign up for the program at a cost of \$5/student for the field trip or \$50 per school visit. Because the majority of the funds requested will go to program development and execution of a pilot program, no additional funds will be needed to sustain the program in future years. Very little consumables are used in any of our programs, and what overhead is needed is built into the fee.</p>
Project start date	08/15/2015
Project completion date	03/15/2016
Timeline	<p>Late August - Meet with teachers and administrators from Central City Ministries schools to confirm funding and review the project timeline. (They have all approved a proposed outline)</p> <p>Sept- Teachers will have students do a pre assessment probe (provided by TBG to gauge grade level appropriate understanding of concepts to be introduced). These will be sent to TBG to use to better prepare for the field trips.</p> <p>Sept-November - Each classroom will visit the TBG main campus where small groups (with adult supervision) will set off on a scavenger hunt we are thinking of calling "the aboriguest", which will involve using ipad technology, mapping skills, team work and problem solving to find several garden locations and identify the aboriculture technique in use. They will return to the education</p>

building to share their photos and enjoy a correlated activity, experiment or game that ties the science concepts together. Dec-Feb.- each teacher will schedule a one hour visit to the classroom where a TBG educator will review the field trip experience and present an additional activity tied to the grade level concept. This visit will also allow time for a very brief post assessment probe and allow for student questions or comments.

Is this a new project for your organization?

Yes

#### Project Budget

Total project budget	\$5970
Amount requested	\$5000

#### Other Sources of Funding

##### Source 1

Name	BP-Husky Toledo Refinery
Amount requested	\$500
Amount received or committed	\$500

##### Source 2

Name	Dorothy Price Foundation
Amount requested	\$500
Amount received or committed	\$500

##### Source 3

Name	
Amount requested	
Amount received or committed	

##### Source 4

Name	
Amount requested	
Amount received or committed	

Organization

Date of organization's incorporation 01/01/1981

Summary of organization's history, mission and goals

Toledo Botanical Garden was founded in 1966 by a gift of 20 acres from George Crosby. At that time it was called Crosby Park and played the same role as many of our parks in the area. In 1974, Crosby Parks Board of Trustees and a group of community volunteers raised over \$2.1 million to begin the transformation into a botanical garden to serve as a setting for public programs in horticulture, the environment and the arts. This year as we celebrate our 50th Anniversary, we are proud to be "a living museum where plants of historical, scientific, and aesthetic value are cultivated and displayed and also serves as a biological laboratory where plants of all types are collected, preserved and studied." Toledo Botanical Garden is a public/private partnership between the Metroparks of the Toledo Area and the non-profit Toledo Botanical Garden Board, Inc. in collaboration with the City of Toledo. Toledo Botanical Garden's goal is to create a true passion for plants, nature and the arts within our community. We want to become the place you go for horticulture information. We are providing an exciting venue for the performing and visual arts in our beautiful garden setting. We are reaching into the schools and urban neighborhoods with our gardening and environmental education programs and bringing people to the garden to learn and enjoy our outstanding plant collections. Our mission: Toledo Botanical Garden inspires and nurtures the joy of growing through stewardship of horticulture, arts and nature.

List of other organizations in your area with a purpose similar to your organization and description of collaboration, if appropriate

The Toledo Area Metroparks provides nature education based around interpretive walks and naturalist programs. Our unique public/private partnership with them allows us to collaborate at times hosting workshops or conferences for area teachers.

The Lucas County Soil and Water Conservation District offers education programs as well. We collaborate on sharing equipment and recommending each other when our schedules are too full to handle requests. We are also grant partners with the University of Toledo and Bowling Green University on STEM initiative grants they are both involved with. We provide teacher training and in-class programs designed to increase teachers knowledge and enthusiasm for teaching science in k-12. Toledo area is fortunate to have many community resources for teachers to turn to, including several that offer nature education. TBG holds the unique position of being the only Botanical Garden, which allows us to provide nature experiences from the perspective of a managed, structured collection of plants in an urban setting.

#### Organization Budget

Fiscal year start date 01/01/2015

#### Current Year's Budget

Total organization budget \$1,837,416.00

Organization fundraising \$179,755.00



Date of organization's incorporation	01/01/1981
Summary of organization's history, mission and goals	<p>Toledo Botanical Garden was founded in 1966 by a gift of 20 acres from George Crosby. At that time it was called Crosby Park and played the same role as many of our parks in the area. In 1974, Crosby Parks Board of Trustees and a group of community volunteers raised over \$2.1 million to begin the transformation into a botanical garden to serve as a setting for public programs in horticulture, the environment and the arts. This year as we celebrate our 50th Anniversary, we are proud to be "a living museum where plants of historical, scientific, and aesthetic value are cultivated and displayed and also serves as a biological laboratory where plants of all types are collected, preserved and studied." Toledo Botanical Garden is a public/private partnership between the Metroparks of the Toledo Area and the non-profit Toledo Botanical Garden Board, Inc. in collaboration with the City of Toledo. Toledo Botanical Garden's goal is to create a true passion for plants, nature and the arts within our community. We want to become the place you go for horticulture information. We are providing an exciting venue for the performing and visual arts in our beautiful garden setting. We are reaching into the schools and urban neighborhoods with our gardening and environmental education programs and bringing people to the garden to learn and enjoy our outstanding plant collections. Our mission: Toledo Botanical Garden inspires and nurtures the joy of growing through stewardship of horticulture, arts and nature.</p>
List of other organizations in your area with a purpose similar to your organization and description of collaboration, if appropriate	<p>The Toledo Area Metroparks provides nature education based around interpretive walks and naturalist programs. Our unique public/private partnership with them allows us to collaborate at times hosting workshops or conferences for area teachers.</p> <p>The Lucas County Soil and Water Conservation District offers education programs as well. We collaborate on sharing equipment and recommending each other when our schedules are too full to handle requests. We are also grant partners with the University of Toledo and Bowling Green University on STEM initiative grants they are both involved with. We provide teacher training and in-class programs designed to increase teachers knowledge and enthusiasm for teaching science in k-12. Toledo area is fortunate to have many community resources for teachers to turn to, including several that offer nature education. TBG holds the unique position of being the only Botanical Garden, which allows us to provide nature experiences from the perspective of a managed, structured collection of plants in an urban setting.</p>
Organization Budget	
Fiscal year start date	01/01/2015
<b>Current Year's Budget</b>	
Total organization budget	\$1,837,416.00
Organization fundraising	\$179,755.00

costs

Organization	\$387,491.00
administrative costs	

**Next Year's Projected Budget**

Total organization budget	\$1,892,538.00
Organization fundraising costs	\$185,148.00
Organization administrative costs	\$387,491.00

**Principle Source of Support**

Please provide figures as a percentage of the organization's total budget. The total support should equal 100.

United Way	3
Government contract	8
Foundation or corporate	27
Earned income	50
Individual contributions	12
Total support	100

Applications will be scored on the following scale:

- Relevant staff are qualified (0-10)
- Project increases knowledge in arboriculture or urban forestry (0-25)
- Project is hands-on (0-15)
- Need is defined (0-15)
- Objectives are clearly stated and adequately assessed (0-15)
- Timeline is feasible (0-10)
- Budget is clear and reasonable for the project (0-10)

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Applicant

### **Organization**

Organization name	Forest ReLeaf of Missouri
Mailing address	4207 Lindell Blvd.
Mailing address line 2	Suite 301
City	St. Louis
State/province	MO
Zip/post code	63108
Country	US
Has this organization received previous funding from the TREE Fund?	No
If yes, was the funding for this project?	
Previous TREE Fund awards	

### **Contact Person**

Prefix	Ms.
First name	Wendy
Last name	Schlesinger
Title	Development and Marketing Manager
Email address	wendy@moreleaf.org
Phone number	314-533-5323

### **Person Responsible for the Project**

Prefix	Dr.
--------	-----

First name	Donna
Last name	Hart
Title	retired professor of Anthropology
Email address	hartd@msx.umsi.edu
Phone number	573-470-6463
Degrees and related experience	PhD Biological Anthropology. 12 years teaching at the undergraduate level. 25 years experience in international wildlife conservation. The other team members are elementary and secondary teachers ranging from Kindergarten through senior high school all with a minimum of 25 years in the classroom.
Project	
Project title	Forest ReLeaf in the Classroom
Type of request	Start-up costs
Description of the project for which funds are requested	Forest ReLeaf in the Classroom is a hands-on interactive program teaching students about the many benefits trees provide and developing tree stewards in the process. Four levels of lesson plans: K-2, 3-6, middle and high school have been developed and will be taught by a trained docent/educator to present the 45-60 minute program. In addition to basic biology and environmental impact lessons, emphasis will be placed on the social and community benefits. Special "forest trunks" will be brought into the classroom with level-specific items for hands-on activities teaching students about the integral role trees play in our daily lives. Examples of some of the materials include a rain gauge, blood pressure cuff, clinometer, tree cookies, binoculars, bag of acorns, Frisbee, dollar bill, mood surveys, and tree journals. A special tree benefits board game has been created to reinforce the knowledge. Docents will leave behind suggestions for extended lessons and a "coupon" for a free tree from Forest ReLeaf for spring or fall planting.
What makes this project unique?	Lessons include a coupon for a 4-5 foot tall, 3-gallon native Missouri species tree from our nursery for planting. Providing an actual tree encourages continual learning throughout the students' tenure at that school. The hands-on interactive component addresses learning through all the senses including scent and touch. The more students integrate the information the more likely they are to retain it. Lesson plans teach the concept of biophilia theory and help to explain the effect trees and nature have on positive and negative behaviors. Because Forest ReLeaf has its own nursery, we can also provide additional follow up learning experiences like tours of the arboretum, greenhouse and rain garden, and participation in planting projects or nursery volunteer work. The nursery is managed by an ISA Certified Arborist who leads the tours and oversees the nursery volunteer work and operations.
Why is it needed?	This program helps every child know that nature is a necessary part of our environment. It emphasizes easily relatable and documented tree benefits like reduced ADHD and asthma symptoms, increased property values, lower blood pressure rates, reduced cooling costs and lower crime rates. Providing each classroom with a hands-on

	<p>program including a tree they can watch grow over the coming years reinforces the lessons learned and will create more tree stewards for the future.</p> <p>We are unaware of an environmental organization that conducts educational outreach through the school systems on a regular basis. Many do one-time presentations but not on a consistent basis. Additionally, current programs tend to focus on the scientific environmental impacts of trees and nature and not the social and community aspects. This program is aligned with the Missouri Department of Elementary and Secondary Education Core Curriculum requirements for science education.</p>
Description of what outcomes are expected as a result of this project	<p>Overall the program opens students to new ideas about nature and trees. They learn nature is an integral part of our lives and there is a vital connection. Student outcomes vary by grade level. K-2: students learn trees are living things, they benefit people and animals and people can also help trees. Grades 3-5: learn benefits and many uses of trees and gain an understanding of what life would be like without trees. Grades 6-8: learn benefits and uses of trees and understand variations across trees species; parts of leaves and basis of identification. Grades 9-12: students focus on the contributions trees make to our lives, understand how trees affect our health, environment, economy and community. From a teacher's perspective the program will excite the teacher with learning opportunities involved with the concept of the necessity of trees and will provide them with the ability to continue integrating that idea on their own throughout their lesson plans going forward.</p>
At least 3 measurable goals to determine the success of this project	<ol style="list-style-type: none"><li>1- Gain a statistically significant increase in students' program matter knowledge before and after the presentation.</li><li>2- Gain feedback to fine-tune program for best delivery and material retention.</li><li>3- Present the program to at least 4 different schools in the fall semester</li><li>4- Teachers will incorporate the program knowledge into their regular curriculum going forward.</li><li>5- Program will result in an increase in the number of free trees planted through these schools, teachers and students.</li></ol>
Method for assessing achievement of project goals	<p>Lesson plans were developed to include pre- and post-tests to determine the efficacy of the program. Tests will be administered at each presentation and evaluated to determine if there is a statistically significant increase in knowledge base. The evaluation will also provide valuable information to alter the program where necessary.</p> <p>School visits are tracked and teachers will be followed up with routinely to check on their planted trees, provide additional support and identify if and how they are incorporating this subject matter into their regular curriculum. Should a school have the ability to visit the nursery, all visitors and nursery volunteer hours are also carefully tracked.</p> <p>Tree requests are routinely tracked and identified as to their requesting source.</p>
Plans for sustaining the project after the grant	<p>The program will be promoted through a variety of media outlets connected with Missouri Department of Conservation, Missouri</p>



Community Forestry Council and Missouri Forestkeepers Network. Program information and availability will be mentioned as well as a call for qualified educator volunteers. The program will also be offered as an internship or independent course of study at the Honors College of Education at the University of Missouri, St. Louis. Other potential granting entities such as Ameriprise, Stupp Foundation and others have been identified to provide additional funding. Grant evaluation periods for these groups however will not occur for another six or more months.

Project start date	03/01/2015
Project completion date	12/31/2015
Timeline	<p>Week of 3/30 introduce program into Little Creek Nature Area, part of Ferguson-Florissant School District High School</p> <p>April 10, introduce program into Grade 3 of City Academy</p> <p>First Week of May, introduce program in three separate classrooms; Kindergarten, first and second grades all at City Academy</p> <p>Mid-May – introduce program in to North Kirkwood Middle School</p> <p>May-June – evaluate results and tweak program</p> <p>July-August – Standardize materials, recruit and train educators,</p> <p>August - promote program to schools</p> <p>September – December –continue to test program in four additional schools districts; continue to recruit educators and promote program; continue to evaluate programs and adjust where needed. Prepare for a full launch in 2016.</p>
Is this a new project for your organization?	Yes
Project Budget	
Total project budget	8950
Amount requested	5000

### **Other Sources of Funding**

#### **Source 1**

Name

Amount requested

Amount received or committed

#### **Source 2**

Name

Amount requested

Amount received or committed

**Source 3**

Name

Amount requested

Amount received or  
committed**Source 4**

Name

Amount requested

Amount received or  
committed

Organization

Date of organization's  
incorporation

04/27/1993

Summary of  
organization's history,  
mission and goals

In 1993 Forest ReLeaf of Missouri was incorporated with a mission to bring volunteers together to plant trees in Missouri's urban communities. 3-gallon trees grown on site in their CommuniTree Gardens Nursery are distributed free of charge through Project CommuniTree to groups like schools, parks, community and youth organizations with the provision they must be planted on public or nonprofit land. Through their Priority ReLeaf program, Forest ReLeaf selects high-need projects, typically in financially-underserved neighborhoods or those recovering from severe storms, and provides them with large, 10-15' tall, 15-gallon trees. Through the combined programs, they give away about 15,000 trees each year. More than twenty years later, Forest ReLeaf has distributed over 160,000 trees throughout Missouri and into Southern Illinois. We operate the only community-assisted nursery in the Midwest. In addition to distributing free trees, they lead a variety of educational activities. These include the annual, free, 7-week TreeKeepers course; a variety of lectures throughout the region; outreach activities at festivals and symposiums; organizing community planting events; and regular monthly nursery tours which feature the arboretum, and demonstration rain garden. Last year they were chosen to receive the Excellence in Urban Forest Leadership Award in the Arbor Day Foundation's 2014 National Awards Competition. Their goal is to continue to reforest the region and build tree stewards of all ages. Mission statement: Forest ReLeaf of Missouri is a catalyst for restoring and sustaining our urban forests. With the help of thousands of volunteers, we are planting trees and enriching communities.

List of other organizations  
in your area with a  
purpose similar to your  
organization and  
description of  
collaboration, if

Brightside St. Louis focuses on city clean up and does some planting projects (often with our help). As the program expands they may be a resource for us. Gateway Greening focuses on city gardens, primarily as a food source. They too, while similar, could be approached as a partner if the program were to expand outside the proposed curriculum. The Green Center offers classes on a number

appropriate

of topics. Classes however are conducted on site at their location and charge \$7/student.

This could be a complementary program to our own for interested schools and groups who could afford it.

**Organization Budget**

Fiscal year start date 01/01/2015

**Current Year's Budget**

Total organization budget	450000
Organization fundraising costs	40500
Organization administrative costs	31500

**Next Year's Projected Budget**

Total organization budget	485000
Organization fundraising costs	43650
Organization administrative costs	33950

**Principle Source of Support**

Please provide figures as a percentage of the organization's total budget. The total support should equal 100.

United Way	0
Government contract	38
Foundation or corporate	40
Earned income	2
Individual contributions	20
Total support	100



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- Relevant staff are qualified (0-10)
- Project increases knowledge in arboriculture or urban forestry (0-25)
- Project is hands-on (0-15)
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