

**TITLE: ARBORICULTURE EDUCATION:
Extending Five Seconds of Curiosity to Five Minutes of
Discovery**

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ABSTRACT:

The practice of modern arboriculture is fascinating to some and strikes fear into the hearts of others. Properly caring for trees is both physically and intellectually challenging. The Morris Arboretum has a unique role as both a public garden and a leader of environmental education. For those that are curious about arboriculture the chances to be curious and ask questions are quite limited. Here at the Morris Arboretum we have the unique opportunity to work in the garden while visitors are in attendance. Visitors that understand the Arboretum's role in education readily ask questions and watch the arborists at work. The problem that presents itself is the inability of the arborist(s) to respond to the many inquiries while work is being done. These lost opportunities are the focus of this project. A two sided 2 x 3 feet sandwich board was designed to answer the most basic questions visitors ask. How does an arborist climb a tree? What are the arborists doing in the tree? What type of tree is it? And what type of work are you doing now? These questions are answered in an effort to capitalize on the visitor's curiosity about arboriculture and tree care and give them a spring board for further discovery. The sign is portable, easily set up and informative.

*Arboriculture Education:
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INTRODUCTION

In extending educational opportunities to members and visitors of the Morris Arboretum, capitalizing on teachable moments in the garden is important. A wealth of new visitors to the Arboretum have been drawn to exciting new exhibits like “Out on a Limb” and long-time favorites like the Garden Railway. In our efforts to reach new visitors and long-time visitors alike, we must remember that connecting them with the garden is important. A vibrant, changing and engaging experience will keep visitors interested in both the Arboretum and the environment. The Arboretum does an amazing job with its programs, tours, classes, and social networking outlets. By extending informal arboriculture I hope to add a small element to the many reasons why a visit to the Arboretum is a new experience, where we are “Always Growing.”

This project seeks to grow the knowledge and understanding of trees in the environment among the general public, primarily visitors to the Arboretum. Arboriculture in its most basic form is interesting and exciting to watch. Visitors passing by are drawn to watch arborists as they climb trees, trim branches, or lower large limbs. Whether it is out of curiosity or fear, there is a moment when the attention of the visitor is fully captured by an arborist. This moment can be the first step to a greater interest in trees – and hopefully tree care and conservation.

THE NEED FOR ARBORICULTURE EDUCATION

The need for arboriculture education is evident from the many young trees improperly planted with mulch piled too high to mature trees with their root system cut away for new paving or construction projects. I worked for almost ten years in environmental education, and like many nature centers, mine relied heavily on animals to convey the importance of protecting and preserving the environment. Summer camps with animals always filled faster than those without. The challenge for the educators and visitors alike was simply how to get people excited about plants. Our one ace card was the maple sugaring season, when the sweet sap and warm campfires drew visitors close to trees. The importance of trees and their preservation became even more important to me during the years I spent in Haiti; this experience was instrumental for me to realize what a world looked like without trees and without a strong connection between humans and trees. Coming to the Morris Arboretum and seeing visitors curiously and cautiously watching arborists at work in a tree – when only moments before their only concern was finding their position on a map – awakened the educator in me. I made myself available to these visitors and found they often asked many questions. Disappointingly, many opportunities to interact with visitors were lost, as the need to assist a climber or clear fallen limbs was more important than continuing a conversation. These lost opportunities to build on a visitor’s curiosity seemed important and drove me to seek a way to engage these visitors and try to create a unique learning experience.

Tree care and preservation are topics that should interest everyone, but unfortunately they do not. The loss of a tree has many residual impacts, including loss of wildlife habitat, decreased absorption of water, reduced air quality – not to mention the negative effects on property value.

Unlike many things in our society, a mature tree cannot be easily replaced. The understanding that people can have an active role in preserving trees is one that needs to be spread. It seems that many people mistakenly “let mother nature take its course” with trees, and when a tree becomes a problem to the homeowner it is removed. I would like to make inroads to the general public to show them that tree care is something that is not impossible and when done properly can benefit the tree as well as the property owner.

THE TEACHABLE MOMENT

A simple concept in education provides the foundation for those unique moments when an arborist is working in a tree and a visitor’s attention and interest are obtained. This moment is a teachable moment, and is defined as “the time at which learning a particular topic or idea becomes possible or easiest.” This concept was popularized by Robert Havighurst in his 1952 book, *Human Development and Education*. In the context of education theory, Havighurst explains, “A developmental task is a task which is learned at a specific point and which makes achievement of succeeding tasks possible. When the timing is right, the ability to learn a particular task will be possible. This is referred to as a ‘teachable moment.’ It is important to keep in mind that unless the time is right, learning will not occur. Hence, it is important to repeat important points whenever possible so that when a student's teachable moment occurs, s/he can benefit from the knowledge.” The phrase sometimes denotes not a developmental stage but rather “that moment when a unique, high interest situation arises that lends itself to discussion of a particular topic.” It implies “personal engagement” with issues and problems.

This concept is used throughout the Arboretum. “Out on a Limb” capitalizes on the excitement of being in the tree tops to educate visitors about the sprouting of a seed and life of a tree. In the parking lot we inform visitors of the permeable macadam beneath their feet. As people are enjoying their walk through the Oak Allee, roots painted on the macadam draw visitors’ eyes down to signage explaining how roots function.

These “unique high interest situations” are ones that we cannot let pass us by; they are opportunities for discovery and understanding that will connect the visitor more deeply with the environment and the Arboretum.

TARGET AUDIENCE

The types of visitors and members of the Arboretum vary widely from school children to public garden enthusiasts, home gardeners, nature lovers, as well as those interested in Asian flora. When deciding who the target audience will be, I took notice of who most of the people were asking me questions (as well as the style of educational material already displayed in the garden). Taking cues from “Out on a Limb,” I wanted to keep the material simple and concise and include some interactive elements. The target visitor(s) I envisioned for the project are those that have little to no experience with horticulture and perhaps are visiting with children.

DESIRED IMPACT OF SIGNAGE

The expected primary outcome is a more informed and enriched visit to the garden. Secondly, I hope this will impress the importance of tree care upon visitors and leave them more informed about trees and tree care. I also hope they will come to the understanding that, when faced with caring for trees on their own property, a higher level of care can be given. The ideal scenario would involve a visitor with a large shade tree on his or her property and has not thought to investigate the health of the tree. Now, after watching (and better understanding) tree maintenance at the Arboretum, that visitor is made aware of a dangerous defect in a tree, over mulched trees or weed-whacker damage in one of their own trees and can take steps to address these problems. Essentially, an increased sense of responsibility and care towards trees is the goal.

FORMAT/FOUNDATION AND DEVELOPMENT STAGES OF THE SIGN

Why a sandwich board?

When deciding how to engage the visitor, several things needed to be taken into account. First I considered how to physically place something in the garden near the arborist work zone. The smallest and most portable option is a set of sandwich boards (already commonly used by the Arboretum). Ideas for larger displays included a sign board attached to the arborists' trailer, or a larger interactive display inside that trailer. These options require less set-up time and would be larger and potentially more engaging. However, both of these options require the trailer to be used in the garden during every work day, which does not currently happen. After much consideration we decided to create a sandwich board. Considering size, portability and cost, a sandwich board was considered the best available option. A sandwich board can be easily transported in a truck, is large enough for visitors to see, and is easy to set up. A limitation of the sign is the need to physically transport and set up the sandwich board at each work site.

METHODS FOR DECIDING EDUCATIONAL TOPICS

With the format decided, the content of the sign was still open. Suggestions included types of arborist knots, types of trees, tree biology, soil and root interactions, a pruning how-to, life stages of a tree, felling a tree, arborist equipment, chainsaw use, and general care & maintenance. These were all good suggestions, but we needed a method to discover what visitors are interested in. Visitors, not Arboretum staff or arborists, are the target audience, and their interests are ultimately what should drive the content of the sign.

A period of two weeks was set aside for visitor research during climbing tree work in the garden. During these two weeks, volunteers and guides were located on the main pathways near the work site. These volunteers engaged visitors as they passed by, answered questions, and explained what work was being done and why. Notes were taken after each interaction to gauge

the level of interest in various aspects of arboriculture. Our hope was that as volunteers took notes of the questions asked by visitors, a trend would emerge of main topics of interest.

Ultimately one day's worth of visitor information was gathered (unfortunately the timing, weather, season and volunteer availability limited the amount of data collected). The one day of data collecting provided responses from approximately ten visitors that ranged from 2 adult members on their daily walk and a class of fifth graders to a visitor with her five-year-old grandson. Perhaps not surprisingly, the main question was simply "What are they doing?" The second most-common questions revolved around how the work was being done. Despite the disappointingly low amount of visitor information acquired during the formal research, follow-up talks with education department staff and impromptu talks with visitors solidified that these two basic questions were engaging enough to pursue. Thus the signs will answer the questions, "How do you get up there?" and "Why are you up there?"

EXPLANATION OF IMAGES

With a simple, concise, informative sign as my goal, I decided to have a central image and text to explain the image. Deciding how to make the images presented some challenges. For example, depicting how an arborist climbs a tree in *The Tree Climber's Companion* is done solely with drawn illustrations. This popular book uses several images and pages of text to describe the act of climbing a tree safely. Faced with my own limited illustration skills, I decided to rely on photography as my primary method to illustrate how and why arborists care for trees. A collection of photos was taken at the Arboretum, as well as area shopping centers, housing developments, and town parks. From this collection I chose several images I wanted to include in the sign.

The "how" side was initially composed of 4 to 5 images showing the steps taken to enter a tree and move about in it. After several discussions with Arboretum staff, the need to simplify the sign and reduce the number of images became apparent. The need to display multiple images while limiting myself to one image posed a problem. However, I was able to use Photoshop to insert all of the steps of tree climbing into one image. The end result for the "how" side is a single diagram composed of eleven separate images. I also used Photoshop on the "why" side to consolidate multiple defects in only two trees and to erase parts of the background that seemed distracting. The end result is a set of clean images that clearly convey the fundamental ideas.

EXPLANATION OF TEXT

The body of text that accompanies the images needed to be as equally clear and concise as the photos. The body of terms that arborists use is similar to that of any profession, with some terms being intuitive and some being very technical. For example, main tree stems are called "leaders." An arborist can "subordinate a co-dominant leader," which means to cut back a leader so that it is smaller and subordinate to a larger leader. Most casual visitors to the Arboretum are not well-versed in the arborist lexicon and the signs needed to use a simpler vocabulary. I started by writing out 4 steps to climb a tree with 2 to 5 sentences per step and ended up trimming the

text to 1 to 2 sentences per step. The first draft had about 240 words, and the final copy trimmed about 100 words from the original. It is very important, from my point of view, that non-arborists are able to read and understand the text without getting bogged down or bored with it.

INTERACTIVE ELEMENT

The final, interactive element of the sign is the incorporation of a section of rope and a friction hitch. This type of knot holds everything together in an arborist's climbing system, and understanding how it works is very helpful to understanding how the entire system works. Also, this knot is an active element that kids and adults can touch and interact with. The goal of this is for people to both have fun and also try to figure out how the knot functions. The other element of the sign is a small whiteboard section where the arborist can write the name of the tree and type of work being done at that time in order to specifically address the common questions that visitors have.

EDITING PROCESS

After the images and text were deemed acceptable, a preliminary layout was done and given to various Arboretum staff members for comments and advice. Appropriate changes were made, and ultimately the Web Manager Zac Brooks added the logo and web address, streamlined the layout, and cleaned up the rough edges to make it suitable for use in the garden.

GUIDE INVOLVEMENT

A presentation was made to the guides to make them aware of the sign and to make it available to them as an educational tool while they are leading tours. From now on when they hear or see the arborists at work in the garden, they can rely upon this sign to be displayed and can use it to help visitors understand the process of arboriculture.

STILL IN PROGRESS

During the coming months I hope to gauge the reaction of the sign through informal talks with guides to see if the sign has been a help to them as they give group tours. Adjustments can be made as to where the sign can be placed, more coordination with the education department as to where work is being done or considerations for improvements to the current or future signs. In another effort to extend arboriculture education to visitors, I hope to add several elements to the online intern information page to showcase the arborist intern position. A video displaying the type of work the arborist intern does will give potential interns a greater understanding of both the internship and the field of arboriculture.

FUTURE CONSIDERATIONS

The content of the sign and the arboriculture page can be changed and updated. Depending on the interests of the chief arborist and intern, the possibilities for an expanded educational display still hold great potential for visitor education. As recommended by my supervisor, much of the equipment we use can be made available for visitors to explore further (like climbing saddles and rope). If the current signs become dated or interest in another aspect of arboriculture increases, additional signs can be made to replace or augment the current signs. We already have a wealth of information to draw from, including the topics that have been researched by past interns (ranging from the care of mature trees to Hemlock Woolly Adelgid and Emerald Ash Borer). A whole host of topics can be covered while using the same basic principle: visitor curiosity is piqued when someone is working in a tree, and the Morris Arboretum can and should capitalize on that moment to share useful and interesting information about trees and tree care.

CONCLUSION

A previously unexploited educational opportunity for visitors has been addressed. A simple effective arboriculture education display exposes visitors to a new experience at the Arboretum. Individual visitors as well as guided groups can understand more fully what it is arborists do and why it is important.

ACKNOWLEDGEMENTS

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APPENDIX A: How an Arborist Climbs a Tree

How an arborist climbs a tree

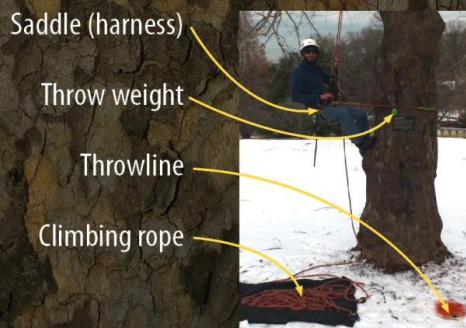


1 A small, weighted bag tied to a thin, lightweight line is thrown to a high, centrally located branch.

2 Once the line is successfully placed, the climbing rope is attached to it and pulled up around the branch and back down to the climber.

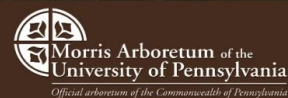
3 With the climbing rope now in the tree, the end of the climbing rope is tied onto the saddle in a way that creates a closed loop. This rope connection is made with a special knot called a friction hitch.

4 The arborist can move about the tree safely.



Try using the friction hitch. Pull up on the metal clip (carabiner) to raise it. Pull down on the carabiner and the knot will “grab” onto the rope. To lower the knot, place your hand on top of the knot and press down.

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What type of tree is this?

Common name:

Scientific name:

What work are the arborists doing?

Can you see the work that needs to be done in the two trees below?

Young Tree



- 1 A broken branch needs to be removed.
- 2 This tree has two central branches that, if left alone, will result in "co-dominant" stems. When large they have a much greater chance of breaking. An arborist will choose a "dominant leader" and prune the other to reduce the risk of breaking.
- 3 This wound in the tree is most likely from a weed wacker. Wounds can become entrance points for insects, bacteria or fungus that can lead to decay inside the tree.
- 4 Too much mulch piled at the base of the tree can cause many problems. The mulch should not touch the trunk. The level of the soil should be where the trunk begins to "flare" at its base.

Mature Tree



- 1 Old long branches need to be pruned to reduce weight and minimize the chance of failure.
- 2 A broken, hanging limb needs to be removed.
- 3 A wound at the base of the tree is a sign of internal decay. A qualified arborist should be consulted to examine the extent of decay in the tree.
- 4 Grass is planted up to the base of the tree which increases the chance of mower and weed wacker damage to the trunk and root system. Two to three inches of mulch under the tree will protect the trunk and roots from future damage and add valuable nutrients to the soil.

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