



BRANCHING OUT

EXPANDING YOUR CAMPUS' URBAN TREE PROGRAMS





THE URBAN FOREST INITIATIVE (UFI)

UFI is a collaborative group composed of faculty, staff, and students from the University of Kentucky, government entities (local, state, & federal), and Lexington community stakeholders, all with an active interest in enhancing the urban forest. This organization has served to champion the elevated perception, value, and function of the urban forest on campus and beyond since 2014. Its members have achieved significant and positive impacts on the public's awareness of and active involvement in the support, care, and expansion of the local tree canopy.



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The Urban Forest Initiative Toolkit

Purpose




This toolkit was created to assist preK-12 faculty, staff, and sustainability coordinators in enhancing their campus and community environmental well-being through various means of citizen involvement. We hope that by utilizing this toolkit, environmental sustainability will be more widely embraced on school campuses.



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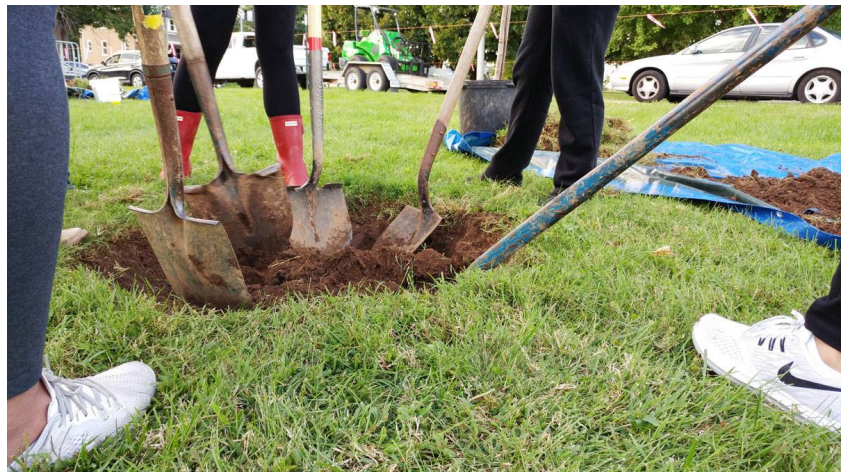
Using School as a Living Learning Laboratory

In this section...

Mulching
Projects



De-mulching
& Watering



Tree Planting
Projects



Tree Mapping
Projects



Mulching Projects

What is it?

Mulching projects engage students and/or the school community to promote tree health. They are fun and serve to educate participants on tree health and related care.

Intention

To enhance tree health through mulching. Mulching provides an abundance of health benefits to trees, including helping to prevent mower damage, reducing soil compaction, increasing soil water retention, and protecting against competition from invasive weeds and grasses. Mulching projects actively engage the community, promoting camaraderie and building a sense of place.

You will need:

- Volunteers
- Mulch
- Cardboard
- Wheelbarrows
- Permission
- Means of transporting mulch
- Space for temporary mulch pile
- Rakes
- Shovels
- Water
- Snacks



How to do it

Work with your physical plant division to identify a location, date, and approximately how many volunteers you will need based on the number and size of trees. Advertise the event via social media and physical flyers. Partner with other entities to secure materials and ensure they are onsite by the day of the event. It is important that volunteers are taught how to properly mulch at the beginning of the event, as improper mulching can compromise a tree's health.



Mulching Projects

Additional Considerations

Securing materials

Arbortists typically generate a lot of mulch through tree pruning and removal, and often times will deliver for free. Consider developing a relationship with your local arborist or your school's physical plant division, if you have not done so already.

Mulching events can occur on-campus or in a community setting. If the event is on-campus, it is likely that your physical plant division will have materials they can provide. If the event is at a community setting, partner with your municipality to borrow tools, such as rakes, shovels, and wheelbarrows.

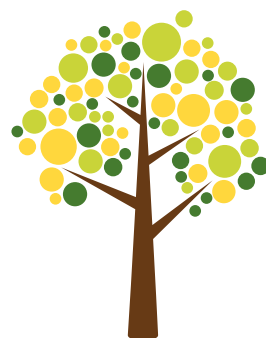
If you are using cardboard beneath mulch instead of herbicide to eliminate competition from weeds and grass, it is important to start collecting it well in advance. Sources include schools and recycling centers. Clean cardboard is preferred (no paint, staples, or tape).

Securing volunteers

Mulching events allow students to engage in teamwork and exercise, as well as spark excitement about trees. Consider offering extra credit for on-campus mulching events.

What makes a good mulching location?

- Potential for community involvement
- Adequate number of trees that are not already being well-managed
- Iconic trees and prominent locations are nice, but not essential
- Plenty of parking





Mulching Projects

Mulch should...

- Be spread evenly at a depth of 3-4"
- Start a few inches away from the trunk (no mulch volcanoes)
- Be spread to the drip-line, if possible



Improper Mulch

Root flare buried & mulch piled high up against the trunk



Proper Mulch

Root flare visible at the base of the tree & mulch extends to dripline of canopy



Beyond Mulching

De-Mulching

Sometimes, the best kind of service events are actually de-mulching events. Too much mulch, or mulch applied improperly, can do more harm than good to a tree. Mulch volcanoes around the base (pictured on the previous page) can retain excessive moisture, predisposing the areas touching the mulch to rot. It also prevents the tree from getting sufficient oxygen, and as a result, smaller and more delicate roots will attempt to grow up through the mulch. These weaker roots are more predisposed to damage.

A de-mulching event may be an easier project to initiate, considering that you will not need mulch, wheelbarrows, etc. However, you will need gloves and hand trowels. Soil knives and pruners also often handy to prune any circling (AKA girdling) roots.

Watering

Newly planted trees need: (1) to be watered immediately following planting, (2) an inch of rain (or manual irrigation) every week while their leaves are present, and (3) to be sufficiently watered for the first three years after planting. You can use a rain gauge or an inexpensive foil pan or tuna can to check weekly rainfall, or you can simply look up rainfall amount for your area online. Generally, if it hasn't rained in a week and there is no rain in the forecast, a newly planted tree needs to be watered! When watering, remember that the majority of any trees' roots are no deeper than 18 inches in the soil. It is also worth mentioning that mature trees should be watered weekly in the event of a drought.

If there are newly planted trees on your campus, coordinating a watering event can keep your trees healthy and serve as a learning opportunity for participants.



Tree Plantings

Do you have students on your team? Planting trees and learning about their many benefits are an excellent learning opportunity! If you are a public school in Lexington, KY check the Acceptable Plant list and planting guidelines. They can be found at this link: <https://www.fcps.net/cms/lib/KY01807169/Centricity/Domain/2317/FCPS%20Plant%20Brochure%20PLA%20Revised.pdf>

There are several important things to consider before planting trees, and communication with your school districts' physical plant division is essential. Use the following information from Fayette County Public Schools as a guide:

1

Interested parties need to first set up a meeting with your physical plant division to discuss your ideas and help ensure that your chosen location is acceptable for your campus' grounds crew, who will be responsible for mowing around the perimeter of your planting. The Approved Species List + Guidelines for FCPS can be found on the Teacher + Parent Corner at www.fcps.net/sustainability. Proposals MUST be submitted by a teacher from a school email address, and it also MUST have approval of the principal.

2

The physical plant division will inform you of the need to check for utilities, future renovations, and other large projects (i.e. roof work, A/C unit replacement). They will also help with the proper placement *and* planting of tree(s). It is possible that replacing a nearby tree is better than planting a new tree, depending on the school. Depending on the time of year, the physical plant division may be able to deliver a tree or provide mulch.



Tree Plantings (cont.)

3 After a decision is made about the types of trees, locations, and who is responsible for project oversight and maintenance during summer months, a project proposal should be sent in through the FCPS system.

4 The requirement to submit a Project Proposal is in essence a document trail for the physical plant division, and to raise their awareness of projects they may not be aware of yet. Currently, there is no official acceptance to the project proposal, just collaboration with plant operations. The person responsible for the project will be sent an acceptance to the project proposal. At the end of each proposal, the committee chair includes a statement that before any work is to start, they are to confer with the grounds supervisor to make sure everything has gone as planned.

If you want to lead an outdoor activity that could potentially impact the way FCPS grounds are maintained, a meeting in advance is ESSENTIAL. Setting this meeting to occur two months in advance meeting is considered appropriate. If scheduled closer to the event, approval may not be able to be granted in time.

Tree Mapping Projects

What is it?

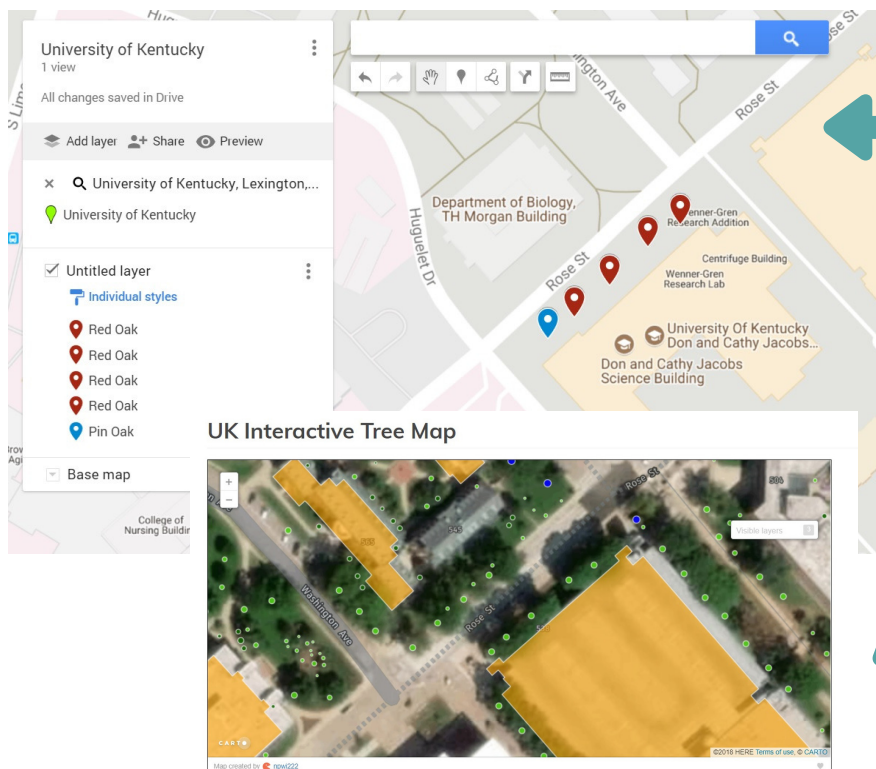
A fun and interactive activity that you can execute with your students is mapping the trees on your school's campus. It can be done through a variety of media.

Intention

Mapping trees on your campus allows students to learn more about the grounds where they spend most of their days, learn elementary information about tree identification and tree health, and express their creativity in new ways.

How to do it

Younger children may be receptive to drawing trees or marking a pre-existing map on paper. Older children may also be receptive to this method, or you might try to explore tree mapping using a free and easy-to-use online software, such as My Maps from Google. If GIS software is available for the students to use, this might be a practical way to get them familiar with the software.



Trees mapped using My Maps. Requires limited teaching and is free to use.

Trees mapped using GIS software, CARTO. Requires more advanced skills and software purchase.

Inside the Classroom

In this section...

Adopt-A-Tree



Nature Therapy & Mindfulness



"Favorite Tree" activities





Adopt-A-Tree

What is it?

Developing an Adopt-A-Tree program is a great way to help students learn more about the trees they love or see on a day-to-day basis, as well as help them understand the benefits that trees have. Adopting trees is a simple process, including 1) identifying a tree, 2) measuring the tree's diameter, 3) calculating the tree's ecological benefits, and 4) sharing your findings and what you love about your tree.

Intention

Participating in this program gives students the opportunity to join a community of others around the Bluegrass, who recognize the benefits and beauty that trees provide us. The program engages students with their school's tree canopy in a unique way that allows them to form a closer relationship with the natural environment around them. Students will learn more about their favorite tree and be able to share what they love about it!

How to do it

There are several different ways to engage your students in adopting trees. Adopting a tree can be done individually or in a group. It may be beneficial to have this process taught in relevant classes, such as math (involves simple geometry), environmental x, or x.

To lead an Adopt-A-Tree activity, simply visit ufi.ca.uky.edu/adopt-a-tree and follow the steps listed on the page. It is wise to familiarize yourself with the instructional packet, National Tree Benefits Calculator, and Adopt-a-Tree webform before you begin.

You will need a tape measure, calculator, and camera.



Nature Therapy & Mindfulness

What is it?

Nature therapy is the process of connecting people and trees to promote both human and environmental health. Interacting with the natural environment has been shown to decrease incidences of mental and physical illness.

Additionally, developing a healthy relationship with trees leads to a higher likelihood of quality tree care. This dynamic relationship between people and trees has the potential to cultivate a healthier environment and community. One way of engaging students in nature therapy is through guided tree walks. Influenced by research on forest bathing, these walks were developed at the University of Kentucky through the Urban Forest Initiative.



The following pages contain a ten-minute script that can be used to lead guided nature therapy. This script can be adapted for children of all ages.



Nature Therapy & Mindfulness

Script Introduction

Nature therapy is the practice of connecting with the natural environment to enhance your mental and physical health. You don't have to make a trip to a forest to do this; it's as simple as approaching the trees around you, wherever you are, with an attitude of mindfulness. When we go outside, for 10 minutes or so, that is what we are going to do. I'm going to lead you through a guided meditation, but if you wanted to do something like this again in the future, you don't even need that for nature therapy to be effective. It's honestly as simple as sitting outside with some trees. If you can't go outside, benefits have also been shown to exist by just looking out a window and watching the trees, or maybe listening to sounds of nature on your phone.

(The following two paragraphs may be included for middle and high school participants to facilitate a more scientific discussion)

Biophilia is the idea that humans have this innate drive to be around other living things, like plants & trees. A lot of people speculate that the part of reason for rising rates of depression and chronic illnesses in the United States can be attributed to increasing urbanization and decreasing natural spaces. We're not spending enough time with trees.

Forest bathing takes biophilia and puts it into practice. Forest bathing is the practice of mindfully interacting with the trees around you by using all of your senses. So much of our daily experiences are visual; we rely on our eyes to get places, to do school work, or to play on your phone. When you're forest bathing, you want to take time to notice what you're hearing, smelling, and touching, too.

Nature Therapy & Mindfulness

Beginning of actual nature therapy.

language may be adapted depending on age of participants

pause throughout the script when appropriate

Let's begin. If you feel comfortable, you can close your eyes. Rest your hands gently on your legs. Focus on your breath. Breathe in slowly and breathe out slowly. Feel your chest and belly rise and fall together with each breath. In and out. Feel the cool air entering through your nose, traveling down your throat, and expanding your lungs. Pause here. Then, exhale. Try to soften the muscles in your face; relax your jaw, notice if you are carrying any tension in your forehead or eyebrows. Breathe. We often carry stress in our shoulders. Take a moment to bring your shoulders up to your ears and release them back down. Do this two more times. Feel the tension leaving your shoulders with every release.

Now, bring your awareness to the rest of your body. What exactly do you feel? What is the temperature like? Think past the words "hot" and "cold" and focus on exactly what your skin feels. Do you feel the wind? Now, focus on each part of your body, starting with your feet. Consciously try to relax each part of your body that you are concentrating you as you now turn your focus to your ankles, your calves, your thighs, your hips. Notice the sensations present in your abdomen, your chest, your back. Allow your arms to grow heavy. Be still.

Notice the weight of your body being supported by the earth. Maybe you want to feel the grass around you, notice the temperature of the ground beneath you. Find a sense of security in this. This earth will not let you fall, will not harm you. This earth has supported you, is supporting you, and will continue to support you. Think about this as you breathe.

Nature Therapy & Mindfulness

Move your attention outside of your body now, perhaps opening your eyes as you do so. You are just as much a part of this natural environment as the trees and wildlife around you. Just as we bring awareness to our bodies in a meditative practice, we do the same with the trees around us. In this way, we can begin to feel more connected to the natural environment.

Pick a tree and look at the shape and color of its leaves, the patterns in the bark, and the structure of the branches. Do you see any birds or squirrels? Can you see, or hear, the leaves of the tree rustling in the wind? Does looking at a tree evoke any kind of emotion? Another important part of this tree that you can't see are its roots. They support the tree as it grows strong and tall. Shift your attention back to yourself. Where have you planted your roots? You may realize that, like these trees, you have grown the strongest where you have laid your most solid foundation. Your roots help to define the kind of person you are. Recognize that, unlike these trees, you have the power to replant your roots. Take a moment to reflect on this.

These trees are tough. They have managed to find a home in the sometimes harsh and stressful urban environment; their resiliency helps them grow stronger and fuller and allows them to provide more and more benefits to their ecosystem. Recognize that this power resides in you, as well. While a strong tree may help develop a healthy ecosystem, a strong person can help to foster a thriving community. Each gallon of storm-water that tree intercepts strengthens its ecosystem, just as each small act of kindness that you can do for others works to create a stronger community.

Nature Therapy & Mindfulness

It can be easy to travel mindlessly throughout our days. In our busy lives, we sometimes neglect to take the time to notice something as simple as trees. And when we do, we might think, "How can we relate to something so seemingly different?" I invite you to end this practice with a final meditation, focusing on your breath, your body, and the trees surrounding you.

As you breathe in, focus on how the air you are breathing is from the trees. Slowly exhale, knowing your breath joins the atmosphere as a crucial ingredient for trees to also grow strong and beautiful.

Breathe in, noticing how the trees around you stand solid and confident. As you breathe out, imagine that same confidence spreading throughout your own body.

Breathe in, thinking about how these trees persevere in the often-stressful urban environment.

Breathe out, feeling assured in your ability to similarly thrive, even when conditions are difficult.

And finally, breathe in and understand the value that trees have by virtue of simply existing.

And as you breathe out, know that you are of value, as well.

Nature Therapy & Mindfulness

Ending with gratitude

Remember to stay grateful throughout your day today. Offer your gratitude to the trees around you, the people walking past you, and of course, to yourself. It can be easy to lose sight of our inherent worth in the face of stress or adversity, but it is something worth reminding ourselves of frequently. I am capable. I am enough.

You may open your eyes. I invite you to continue to spend time outside, when you can. Try to slow down when you're feeling stressed and divert your attention to the trees. Feel the sun and the wind on your skin, and just breathe.



Follow-Up Activities (optional)

- Favorite Tree writing prompt (see page 20)
- Written reflection or round-table discussion on their experience with nature therapy
- Research paper on health benefits of nature, biophilia, or forest bathing



"Favorite Tree" Activities

What is it?

The umbrella of "Favorite Tree" activities contains several different to get students thinking about urban trees. A few examples can be found below, but feel free to develop other creative options for students to get to know their favorite trees.

Intention

The purpose of these activities is to help students develop a sense of place by establishing relationships with their school trees. "Favorite Tree" activities help to connect students with the natural environment and foster a sense of ownership for the trees around them.

How to do it

For Students of All Ages

1. A simple way to engages students is through writing about their favorite tree. For younger students, this could manifest as an open-ended writing prompt. For older students, more detail can be incorporated. For instance, in addition to writing about why a certain tree is their favorite, they could also include information about location, tree species name, and speculation on what kinds of ecosystem services their tree provides. This assignment could be done to connect environmental science to writing, and it can be done individually or in a group.
2. Another great activity is labeling iconic trees at your school. One possible avenue of doing so is through designing and purchasing tree labels. Some labels are designed specifically for trees to allow growth. Ensure that your labels have proper springs and screws. An example of what this might look like can be found on the next page.

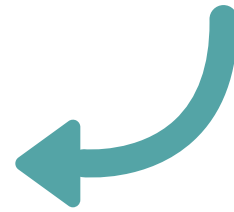


"Favorite Tree" Activities (cont.)

How to do it (cont.)



Tree labels with
springs and screws.



For Younger Students

Drawing trees is another great way for students to start thinking about trees. This also serves as an opportunity for education on different parts of a tree (leaves, bark, roots, etc). Many children neglect to draw roots when drawing their trees, so this especially would be a great way to tell your students about the importance and role of a tree's root system.

Note: A great way to step into "Favorite Tree" activities is by having your students take pictures with their favorite tree. For older students, you could involve the use of social media (ex. posting their picture on Facebook) to engage them in a form of communication that they're comfortable with!

Other Great Tree Resources

Methods of Enhancing Urban Tree Programs

Resources

Tree Campus USA -- www.arborday.org/programs/treecampususa/

Description: The Tree Campus USA (TCU) program helps colleges and universities around the country establish and sustain healthy community forests. TCU's strive to engage their student population utilizing service learning opportunities centered on campus, and community, forestry efforts.

Trees Are Good -- www.treesaregood.org

Description: Trees Are Good provides the public with educational information about the benefits of trees and how to properly care for trees in the urban environment. The site contains resources from the International Society of Arboriculture, and also provides a collection of reliable tree care information provided by other industry organizations.

UFI website -- ufi.ca.uky.edu

Description: Visit our website to learn more about our programming, events, and partners.

BYSC Tree Planting guide for students -- fcps.net/bysc

Additionally, it is recommended that you familiarize yourself with your schools' environmental and service clubs; they may be able to help you with your class's forestry programming. This could include the Bluegrass Youth Sustainability Club (BYSC), gardening clubs, beta clubs, etc.