

Time Frame

5 Class Periods

Key Words

Woodlot

Arbor Day

Urban Blight

Urban Forests

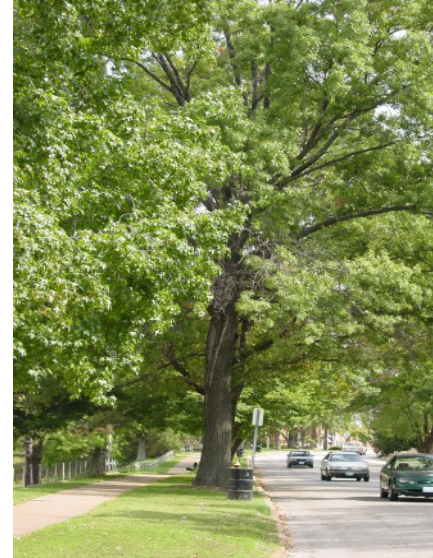
Stewardship

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OVERVIEW

Trees in Your Own Backyard has students practice forms of civic discussion and participation consistent with the ideals of citizens in a democratic republic. Students will examine the impact of urban blight and urban flight on trees in the city landscape and the political response to their condition.



Tree-lined city street. Photo courtesy of [City of St. Louis Department of Parks and Recreation and Forestry](#)

OBJECTIVES

National Standards for History

- The student will evaluate the effectiveness of domestic politics in addressing environmental issues. (Era 10, Contemporary United States: Standard 1A)

National Council for Social Studies

- The student will practice forms of civic discussion and participation consistent with the ideals of citizens in a democratic republic. (Standard X, Civic Ideals and Practices)

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LESSON PLAN

Advance Preparation

Obtain a map of the schoolyard and enlarge it. This will be the Base Map for the Project. (Aerial photographs can usually be found at www.mapquest.com.) Number each tree pictured on the map. (Draw in newly planted trees. Cross out any trees that have been removed.) Decide how you are going to divide up the trees to be mapped so that every pair of students has trees to survey. Obtain a clipboard and a measuring tape (or string marked off) for every pair of students.

Day 1

Set the stage for this activity by leading a group discussion answering the following questions:

1. How do you interact with the trees around you?
2. Who takes care of the trees in your neighborhood?
3. Which of the nation's trees are managed and protected by the U.S. Forest Service?
4. Do you have any responsibility to care for the trees around you?

Have students read the Essay and complete Worksheet 1 and Worksheet 2. **(Student Pages 1-6)** This will give students an overview and foundation for the rest of the activity.

Day 2

Hand out clipboards, pencils and measuring tape. Handout Worksheet 3 and Tree Survey. **(Student Pages 7-8)** Send students out to survey.

Day 3

Upon completion of the Tree Survey, have students transfer the most interesting tree information from their Tree Surveys to the Tree Key **(Student Page 9)**. Attach these keys to the Base Map.

Day 4

Handout Worksheet 4 and the Cooperative Forest Assistance Act of 1978. **(Student Pages 10-11)** Using the language of the Act and the Tree Survey results, have the students fill out Worksheet 4.

Day 5

Teachers can choose from one of three assessment activities.

- The Application and Integration Exercise has been designed to allow students to integrate the content into broader contexts. **(Student Page 12)**
- The Test has been designed to measure how well students master the History objectives. **(Student Page 13)**
- The Reflective Exercise has been designed to measure how well students master the Social Studies objectives. **(Student Page 14)**

Use Teacher Answer Key to grade assessments. **(Teacher Pages 5-6)**

Class Extensions

- Take a field trip to a local land trust sanctuary. Have students ask questions of the land trust representative about how the land came to be preserved.
- Invite a developer into the classroom to discuss issues such as tree buffers and cost of tree preservation on site.

TEAM TEACHING POSSIBILITIES

Technology: Since Worksheet 3 has students conduct a tree survey and complete a sample tree key, ask students to transfer this information into a spreadsheet. The information could be retained on cds or disks for future study.

English: Have students write a poem describing the schoolyard or a local park.

Math: Ask students to use the results of their tree surveys to draw a bar graph detailing the types of trees located in the schoolyard.

Science: Worksheet 3 can be used in social studies and science classes. For example, in conducting the survey of trees in the schoolyard or nearby park, social studies classes will focus on human interactions and the social value of trees to the school, whereas science classes will concentrate on measurements, naming tree species, and the environmental value of the trees to the school grounds.

LINKS

Forest History Society--Bibliographic resources on forestry, conservation and environmental history. <http://www.foresthistory.org>

American Forests--Has information on economic benefits of trees to communities. <http://www.americanforests.org>

Urban Forest Ecosystems Institute--The College of Agriculture at California Polytechnic State University maintains this web site for researches in urban forest ecosystems. <http://www.ufe.calpoly.edu/>

Map Quest--Source of aerial photo of school site.
www.mapquest.com

Trees Atlanta--Trees Atlanta, a non-profit citizens' group dedicated to protecting and improving our urban environment by planting and conserving trees, maintains this website. <http://www.treesatlanta.org/urbanforestry.html>

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TEACHER ANSWER KEY

Worksheet 1: Keywords

Woodlot

1. The woodlot, as it was called then, was to be held in common—owned and maintained by all—to provide the raw material for heating, cooking, shingling, clapboarding, furnishing, fence-laying and road building and the habitat for game.
2. An area set aside for the purpose of growing trees.

Arbor Day

1. J. Sterling Morton, founder of Arbor Day, said on the 30th anniversary of the day in 1902 “Arbor Day is now one of the recognized institutions of the country. Every spring it directs attention to the interest that attaches to trees and gives instruction respecting the kinds and their cultivation.”
2. The day designated for nationwide tree planting.

Urban Blight

1. “Getting on the subject of beautification is like picking up a tangled skein of wool,” she wrote in her diary, “all the threads are interwoven, recreation and pollution and mental health, and the crime rate and rapid transit, and highway beautification, and the war on poverty, and parks—national, state and local.” *Lady Bird Johnson diary entry.*
2. The wither and decay of a city.

Urban Forests

1. Since then, research has proved statistically what many people feel intrinsically—cultivating and maintaining urban forests yields measurable aesthetic, economic and environmental benefits to Americans
2. Parcels of land preserved in a city for the benefit of the community.

Stewardship

1. We find ourselves again, like the Plymouth pilgrims, practicing stewardship over a woodlot that is co-owned and co-maintained by the entire community where “(a)ny inhabitant of the Towne” has the liberty to take of the timber of urban and community forests. Taking not the limbs or the branches, but the pleasures and benefits bestowed upon us by the trees.
2. Being responsible for the long term care of something.

Worksheet 2: Essay Analysis

1. How long have Americans been preserving forests for the benefit of the community?
400 years.
2. What was the challenge of the woodlot managers during the Colonial period?
To make sure that any timber cut was used by the household and not sold for profit. To settle disputes over bee trees.
3. What was the challenge of the street tree managers at the turn of the 20th century.
There was no money allocated for the maintenance of street trees.
4. What was the challenge of the urban tree managers during the period of urban blight and flight?
They had to contend with highways and new roads being built in urban woodlands and parks and had to deal with the neglect of city trees – a consequence of urban flight.
5. What are the challenges to contemporary urban foresters in our cities today?
The continued rise in population in American cities has led to pressure for the development of many urban woodlands and parks. Also, urban foresters face budget cuts that threaten their livelihood.

Test

1. When was the first legislation enacted to protect the urban forest?
1978
2. What economic benefits do urban forests provide people?
Reducing air conditioning costs, storm water run-off costs, air pollution costs, global warming costs.
3. What ecological benefits do urban forests provide people?
Increasing the number of functioning ecosystems is the only way to increase the manufacture of clean air, clean water and clean soil.
4. What aesthetic benefits do urban forests provide people?
Strengthening the imagination, lifting the spirits, soothing social problems.
5. Who is responsible for maintaining the health of the trees in the urban forest?
All of us.
6. How effective do you think this legislation is in addressing environmental issues?
Personal opinion

Essay: History of Urban Forests



Figure 1: Plymouth in 1622. Drawing by A.S. Burbank, from *American Conservation*, 1935.

Colonial Woodlots

Although the United States government did not recognize urban forestry by name until 1978, the practice of cultivating and maintaining a communal forest for the benefit of all is as old as the nation itself. The practice began on a cold November day in 1620 when a band of wet, ill-nourished Mayflower passengers staggered up on the shores of an abandoned Indian settlement and renamed it Plymouth. By the end of the first year, the Pilgrim elders had designated land for house lots, the meetinghouse, parsonage, and cemetery, a central grazing commons, and the first “urban forest.” The woodlot, as it was called then, was to be held in common—owned and maintained by all—to provide the raw material for heating, cooking, shingling, clapboarding, furnishing, fence-laying and road building, and the habitat for game.

Records of the early New England town meetings show they hired tree wardens who enforced the rules. “Every man that is an inhabitant of the Towne shall have Liberty to take any timber off the Common for any use in the Towne [provided] so they make not sale of it out”. (Braintree, MA) “If any man shall find a Bee tree in any of our commons and shall sett the two first letters of his name on it faire in vew it shall be accounted his pries.” (Farmington, CT) Every parsonage was

assigned a ministerial lot, every school had meadow and forest. Even the almshouses had woodlots, enabling the poor to support themselves selling peg timber, shingles, posts, rails, bark and ship timber.

City Street Trees

By 1850, there were 20 million Americans, 80% of whom were living much the way the pilgrims did, entirely off the land. Over the next 70 years, rural towns would become cities, and cities would become metropolises and 70% of Americans would be making a living in city shops and factories. Reaction to urban conditions generated new ways of thinking about trees.

From Henry David Thoreau, writer and philosopher came another sentiment: "We hear of cow-commons and ministerial lots, but we want men-commons and lay lots, inalienable forever. Let us keep the New World new, preserve all the advantages of living in the country. There is meadow and pasture and wood-lot for the town's poor. Why not a forest and huckleberry-field for the town's rich?"

Frederick Law Olmstead, landscape architect of New York City's Central Park, believed that trees and vegetation enhanced the morale and counteracted the anxieties of city life. A city park, he said, was to "provide a natural verdant and sylvan scenery for the refreshment of town-strained, men, women, and children."

In 1915, someone speaking for the "Trees of Newark" published a plea to change the policies (or lack of policies) that "...allow horses to bite us, linemen to cut us, builders to maul us, vandals to hack us and borers to tunnel us."

Post War America

At the time American troops were shipped overseas for WWI, urban trees suffered from horse bite. When the GI's returned home after WWII, automobiles were the major threat to urban trees. With President Eisenhower's expansion of the interstate highway system through cities and towns, the easiest place to lay new road bed was through the preserved urban woodlands and parks. The increase in roads made it easier to abandon the city for the shady suburbs and commute to work. This urban flight left the core of the city to languish along with its street trees.



Figure 2: The Sheep Meadow in Central Park, with the Solow Building. Photo courtesy of <http://www.wirednewyork.com/>.

In the mid 60's, urban centers contained bankrupted municipal governments, abandoned neighborhoods, crime, noise, pollution, and decreasing population. Ladybird Johnson voiced concern about urban blight and initiated a beautification campaign. "Getting on the subject of beautification is like picking up a tangled skein of wool," she wrote in her diary, "all the threads are interwoven, recreation and pollution and mental health, and the crime rate and rapid transit, and highway beautification, and the war on poverty, and parks—national, state and local." Following President Johnson's White House Conference on Natural Beauty, the U.S. Forest Service began championing a new kind of forestry specializing in the needs of Urban and Community Forests. The 1978 Cooperative Forestry Assistance Act officially recognized that urban and community forests "improve the quality of life for residents; enhance the economic value of residential and commercial property; improve air quality; reduce the buildup of carbon dioxide; mitigate the heat island effect in urban areas; and contribute to the social well-being and sense of community." For the first time, the U.S. government allocated federal funds to cultivate and maintain city trees. Ten years later, President Reagan again articulated the benefits that trees yield the nation "...in concrete deserts we lose touch with the real world of trees, birds, small animals, and plant life. We each need outdoor recreation opportunities close to home where they can be a part of our daily lives."

Urban Forestry

Since the passage of the Cooperative Forestry Assistance Act, research has proved statistically what many people feel intrinsically—that cultivating and maintaining urban forests yields measurable aesthetic, economic and environmental benefits to Americans.



Economic Value

The city of Tallahassee, Florida, using CITYgreen software (see <http://www.amfor.org>) for urban planners found that in one year, the existing tree cover saved the city \$760,000 in energy savings, \$2.6 million in storm water runoff reduction, \$1.06 million in air pollution removal, and kept 784 tons of carbon dioxide out of the global atmosphere. Inner city neighborhoods in North Philadelphia and Baltimore found that greenspace helped soothe social problems. Clearing vacant lots of rubbish and creating mini-parks of flowers and trees united neighborhoods, eliminated eyesores and ran off drug dealers. They found that the psychic wounds of urban blight were cheaper to prevent than to repair.



Ecological Value

When city creeks were designated as greenways, the biological diversity of plants and animals was found to increase. Increased biodiversity leads to increased ecosystem function. Increasing the number of functioning ecosystems is the only way to increase the manufacture of clean air, clean water and clean soil.



Aesthetic Value

Hearing wood thrushes, watching chipmunks and observing rabbits strengthens the imagination of children and diverts the attention of work-worn adults. The visual beauty of nature is key to the quality of life for all people.

As a result of research on the value of trees, the practice of urban forestry is no longer reserved for state and federal foresters. Urban forestry is now being considered by zoning, planning, parking, transportation, and city hall. In the future, we can expect to see the Geographic Information Systems synthesizing data from aerial photographs, satellite images, and ecological surveys to generate efficient and precise strategies for planting and maintenance of urban and community forests. We can also expect to see an increased role for the citizen in the care of the nation's trees. By learning the history of forest policy, we become better able to draft and support forest policy that treasures urban and community forests.

We find ourselves again, like the Plymouth pilgrims, practicing stewardship over a woodlot that is co-owned and co-maintained by the entire community. In Plymouth "(a)ny inhabitant of the Towne has the liberty to take of the timber." But in our urban forests, instead of limbs and branches, we take the pleasures and benefits bestowed upon us by the trees.

Worksheet 1: Keywords

Read the essay entitled "**History of Urban Forests**" to discern the meaning of the keywords. First (1), copy the sentence in the essay that uses the word, then (2) propose your own definition of the word.

Woodlot

1. Sentence:
2. Definition:

Arbor Day

1. Sentence:
2. Definition:

Urban Blight

1. Sentence:
2. Definition:

Urban Forests

1. Sentence:
2. Definition:

Stewardship

1. Sentence:
2. Definition:

Worksheet 2: Essay Analysis

Read the essay entitled “**History of Urban Forests**” and answer the following questions.

1. How long have Americans been preserving forests for the benefit of the community?
2. What was the challenge of the woodlot managers during the Colonial period?
3. What was the challenge of the street tree managers at the turn of the 20th century.
4. What was the challenge of the urban tree managers during the period of urban blight and flight?
5. What are the challenges to contemporary urban foresters in our cities today?

Worksheet 3: Create a Tree Survey

1. Measure the girth (circumference) of the first tree at 4.5 feet from the ground. Record in inches.
2. Note any evidence of human interactions on the shape or condition of the tree.
3. List the value of the tree to the school--economic, aesthetic, and ecological.
4. Locate next tree on the map and repeat steps 1-3.

Sample Tree Survey

Tree Species	Girth	Human Interactions	Value to School
Red pine	20"	planted, pruned, mulched	Planted for ornament. Winter birds roost in branches, Kindergarten hangs handmade bird feeders upon it.
Birch	11"	soil compaction	Provides needed shade in playground around roots.
Cedar	30	barbed wire buried in bark, lawn mower scars at base	History embedded in tree.

Sample Tree Key

Use succinct adjectives to communicate the most important features of the tree. Remember, you are conducting a social study. Your goal is to describe the value of the tree to humans. The science class can classify them.

Tree #	Description
B1	Tall, young, spindly oak, not very attractive but may be in future.
B2	Magnificent, ancient oak, probably planted by the first family to build a home on this site.
B3-B7	A young pine forest, great place to play in the pine needles.
B8	Provides shade to the music room.
B9	Has a broken limb that could fall on playground.
B10	Mostly dead. Covered with cool fungus, has large hole about 15 feet off ground.

Worksheet 4: Writing a Legal Brief

Read the Cooperative Forestry Assistance Act of 1978 and use it as a model to fill out the outline below.

-
- A. Findings
 - B. Purposes
 - C. General Authority

A. Findings.— Because: *(finish the sentences below)*

1. The schoolyard is home to ___ trees.
2. The campus is shaded by trees ___% (use map to estimate).
3. The trees provide...
4. The trees aid...
5. The trees promote...
6. The trees enhance...
7. The trees improve...
8. The trees strengthen...
9. The campus trees combined cleanse the air and save the city money pollution reduction.
10. The campus trees combined keep several tons of CO² out of the global atmosphere.

...a campus tree ordinance is in order.

B. Purposes.—The purposes of this section are to:

1. Improve...
2. Encourage...
3. Provide...
4. Implement...

C: General Authority —The secretary is authorized to...

1. *Protect Existing Trees*
Money to finance tree protection will come from....
Mulch will be spread by...
Trimming of limbs and branches will be carried out by...
2. *Plant New Trees*
Money to purchase new trees will come from....
The landscape plan will be drawn up by....
The tree planting will be supervised by....
The care and maintenance of the new trees will be carried out by....

Cooperative Forestry Assistance Act of 1978

Section 9. (a) Findings.—The Congress finds that

1. the health of forests in urban areas and communities, including cities, their suburbs, and towns, in the United States is on the decline;
2. forest lands, shade trees and open spaces in urban areas and communities improved the quality of life for residents;
3. forest lands and associated natural resources enhance the economic value of residential and commercial property in urban and community settings;
4. urban trees are 15 times more effective than forest trees at reducing the build up of CO₂ and aid in promoting energy conservation through mitigation of the heat island effect in urban areas ;
5. tree plantings and ground covers ...in urban areas and communities can aid in reducing carbon dioxide emission, mitigating heat island effects, and reducing energy consumption, thus contributing to efforts to reduce global warming trends;
6. efforts to encourage tree plantings and protect existing open spaces in urban areas and communities can contribute to the social well-being and promote a sense of community in these areas;
7. strengthened research, education, technical assistance, and public information and participation in tree planting and maintenance programs fro trees and complementary ground covers for urban and communities forests are needed to provide for the protection and expansion of tree cover and open space in urban areas and communities.

Section 9. (b) Purposes.—The purposes of this section are to

1. improve understanding of the benefits of preserving existing tree cover in urban areas and communities
2. encourage owners of private residences and commercial properties to maintain trees and expand forest cover on their properties
3. provide education programs and technical assistance to State and local organizations in maintaining forested lands and individual trees in urban and community settings.
4. implement a tree planting program to complement urban and community tree maintenance and open space programs and to reduce carbon dioxide emissions, conserve energy, and improve air quality in addition to providing other environmental benefits.

Section 9. (c) General Authority.—The Secretary is authorized to provide financial, technical, and related assistance to State foresters for the purpose of encouraging States to provide information and technical assistance to State foresters or equivalent State officials for the purpose of encouraging States to provide information and technical assistance to units of local government and others that will encourage cooperative efforts to plan urban forestry programs and to plant, protect, and maintain, and utilize wood from, trees in open spaces, greenbelts, roadside screens, parks, woodlands, curb areas, and residential developments in urban areas. The Secretary is also authorized to cooperate directly with units of local government and others in implementing this section whenever the Secretary and the affected State forester or equivalent State official agree that direct cooperation would better achieve the purposes of this section.

ASSESSMENT 1: APPLICATION AND INTEGRATION EXERCISE

Write and illustrate a memoir of one of the trees found on your school grounds. Give the tree a name, make a note of its number on the map, and use the following outline to guide you through the process. Try to include as much local history as you can.

Memoir of a School Yard Tree

Origins

Where and in what year did your parent tree sprout?
How old was your parent tree when your seed was formed?
How did your seed come to grow where it did?
What year did you sprout?

Life History

List the major historical events that you have witnessed. List the various land use patterns you have witnessed. List some of the human impacts that modified your shape. List the human impacts on the condition of your forest neighbors (animals and other plants.) List the human impacts on the soil around you.

Reflections

Reflect upon the social, economic and political impacts you have experienced and draw conclusions about your life today and in the future. Do you think local, state and national governments should take an active role in tree management?

ASSESSMENT 2: TEST

1. When was the first legislation enacted to protect the urban forest?
2. What economic benefits do urban forests provide people?
3. What ecological benefits do urban forests provide people?
4. What aesthetic benefits do urban forests provide people?
5. Who is responsible for maintaining the health of the trees in the urban forest?
6. How effective do you think this legislation was in addressing environmental issues?

Assessment 3: In Your Own Words

Write an essay about what it was like to practice a form of civic participation consistent with the ideals of citizens in a democratic republic.

Doing Your Duty in a Democracy

Use the notes below to help you write a cohesive essay.

Paragraph 1: Take a stance.

Do you believe civic participation should be a requirement of living in a democratic republic? Why or why not?

Body: Back up your argument with proof.

Describe how you felt when you inventoried, compiled the ordinance, and presented it to administrators.

Last Paragraph: Conclusion

Restate your stance. Summarize your proof. State the long-range implications of your argument for society.