

Trees Are Renewable!

*A mini-curriculum for the book
“Why Would Anyone Cut a Tree Down?”*

by Roberta Burzynski
Illustrations by Juliette Watts



U.S. Department of Agriculture
Forest Service
Northeastern Area
State and Private Forestry
Newtown Square, PA 19073
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Introduction:

Children—and adults alike—may feel strongly that trees should never be cut down. This is unrealistic considering that trees are living things that grow, change, and die; and that people depend on wood and other products from trees. These extremes of protection and use represent a gap in knowledge and understanding.

Grade level: Grade 3

Length of lessons (minutes/sessions): There are 17 possible sessions that range from 15 to 60 minutes and include options for local field trips or homework.

Overall goals:

Content:

Through this lesson readers will—

- recognize the relationship of trees to their environment: trees make demands of their environment and can have effects on other trees
- recognize the relationship of trees to people: people make demands of trees, trees can pose a hazard to people, people need to manage some forests, trees in urban environments need people to care for them, and people can plant trees
- understand that trees are a renewable resource and trees can be replaced naturally
- acknowledge and learn to address their emotions related to cutting trees down; and celebrate trees.

Strategy and Standards:

Strategy

Students will ...

Write about their thoughts and feelings about cutting trees down.

Read, research, and write about reasons that trees might need to be cut down.

Explore and record their growing vocabulary and understanding of related terms.

Compare trees and other living organisms to nonliving things.

Gain awareness of their daily use of wood and other tree products.

Be able to define “renewable” and to create a tree life cycle.

Read about and develop their own ideas for celebrating the life of a tree.

Use what they have learned to change or expand the story in “The Giving Tree.”

Read and respond to the Hug the Tree Movement that took place in northern India.



Standards

This lesson meets literacy and science standards.

LITERACY	Common Core State Standards English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects K-5, Grade 3 students
Reading Standards for Informational Text	<p>Key ideas and details:</p> <ol style="list-style-type: none"> 1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. 2. Determine the main idea of a text; recount the key details and explain how they support the main idea. 3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. <p>Craft and structure:</p> <ol style="list-style-type: none"> 4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area. 5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently. 6. Distinguish their own point of view from that of the author of a text. <p>Integration of knowledge and ideas:</p> <ol style="list-style-type: none"> 7. Use information gained from illustrations (e.g., maps, photographs) and the words in a text (e.g., where, when, why, and how key events occur). 8. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence). 9. Compare and contrast the most important points and key details presented in two texts on the same topic.
Writing Standards	<p>Text types and purposes (see standards for subcategories)</p> <ol style="list-style-type: none"> 1. Write opinion pieces on topics or texts, supporting a point of view with reasons. 2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. 3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. <p>Production and distribution of writing</p> <ol style="list-style-type: none"> 4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. <p>Research to build and present knowledge</p> <ol style="list-style-type: none"> 5. Conduct short research projects that build knowledge about a topic. 6. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

Speaking and Listening Standards	<p>Comprehension and collaboration</p> <ol style="list-style-type: none"> 1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing their own clearly. (see standards for subcategories) 2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. 3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. <p>Presentation of knowledge and ideas</p> <ol style="list-style-type: none"> 4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. 5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details. (optional)
SCIENCE	Next Generation Science Standards
3-LS1 From Molecules to Organisms: Structures and Processes	<p>3.LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</p> <p>LS1.B: Growth and Development of Organisms</p> <ul style="list-style-type: none"> • Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)



Rationale for lesson:

Rationale for content

Students need to know the reasons that some trees need to be cut down. Getting more information about each of the reasons will help students understand them.

Information on the tree life cycle, the fact that trees are renewable, and the extent to which people use wood and other tree products support appreciation of the reasons trees may need to be cut down.

Knowing the reasons that trees might be cut down may not change the way students feel about trees being cut down, so students need to learn ways to acknowledge and address their emotions, which this curriculum approaches by celebrating the life of a tree.

Study of related terms will expand students' vocabulary and help them understand, talk, and write about the curriculum topics.

Rationale for design

Quickwriting (freewriting) allows students to disregard writing mechanics and focus on content, which frees them to focus on what they know, think, and feel.

The plant spacing experiment will give students the opportunity to use the scientific method.

The ALB Detectives activity, planting a tree, and finding trees at different life stages provide hands-on experience outdoors.

Identifying wooden objects and forest products in their daily lives will help students to appreciate the extent to which they depend on trees.

Reading, researching, writing, and vocabulary study will give students the opportunity to use language arts in the context of science.

Letting students choose how to respond to readings (e.g., write, illustrate, record, narrate, present, perform, sing) will give students the chance to use multiple intelligences and will help to accommodate some disabilities.

Rewriting *The Giving Tree* gives students a chance to apply what they have learned.

Planting a tree, planning a tree celebration, and writing letters all empower students by giving them something that they can do.

Having students work in pairs and small groups allows them to share their skills, abilities, and knowledge, and to learn to work together.

Lesson Implementation

Introduction and motivation (initiating):

Introduce topic of trees.

Teacher tells of a favorite tree in the present or past; describes it, tells why they like(d) it.

As an alternative teacher can read one or more of the following stories and retell it to students:

Herbie the elm tree:

[http://en.wikipedia.org/wiki/Herbie_\(tree\)](http://en.wikipedia.org/wiki/Herbie_(tree))

Read first four paragraphs; stop at "Fall!":

http://www.cdapress.com/columns/my_turn/article_b5a9132b-4d3b-5bde-9690-03cfbe9fb183.html

"Teaching" tree; students eating at base:

http://www.cdapress.com/news/local_news/article_b3307c8e-5db2-5455-a8ae-e0802c73eb7c.html

For other examples, do an online search for term: favorite tree

Ask for show of hands by students who have a favorite tree; ask for a couple of volunteers to share about their tree.

For students who did not raise their hand when asked if they have a favorite tree, allow time for them to get acquainted with trees, ideally by going out in the school yard, a nearby street, or park. An alternative to going outdoors is using books, poems, or photos of trees.

Have each student do one of the following:

- Take a photo of a tree
- Draw or paint a picture of a tree. Teacher Resource: "Draw Me a Tree": <http://www.orionmagazine.org/index.php/articles/article/6602>

- Do a rubbing of bark or leaves (teacher provide examples)
- Observe/touch/explore (climb) the tree and describe it in a short paragraph, poem, or song
- Tell or write about the role the tree plays/played in their life
- Write a poem about their tree
- Draw one or more trees from what they hear when other students describe trees.

One way to wrap up this engagement phase of the lesson is to lead students in the "What's your favorite tree?" song: http://www.musick8.com/html/current_tune.php?numbering=105&songorder=7

Preevaluation

Quickwriting

"Quickwriting" lets students reflect, ramble, and put ideas down freely, letting their natural voices come through. If students are not familiar with quickwriting, introduce it (Tompkins 2002, p. 252-253, 255):

- Tell them that in quickwriting you think and write fast for 5 to 15 minutes.
- To demonstrate, choose a short book with which students are familiar; state your reaction to it, then write the same words on the board. Think out loud again and then write those words on the board. Continue thinking out loud and writing. Read your completed quickwrite out loud.
- Ask students to take turns stating out loud what they would write about the same book.
- For 10 minutes each student does their own quickwrite about the book; then pairs of students share their quickwrites with each other.
- Review the quickwrite process and answer any questions students have about it.

Have students ever experienced the loss of a favorite tree, seen or heard about a tree being cut down or falling down?

For students who have not had this experience, read accounts such as the last two paragraphs of the article above, at: http://www.cdapress.com/columns/my_turn/article_b5a9132b-4d3b-5bde-9690-03cfbe9fb183.html

Or here: Beloved tree fell in storm; several photos. Begin at "An email for our new tenant!" and end with "Now what to do." <http://elsadorfman.com/tree/index.html>

Or here: Herbie the elm tree: [http://en.wikipedia.org/wiki/Herbie_\(tree\)](http://en.wikipedia.org/wiki/Herbie_(tree))

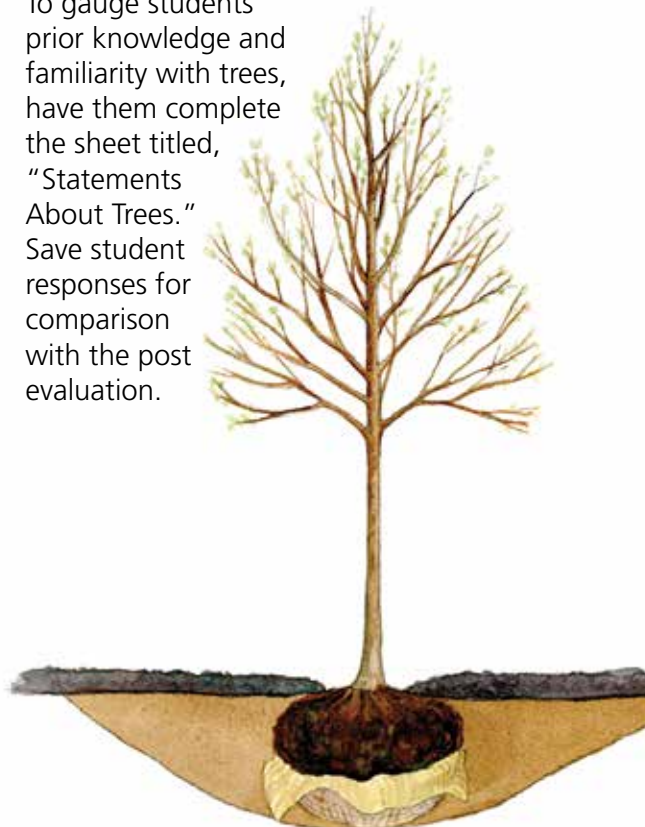
What are students' reactions to the idea of cutting trees down? What do students think and feel about losing trees? Have students answer this question by doing a quickwrite.

Give students 5-10 minutes to write about their thoughts and feelings about cutting trees down; then share in pairs. Volunteers share with whole group.

Save writings for comparison with the quickwrites that student will do in the postevaluation.

Statements About Trees

To gauge students' prior knowledge and familiarity with trees, have them complete the sheet titled, "Statements About Trees." Save student responses for comparison with the post evaluation.



Statements About Trees

Your name _____

Your age _____ City or town _____ State _____

A. Read each statement below, then circle if you agree, disagree, or are not sure.

Trees provide food.	Agree	Disagree	Not sure
Trees are places to play and relax.	Agree	Disagree	Not sure
Trees provide habitat for wildlife.	Agree	Disagree	Not sure
People live among trees.	Agree	Disagree	Not sure
Trees help keep water clean.	Agree	Disagree	Not sure
Trees are cut for firewood and products like paper, houses, chairs.	Agree	Disagree	Not sure
Trees are pretty.	Agree	Disagree	Not sure
Trees help clean the air	Agree	Disagree	Not sure
Trees are living things and have a life cycle.	Agree	Disagree	Not sure
Trees get sick, grow old, and die.	Agree	Disagree	Not sure
Trees can pose a hazard to people.	Agree	Disagree	Not sure
Trees can be too crowded to grow well.	Agree	Disagree	Not sure
Tree seeds grow into new trees.	Agree	Disagree	Not sure
Trees suffer if people do not plant or care for them properly.	Agree	Disagree	Not sure
Trees can be wild.	Agree	Disagree	Not sure

B. List two ways you are connected to trees in your life.

1.

2.

C. Name a tree or place with trees you have visited.
What did you like or dislike about it?

Development of lesson (constructing):

Part 1. Why would anyone cut a tree down?

Introduce the book, *Why would anyone cut a tree down?*

Preview the book cover and title. Ask students what they think the book is going to be about.

Depending on students, the book may be read straight through or in topical sections, for example:

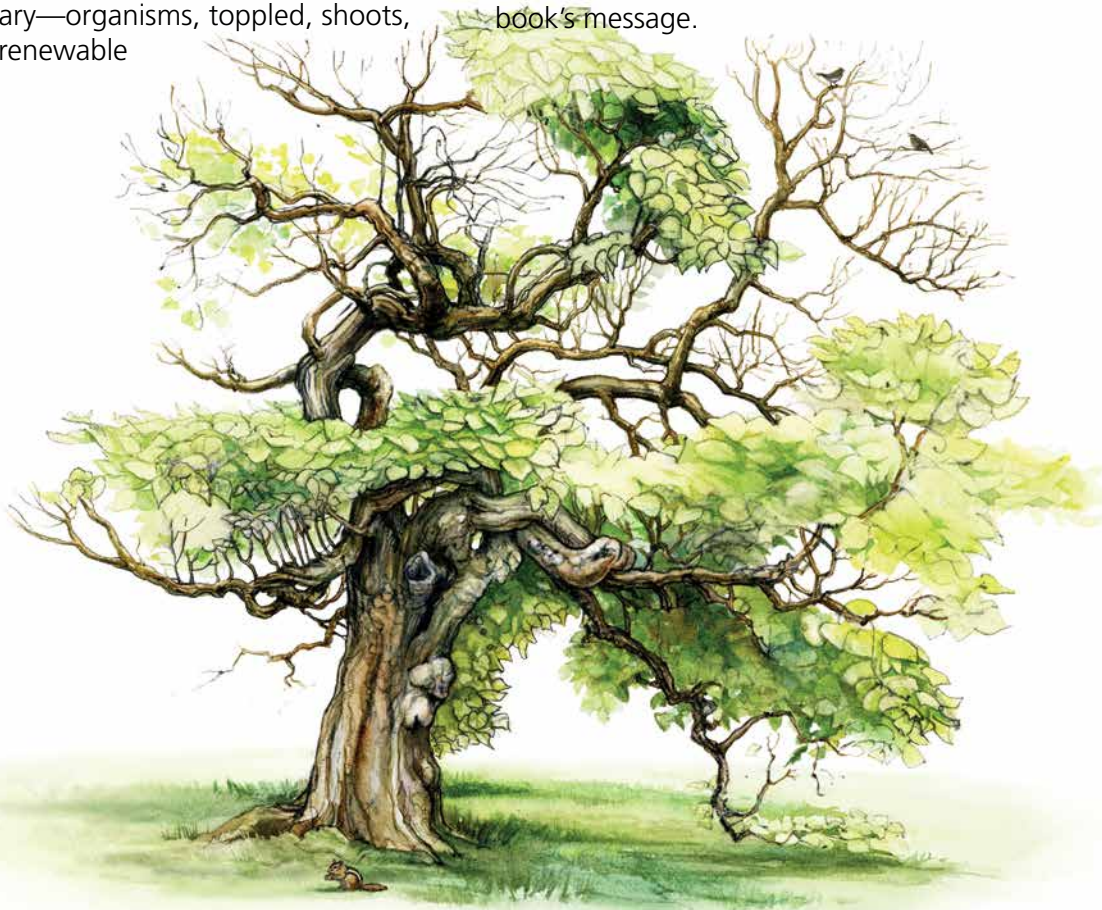
- Trees do terrific things: pages 3-13; possible vocabulary—terrific, soften, wildlife, celebrate
- Trees can have and create problems and may need to be cut down: pages 16-25; possible vocabulary—defect, damage, dangerous, safe, forest, woods, woodland, wildfire, hazard, nutrients, champion, thrive
- Trees are made of wood: pages 26-27; possible vocabulary—harvesting
- Trees are renewable: Pages 30-37; possible vocabulary—organisms, toppled, shoots, sprout, renewable

Introduce vocabulary that may be new to students, being sure to include the word renewable. (Part 5 focuses on developing understanding of “renewable.”) Using the vocabulary words sheet (provided), students add any additional words they choose, and rate their current knowledge of each word; teacher can work with younger students to rate word knowledge. (Adapted from Blachowicz and Fisher 2002, page 56, Table 3.1)

Read the book, then ask students:

- What is the book about? (Prompt for a word or phrase answer, e.g., trees, things trees do, cutting trees down, how trees grow and go on, trees are renewable)
- What is its overall message? Retell what the book told you. (Even though trees do good and important things, people need to cut down some trees that are damaged, sick, crowded, or a fire hazard. Trees are renewable. People need wood; and things made of wood can persist.)

Revisit the vocabulary notes and enter any updates as a result of reading the words in the context of the book and from retelling the book’s message.



Part 2. Trees are living.

How do we know that trees are living? (Like other living things, trees need water, nutrients, and a place to live; they grow, reproduce, and die.)

Create a two-column chart comparing living organisms and nonliving things.

How long do students think trees live (lifespan)? Write several guesses on board.

Do they think people or trees live longer?

Share examples of some tree ages. See provided table—Lifespans of rural trees. Note: The examples in the table are for trees in rural areas; the lifespan of city trees is addressed under Extensions.

Since trees are living and have an expected life span, they will get old and eventually die. Trees do not live forever, but some live much longer than people.

Revisit the vocabulary notes and enter any updates.

Extension—How do trees do what they do?

Research and share through a report, presentation, exhibit, or model how living trees do what they do—give oxygen, soften loud noises, slow the wind, keep soil from sliding away, clean the air, clean the water.

Teacher Resources:

- Additional tree benefits are listed on the Web site of the Alaska Department of Natural Resources: <http://forestry.alaska.gov/community/whocaresfortrees.htm>
- For more benefits of urban trees, go to www.youtube.com and search for “Community trees a living investment” or click [here](#).

Table—Lifespans of rural trees ^a

(Age at maturity is the typical age when growth slows.)

Kind of tree	Lifespan in years	
	Age at maturity	Oldest
Balsam fir	50 ^b	200
Quaking aspen	50 – 90	200
Paper birch	60 – 75	140 – 200
Jack pine	60 – 80	185 – 230
Red maple	70 – 80	150
Northern red oak	80 ^c	300 – 500 ^d
Pitch pine	90 – 100	200 – 350
White oak	100 – 120	600
Yellow birch	120 – 150	300 – 360
Sugar maple	140 – 150	300 – 400
Eastern white pine	200	450
Douglas-fir	200 – 400	1,200
Eastern hemlock	250 – 300	900 – 1,000
White ash	260	300
Redwood	800 – 1,500 ^e	2,300
Giant sequoia	2,000	3,200
Bristlecone pine ^f	1,000 – 2,000	5,000

^a Source: Burns, Russell M.; Honkala, Barbara H., technical coordinators. 1990. *Silvics of North America: 1. Conifers; 2. Hardwoods*. Agriculture Handbook 654. U.S. Department of Agriculture, Forest Service, Washington, DC. 877 p. http://www.na.fs.fed.us/pubs/silvics_manual/table_of_contents.shtm (22 April 2013)

^b Source: Minnesota Forest Industries. *Trees of Minnesota*. Coniferous, Balsam fir. <http://treesofmnapp.com/tree-balsam-fir.php> (22 April 2013)

^c Source: Minnesota Forest Industries. *Trees of Minnesota*. Deciduous, Northern red oak. <http://treesofmnapp.com/southwest-northern-red-oak.php> (22 April 2013).

^d Source: Illinois State Museum Society. 2000. *Forests of Illinois*, Tree guide, Red oak. <http://www.museum.state.il.us/muslink/forest/htmls/trees/Q-rubra.html> (22 April 2013)

^e Source: Shirley, James Clifford. 1940. *The redwoods of coast and Sierra*. Berkeley, CA: University of California Press. http://www.nps.gov/history/history/online_books/shirley/sec11.htm (22 April 2013)

^f Average ages on southern – northern slopes. Source: Wikipedia. (2013, March 13) http://en.wikipedia.org/wiki/Pinus_longaeva (22 April 2013)

Part 3. Trees can affect other trees and people

In this part of the lesson you can use current news stories and the links in the note to parents and educators on pages 38 and 39 in the book *Why would anyone cut a tree down?*

Divide students into groups and assign each group one of the following topics: dangerous trees, sick or infested trees, flammable trees, and crowded trees. Resources or activities for each topic are given below.

To record details on their topic, small groups can use a graphic organizer, such as the Details Tree note taking organizer (<http://freeology.com/graphicorgs/details-tree-note-taking-organizer/>) or 4-Square Graphic Organizer (<http://teacherweb.com/CA/Regnart/Nguyen/4Square.pdf>; http://en.wikipedia.org/wiki/Four_Square_Writing_Method).

Small groups share with the whole group.

Dangerous trees

If you knew that a heavy object was likely to fall, would you stay under it? Wouldn't you want someone to do something about it before you or someone else got hurt?

Teacher Resource: How to Recognize Hazardous Defects in Trees by Minnesota Department of Natural Resources and USDA Forest Service (<http://na.fs.fed.us/pubs/detail.cfm?id=927>).

Take away messages:

- Two elements create a hazardous tree condition: (1) Defect in a tree and (2) a place where people often gather, or park vehicles, or a building in the area where the defective part of the tree would fall.
- Take good care of your tree and inspect it at least once a year and after storms.
- Move targets mentioned in (2) if possible
- Prune or remove the tree.
- Consult a certified arborist as needed. The International Society of Arboriculture Web site (<http://www.isa-arbor.com/publicOutreach/whyHireCertifiedArborist/index.aspx>) explains why you should use one and how to find a certified arborist. A certified arborist is someone who has a level of knowledge about tree care, has passed an examination, continues their education, and adheres to a Code of Ethics.

Sick or infested trees

If someone in class catches a cold, how could it affect other students in class?

If a tree becomes infected with a disease or insects, how do you think it could affect other trees?

Teacher Resource: How to identify, prevent, and control oak wilt: http://na.fs.fed.us/pubs/howtos/ht_oakwilt/identify_prevent_and_control_oak_wilt_print.pdf

Take away message: What people can do is avoid injuring oak trees. Do not carve initials in bark; carvings create a pathway for oak wilt disease to get into the tree. Bark protects the tree like skin protects people and other animals.

Teacher Resource: How to save Dutch elm diseased trees by pruning: http://www.na.fs.fed.us/spfo/pubs/howtos/ht_save/ht_save.htm

Using the graphic of four trees in this publication, in order to control Dutch elm disease in an infected tree by pruning infected branches, the tree must be no more than what percent infected? (15 percent). What is the chance the disease will be controlled? (only 10 percent)

Dutch elm disease would be controlled by cutting the tree down when how much of the tree is infested? (20 percent)

Teacher Resource: Beetle Detectives—ALB. Get the facts. Find the beetle.

http://www.aphis.usda.gov/publications/plant_health/2011/alb_beetle_detectives.pdf

What do students need to know in order to search for the Asian longhorned beetle (ALB)?

- What to look for—see Signs of Infestation
- Where to look—see Host Trees.
- Are host trees in your area? How can you find out?
- Can you tell which trees they are? Learn to identify them.
- When to look—see Identifying the ALB.

Revisit the vocabulary notes and enter any updates.

Part 3. Trees can affect other trees and people (continued)

Flammable trees

During fire season (late summer to fall), you may have heard news stories about forest fires burning out of control and threatening to burn homes. Flammable trees and other vegetation, and fallen trees and branches can catch and spread fire. Resources: The following Web sites tell what people can do to help prevent fires.

Teacher Resources:

Firewise at <http://www.firewise.org/information/who-is-this-for-youth-and-families.aspx>

Smokey Bear and Friends at <http://www.smokeybear.com/resources.asp>

Project Learning Tree on the topic of fire at <http://www.plt.org/environmental-curriculum-resources-for-teachers?topic=10610>

Revisit the vocabulary notes and enter any updates.

Crowded trees

Make sure students understand what diameter is. Which trees do you think will have larger diameters—trees with more space between them or trees with less space between them? Why do you think so?

To test the answer and to illustrate how crowding might affect tree growth, work with students to design an experiment growing radish seeds, in which one group of seedlings is thinned and the other is not. How do the sizes of the radishes compare between the groups? Apply the experimental results to answer the above question about the relationship of tree diameter and spacing.

Revisit the vocabulary notes and enter any updates.



Part 4. Wood and other tree products

Getting wood and other tree products for people to use is both a reason to cut some trees, and a way to make good use of trees that have fallen or must be cut for other reasons.

Need for wood items and other tree products

Look around the classroom, school, or home for items made of wood; research other types of products that are made from trees. Record the products and display the list.

How do students use trees? Using the displayed list, have students make personal lists of wood and tree products they use. Ask them if they think they could get through the day without using at least one product made from trees?

Optional: Project Learning Tree lessons on We All Need Trees, and Forest for the Trees

Utilizing cut or fallen trees

For examples of how some people have utilized trees cut for other purposes, read these and similar stories and articles.

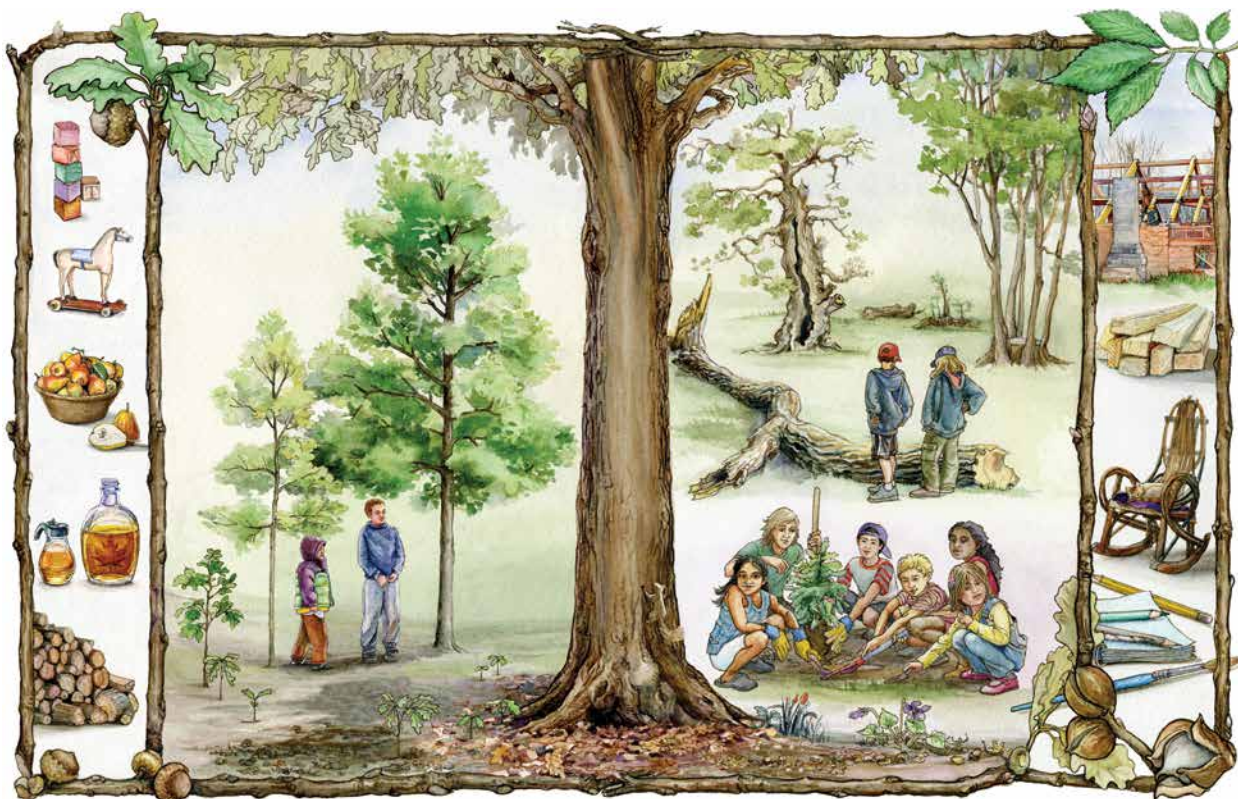
Teacher Resources:

- <http://wesm913.org/post/wye-oak-wood-being-used-commemorative-knife-handles>
- Case study "Connecting Tree Owners With Woodworkers" at <http://www.na.fs.fed.us/spfo/pubs/misc/umt/index.htm>
- http://www.johnjordanwoodturning.com/John_Jordan_Woodturning/The_Voice_of_a_Beloved_Tree.html

Student Resource: Books, such as *The Hickory Chair*.

Do students' families have any wood items with sentimental value, perhaps an item that was passed down from previous generations? Describe it in writing and an illustration.

Revisit the vocabulary notes and enter any updates.



Part 5. Trees are renewable

What does renewable mean?

To help students develop an understanding of this concept, this part explores the word and how it relates to the book *Why Would Anyone Cut a Tree Down?* and to a tree's life cycle.

Background: Some definitions of renewable

- Capable of being replaced by natural ecological cycles or sound management practices [by people]. (Adapted from Merriam-Webster 2001, Collegiate Dictionary, 10th ed)
- The word "renewable" has two meanings:
 - 1: that can be renewed or extended;
 - 2: capable of being renewed; replaceable.With energy it means something that can be continually used, like wind or solar, as distinct from coal or oil, which are nonrenewable and can only be used once. (http://wiki.answers.com/Q/What_does_renewable_mean)

Have students explore aspects of the word "renewable." If desired use a graphic organizer such as the Vocabulary Development Web Reproducible 1 at the Really Good Stuff Web site: <http://page.reallygoodstuff.com/pdfs/154854.pdf>

- Break the word apart into beginning, middle, and ending; what does each part mean?
- Define it in their own words.
- Give an antonym and synonym.
- Use the word in an original sentence.
- Write an acrostic poem.
- Draw a picture of the word.
- Act it out.

Revisit pages 30 to 37 of *Why Would Anyone Cut a Tree Down?* and talk about how each of these pages shows that trees are renewable.

What is a life cycle?

Background:

- Definition—The series of stages in form and functional activity [how a thing looks and what it does] through which an organism passes (Adapted from Merriam-Webster 2001, Collegiate Dictionary, 10th ed)

- What is the tree life cycle? The different stages in the life cycle of a tree are described by birth, growth, maturity, death, recycling, and rebirth.

Teacher Resource: Poster of "Life, Death, & Rebirth of a Tree" by Alex L. Shigo

Student Resources: Children's books on tree life cycles from any library

Working in small groups, students create life cycles for common trees such as oaks or maples or other familiar trees. Groups display their tree life cycles and present them to the rest of the class. Be sure each life cycle is complete.

How does the renewable nature of trees tie into their life cycle?

Revisit the vocabulary notes and enter any updates.

Extensions

Plant a tree

Untitled Poem by John B. Peaslee:

The trees which the children plant, or which they assist in dedicating, will become dearer to them as year after year rolls on. As the trees grow, and their branches expand in beauty, so will the love for them increase in the hearts of those by whom they were planted or dedicated, and long before the children reach old age they will almost venerate these green living memorials of youthful and happy days; and as those who have loved and cared for pets will ever be the friends of our dumb animals, so will they ever be the friends of our forest trees. From the individual to the general, is the law of our nature. Show us a man who in childhood had a pet, and we'll show you a lover of animals. Show us a person who in youth planted a tree that has lived and flourished, and we'll show you a friend of trees and of forest culture.

The first step is to choose a planting site.

IMPORTANT: After you choose a planting site, you must find out whether it is safe to dig there by calling 811 or visiting www.call811.com. This free Federally mandated national service by the Common Ground Alliance will alert you to the location of any buried utilities that could pose a hazard if you dig there.

Part 5. Trees are renewable (continued)

Work with students to research trees that would be appropriate for the site using information from the Arbor Day Foundation's Web site: the Tree Guide (www.arborday.org/trees/treeguide/index.cfm) or the Right Tree, Right Place Guide (www.arborday.org/trees/righttreeandplace/).

Follow the planting directions at the back of the book *Why would anyone cut a tree down?*

Hold a dedication of the newly planted tree if desired.

Resources:

- *Why Would Anyone Cut a Tree Down?*
- *Wangari's trees of peace: a true story from Africa* by Jeanette Winter OR another account of Wangari Maathai's Green Belt Movement, for which she was awarded the Nobel Peace Prize in 2004.
- *Tree Celebrations!* by Ilan Shamir
- Optional: Project Learning Tree lesson on Plant a Tree

Take a closer look at tree life stages

If a field trip is possible, or for homework, have students search for trees at variety of life stages that appear to match the stages shown on the Arbor Day site: <http://www.arborday.org/trees/lifestages/index.cfm>.

Photograph the trees and have students arrange them into the tree life cycle.

Decomposition and Nutrient Recycling

Refer to page 31 in *Why Would Anyone Cut a Tree Down?* What are the organisms in the small circles and what role do they play in decomposition and nutrient recycling? What are some other organisms that also play a role? Put the information in a book, bulletin board, or poster.



What would happen without these organisms?

Natural dispersal of tree seeds

Research the different methods of seed dispersal by one or more different tree species and create a poster, bulletin board, or booklet.

Compare life spans of urban and rural trees

Tree life spans vary widely depending on where the tree is growing—downtown, city, or rural area.

Present students with the chart of Average Life Expectancy of Urban Trees in the United States (source: <http://www.dnr.state.md.us/forests/programapps/itfh3.html>), and compare the difference in longevity in the different areas. Discuss the following with students:

Where do trees usually live the longest? ... the shortest? Why?

What is the life expectancy in years for trees in downtown areas? ... cities? ... rural areas?

Elaborate why (urban, i.e., downtown and city) trees need us.

Teacher Resource: <http://forestry.alaska.gov/community/whocaresfortrees.htm>

Read about or visit "champion trees;" search the Internet for locations.

Learn about American Forests' National Big Tree Program at www.americanforests.org/our-programs/bigtree/.



Part 6. Celebrating the life of a tree

Students use the stories and articles in this part of the lesson as inspiration for what they could do to help themselves and others with their feelings about losing trees due to accidents or cutting trees down.

Read about falling trees and cutting them in stories and true accounts, such as these:

Teacher Resources:

[http://en.wikipedia.org/wiki/Herbie_\(tree\)](http://en.wikipedia.org/wiki/Herbie_(tree))

http://seattletimes.com/html/localnews/2018048772_greenlaketree23m.html

<http://losangeles.cbslocal.com/2012/09/06/residents-could-be-fined-up-to-25k-a-day-over-beloved-tree-in-santa-monica/> (includes video) dangerous-dropping limbs-need to cut

<http://www.baltimoresun.com/explore/baltimorecounty/news/community/ph-ms-tree-0315-20120312,0,1008137.story>

Locate other stories by Internet searches using the terms “fallen tree,” “beloved tree.”

Student Resources: Books, such as *Solomon’s Tree*

Identify and record on the board or chart paper what the people in the stories did to deal with their feelings about cutting a tree down—make something from the wood and sell wood items to raise money for a natural resource cause, put up a commemorative plaque, plant a new tree to replace it, put flowers on the stump, write about the role of the tree in people’s lives.

Other idea: Write letters to the tree telling it how much it meant and thanking it for all it had done.

Do students have additional ideas for honoring the life of a tree?

For more ideas, search the Internet for “tree celebrations.”

Optional Teacher Resource: *Tree Celebrations!* by Ilan Shamir

Working in small groups, each group develops a celebration for a tree that must be cut down for

one of the scenarios presented in *Why Would Anyone Cut a Tree Down?* Incorporating the reason for cutting into the celebration, groups create an invitation, program, and news story about their celebration, or act it out, or both.

NOTE: If it is possible to locate a local tree that needed to be cut down, direct this exercise towards that tree.

Culminating Activity—Rewrite of *The Giving Tree*

Read or have students read *The Giving Tree* by Shel Silverstein.

Compare and contrast type of book with *Why would anyone cut a tree down?* (i.e., fiction or nonfiction/expository).

Take a few minutes to distinguish fact from fiction in *The Giving Tree* using a T chart, for example:

Fact	Fiction
Trees are fun to play in and around	Tree has emotions
Shade of a tree is a nice place to rest or eat	Tree talks
People pick and sell apples to make money	Branches from an apple tree give enough wood to build a house for people
Indians used tree trunks to make dugout canoes	
Apple wood is more likely to be used for furniture or accessories than for construction	

Culminating Activity—Rewrite of *The Giving Tree* (continued)

Using information learned in this curriculum, students change or add to the story in *The Giving Tree* by choice of—

- Writing
- Illustrating
- Narrating
- Recording
- Acting it out

Students must use two or more facts from *Why would anyone cut a tree down?* and tree life cycles created in Part 5.

Ask students to share their revised stories.

Postevaluation and Reflection

Students' first quickwrites and their first responses to the Statements About Trees serve as the preevaluation.

Have students do another quickwrite about what they think and how they feel now about losing trees and compare it to their first quickwrite.

Have students complete another sheet of Statements about Trees, then compare these answers to their first answers.

Students share in pairs. Ask volunteers to describe to the class changes in their thoughts and feelings and what they learned that changed their thinking or feelings.

If desired, summarize in a three-column table (provided), how students initially thought or felt, what they learned that changed their thoughts or feelings, how they now think or feel.



Postevaluation and Reflection (continued)

How I used to think or feel	What I learned	How I now think or feel

Follow-up activity:

How far would you go to protect trees? What else can you do?

Students read and respond to this book/ these books: *The people who hugged the trees* adapted by Deborah Lee Rose, or *Aani and the tree huggers* by Jeannine Atkins, or another story about the Chipko (Hug the Tree) movement in northern India.

If desired also read related news stories, such as about the destruction of olive groves in the Middle East.

Each student responds to the story using a response journal format of three columns titled Thoughts, Feelings, and Questions.

Optional: Give students or groups of students different accounts of these events. Have students retell the different versions, then compare and contrast the stories.

Whole group discusses what happened and what they think they might have done.

What else can students do?

Read to students the news story about a petition started by a first grader that extended a maple tree's life for 10 years: http://seattletimes.com/html/localnews/2018048772_greenlaketreer23m.html.

Students could write persuasive letters in support of a tree.

Materials and resources:

Publications

Why would anyone cut a tree down? by Roberta Burzynski

Solomon's tree by Andrea Spalding

The giving tree by Shel Silverstein

"Connecting tree owners with woodworkers: Harvesting Urban Timber Program, Cincinnati, Ohio," pages 13-15; "Selling handcrafted products from salvaged logs," pages 57-60, and other articles in *Utilizing municipal trees: ideas from across the country*, by Steven M. Bratkovich. 2001. NA-TP-06-01. Newtown

Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Area State and Private Forestry. <http://www.na.fs.fed.us/spfo/pubs/misc/umt/index.htm>

The people who hugged the trees adapted by Deborah Lee Rose, or *Aani and the tree huggers* by Jeannine Atkins, or another story about the Chipko (Hug the Tree) movement in northern India. (Preview the book so you can be sure it is appropriate for your students—in some accounts the tree huggers lose their lives defending the trees.)

Wangari's trees of peace: a true story from Africa by Jeanette Winter OR another account of Wangari Maathai's Green Belt Movement, for which she was awarded the Nobel Peace Prize in 2004.

Tompkins, Gail E. 2002. Language arts: content and teaching strategies, 5th ed. Upper Saddle River, NJ: Pearson Education, Inc. 653 p.

Blachowicz, Camille; Fisher, Peter J. 2002. Teaching vocabulary in all classrooms. Upper Saddle River, NJ: Pearson Education, Inc. 253 p.

Life, death, & rebirth of a tree [poster]. Shigo, Alex L. 1980 (Reprinted 2008). FS-356. Washington, DC: Forest Service, U.S. Department of Agriculture. Poster. (Available from a number of sources, including the Government Bookstore: <http://newbookstore.gpo.gov/products/sku/001-000-04737-0>).

Project Learning Tree activity guides can be obtained by attending a workshop; visit the Web site (<http://www.plt.org/>) for more information.

Other possible resources:

Student Resources:

A tree in a forest by Jan Thornhill

Sky tree by Thomas Locker

The hickory chair by Lisa Rowe Fraustino

The heart of the wood by Marguerite W. Davol

The forest where Ashley lives by Mark A. Vitosh and Ashley L. Vitosh

Teacher Resources:

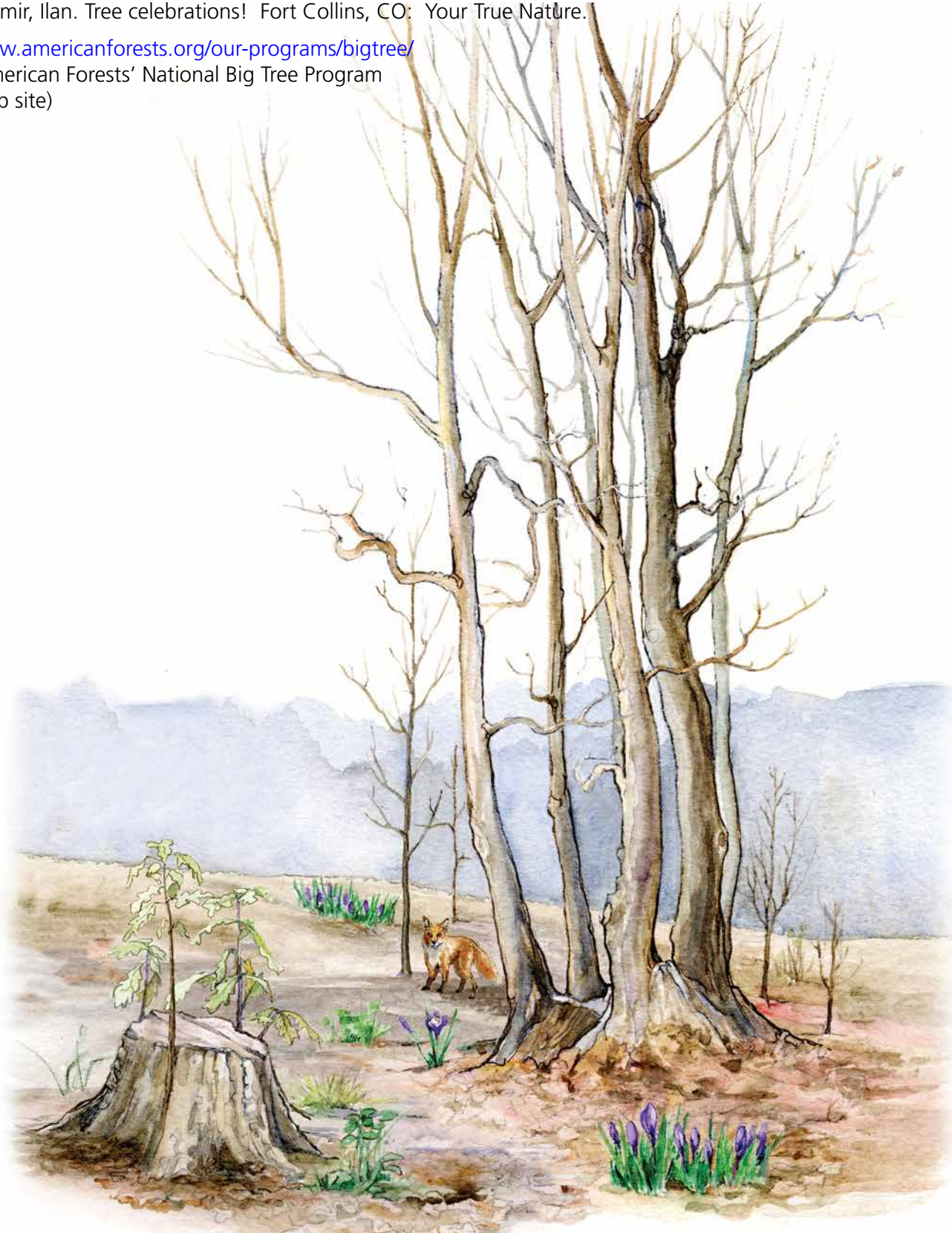
<http://www.treesaregood.com/> (International Society of Arboriculture Web site)

www.findingmyforest.org/ — Forest resources for educators including forest facts, a blog, ideas to use when visiting a forest, a curriculum, and a toolbox that can help you to identify trees, find forests and parks near you, and calculate the benefits that a specific tree provides.

EAB online curriculum: <http://www.emeraldashborer.info/edpacket.cfm>

Shamir, Ilan. Tree celebrations! Fort Collins, CO: Your True Nature.

www.americanforests.org/our-programs/bigtree/
(American Forests' National Big Tree Program Web site)



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