



Replant The Park: The Nobility Project and Bastrop State Park

“When we plant trees, we plant the seeds of peace and seeds of hope.”

Professor Wangari Maathai, Founder of the Green Belt Movement & 2004 Nobel Peace Prize Laureate

Lesson Plan

Lesson Overview

Students will take a broad look at the role that trees play in nature through their at-home investigation of a series of digital resources. They will then come to class with notes from their research and answers to formative assessment questions.

In class the next day, students will compare their research findings in a small group, mind mapping session where they brainstorm the roles that trees play in nature (habitat, carbon sequestration, human cultural uses such as lumber, paper, etc.) and discuss their answers to the formative assessment questions.

Students will then be asked, “What are the positive and negative aspects of forest fires?” Based on their findings, students will give examples of positive and negative aspects of forest fires and will collaborate to compile a list with their classmates. The class will then watch a series of short videos about the Bastrop State Park forest fire of 2011, deforestation, reforestation, and positive land management techniques. After viewing these videos together, the class will evaluate and revise their answers to the formative assessment questions.

The instructor will facilitate a discussion about the global impact of deforestation and both global and local acts of reforestation, and draw a connection to the planting project in Bastrop State Park.

Lesson Objectives and TEKS:

At the conclusion of this lesson, learners will:

1. Recall and utilize prior knowledge to discuss the role that trees play in nature and the resources they provide such as shelter, nutrition, camouflage opportunities for predators and prey, carbon sequestration, shade, firewood, lumber, paper, etc. **TEK 112.37(b)1;**
2. Identify and debate the positive and negative aspects of forest fires **TEKS 112.37(b)2,5 and (c)8A;**
3. Describe the forest fires in Bastrop State Park in 2011 **TEK 112.37(b)5;**
4. Identify ways to effectively help forests, locally and around the world, to recover through management strategies like reforestation and controlled burns **TEK 112.37(b)4 and (c)9E;**
5. Review and employ (when possible) ways in which individuals can personally make a difference to help reforest an area **TEK 112.37(b)3;**
6. Explain why Texas is prone to forest fires.
7. Explain the impact deforestation is having globally and why it is a problem. **TEK 112.37(c)8B and 9F**

Target Audience: 9th- 12th grade students

Lesson Duration

Day One: 10-minute intro in class, 30 minutes at home

Day Two: 45 minutes in class

Materials Needed by Students at Home

Internet access to view the online resources

Replant The Park Student Guide— Access the Student Guide here:

https://docs.google.com/presentation/d/1dLG6V-S3m9C3jo9NOga_M3CdRn2hcU4veeaKSmMTtH0/edit?usp=sharing

Materials Needed for Teacher in Class

Butcher paper and markers (optional)

Projector and computer with Internet connection

Tablets and/or computers with Internet connection for student research

Replant The Park Lesson Plan:

https://docs.google.com/document/d/1DNUbOFGkNbQanLKLmceZ1e5aPL4kIP2W8xhsODw_ZcM/edit?usp=sharing

Day One: Intro to Lesson (10 minutes):

Focusing Questions: What is a tree? Trees exist virtually everywhere in the world, but why? What is a tree's purpose in the world? How do humans and animals use trees? What is deforestation and why is it a problem?

We will explore the things we already know about trees from our personal experiences with trees and what we have learned about trees in school. We will then discuss the ways that trees exist in "nature"—rarely is there only one sole standing tree. Trees usually clump together. If the clump is large enough, we call it a forest. Why do we need forests?

We will explore the positive and negative effects of forest fires, and we will learn about effective, sustainable land management, and how humans can help forests to recover through reforestation, both locally and around the world.

We will discuss why deforestation is a problem locally and globally, examine solutions to this problem including [Wangari Maathai's Greenbelt Movement](#), and talk about how each one of us can make a difference.

We will be exploring the answers to all of these questions in preparation for our service project at Bastrop State Park where we will be helping to replant a specific type of tree, the Loblolly Pine, in Bastrop State Park after the particularly destructive forest fire that occurred in the park in 2011.

In preparation, I would like for you to do some research at home before you come back to class next time, and when we reconvene together as a class, we will use your research findings to draw conclusions about the answers to a list of focusing questions. You will spend about 30 minutes outside of class reviewing the online resources, taking notes, and coming up with answers to as many of the formative assessment questions as you can.

What we want you to think about and understand is: **Why is your work in Bastrop State Park important and how will we be contributing the the global reforestation effort inspired by Wangari Maathai?**

Day One: At Home Assignment (30 minutes):

Students will read, watch and listen to the following online resources at home the day before the lesson. Students will take notes and will answer the Formative Assessment Questions located [here](#).

Watch: Taking Root: Kenya and Wangari Maathai (7:47)

http://itvs.org/educators/collections/womens-empowerment/lesson_plans/from-roots-to-branches

Read: Deforestation: Facts, Causes & Effects

<http://www.livescience.com/27692-deforestation.html>

Watch: Raw Video Shows How Fast Texas Wildfire Spread (0:55)

<http://www.youtube.com/watch?v=vhJeDYQVtdQ&feature=share>

Watch: Mapping Deforestation with Google Earth (1:08)

http://youtu.be/sqiyP5Xv_PM

Listen: Fighting Fire With Fire: Why Some Burns Are Good For Nature (5:11)

<http://www.npr.org/2013/07/21/203245958/fighting-fire-with-fire-why-some-burns-are-good-for-nature>

Read: The transcript for the above NPR news story is available here.

<http://www.npr.org/templates/transcript/transcript.php?storyId=203245958>

Read: Into the Wildfire: What science is learning about fire and how to live with it.

http://www.nytimes.com/2013/09/22/magazine/into-the-wildfire.html?_r=2&

Formative Assessment Questions

[Formative assessment questions with answers are accessible here.](#)

Q1. What role do trees play in nature?

Q2. What resources do trees provide?

Q3. What are some positive aspects of forest fires? What are some negative aspects?

Q4. What happened in Bastrop State Park in 2011?

Q5. What are some land management strategies that are effective in helping forests to recover?

Q6. Why is Texas prone to forest fires?

Q7. What impact is deforestation having globally? Why is it a problem?

Q8. Based on your review of the online resources, what are two questions you still have

that your collaborative group can help you answer?

Day Two: At school (45 minutes)

Mind Map and Whole Class Discussion

Students will bring their research notes and answers to the formative assessment questions to class, and will work in small collaborative groups of 4-5 students.

Ask each group to brainstorm a list of all of the things they can think of that trees “do”.

Prompts might include: What purpose do trees serve in the world? Trees provide habitat, but what elements of habitat? What organisms use trees and for what purpose? How do trees breathe? What do they emit? How do they stand up? What would happen if there were no trees?

Bring the groups together and have each group share their list. Generate a list for the entire class to see.

[Sample List is accessible here.](#)

Class Brainstorm on Forest Fires and Deforestation

Use the last question in the previous section—*What would happen if there were no trees?*—to transition into exploring issues of deforestation. [Example of correct answers for class brainstorm are accessible here.](#)

Prompt: What would happen if there were no trees?

Prompt: What are some reasons why deforestation occurs?

Prompt: In Texas, we are prone to forest fires. Why?

Prompt: Why is deforestation a problem?

Have the class share some hypotheses about the negative aspects of forest fires. Challenge students to think about some of the positive aspects. Record students’ ideas for the class to see.

When Wangari Maathai, [accepted the Nobel Peace Prize in 2004](#), she delivered the following call to action for young people:

***“I would like to call on young people to commit themselves to activities that contribute toward achieving their long-term dreams. They have the energy and creativity to shape a sustainable future.*”**

To the young people I say, you are a gift to your communities and indeed the world. You are our hope and our future.”

What can we actually do to help solve the problem? We can contribute to better land management by planting trees! We can join “A Trillion Trees for Mother Earth, a Million in Each Country” campaign in honor of Wangari Maathai.

Take action.

Watch: Replant The Park - The Nobility Project and Bastrop State Park (2:16)

<http://youtu.be/rQyvpSWQkaM>

Read: United Nations Environment Programme, How to Plant a Tree

<http://www.plant-for-the-planet-billiontreecampaign.org/Getinvolved/HowtoPlantaTree.aspx>

Watch: Join the “I am a hummingbird” International Tree Planting Campaign! (2:00)

<http://www.youtube.com/watch?v=IGMW6YWjMxw>

Revisit original “Class Brainstorm on Forest Fires and Deforestation” list and compare.

Did the students learn new aspects of effective land management that they didn’t know about before? Discuss the list they generated with the ideas presented in the “further research” resources. Add new answers to list, as appropriate.

Make connection with local and global action. Effective forest management techniques are important to help maintain forest health, a healthy environment, and to keep large urban centers such as Austin safe. What can we do to help?

We can contribute to better land management by planting trees! We can join “A Trillion Trees for Mother Earth, a Million in Each Country” campaign in honor of Wangari Maathai.

Major habitat destruction happened in Bastrop in 2011, and now we are trying to reforest the area. In honor of Wangari Maathai, we will help to **Replant the Park!**

Summative Assessment Questions

[Summative Questions and Answers are accessible here.](#)

Q1-Q5: Multiple Choice

Q1. What role do trees play in nature?

- a. Trees provide habitat for a wide variety of organisms.
- b. Trees sequester greenhouse gases such as carbon dioxide.
- c. Trees stabilize soil preventing runoff and erosion.
- d. All of the above

Q2. What resources do trees provide?

- a. Trees provide resources such as carbon dioxide.
- b. Trees provide resources such as habitat, gas sequestration, and cultural items such as lumber and paper.
- c. Trees have no value as resources.
- d. Trees provide habitat only to birds and insects.

Q3. Which of the following statements is true about forest fires?

- a. Forest fires can cause air pollution and damage property.
- b. Forest fires promote seed germination in Loblolly pines.
- c. Forest fires can have negative impacts such as property damage and elimination of organisms, but also clear understory to promote successional vegetation growth and promote seed germination.
- d. All of the above statements are true.

Q4. What happened in Bastrop State Park in 2011?

- a. Trees were planted to reforest Bastrop State Park.
- b. Bastrop State Park was closed due to construction.
- c. The worst forest fire in Texas history destroyed over 95% of Bastrop State Park.
- d. A forest fire damaged 5% of Bastrop State Park.

Q5. What are some land management strategies that are effective in helping forests to recover?

- a. There are no effective ways to manage forests.
- b. Fires should always be suppressed.
- c. Utilize a multifaceted approach including reforestation, long term planning, and controlled burns.
- d. Forests should be clear cut and then all of the tree should be replanted.

Q6-Q10: Written response

Q6. Why do we need forests?

Q7. Name and explain two positive and two negative aspects of forest fires.

Q8. Why is deforestation having a global impact?

Q9 Why is Texas prone to forest fires? How did this impact the Bastrop fire?

Q10 What land management ideas do you think are most effective? Why?

Supplemental Materials

Listen: Wildfires Will Worsen, And Further Strain The Forest Service (4:07)

<http://www.npr.org/player/v2/mediaPlayer.html?action=1&t=1&islist=false&id=203301538&m=203361121>

Watch: Wangari Maathai - Environmental Degradation (1:39) <http://youtu.be/aYDauYIUGG4>

Watch: Wangari Maathai - The Environment, Governments and Peace (1:15)

<http://youtu.be/1U5VeYvNPIM>

Watch: Wangari Maathai and Education (2:04) <http://youtu.be/Sz4yhchPtCc>

Watch: Ahmed Zewail - Science Education (3:03) <http://youtu.be/EWZiSr8fR2I>

Watch: Ahmed Zewail - We Live on One Planet (5:09) <http://youtu.be/labACIZw4bA>

Watch: Steve Weinberg - Global Warming and the Common Sense Approach (3:05)

<http://youtu.be/8rmtrRniZqw>

Watch: Ecosystem ecology: Links in the chain (9:42)

[You+can+learn+about+it+too.+Check+out+http://www.khanacademy.org/video/crash-course-ecology-07](http://www.khanacademy.org/video/crash-course-ecology-07)

Read: *The Lorax*, by Dr. Seuss