

Lesson 7: Sustaining Our Forests

NUTSHELL

In this lesson, students read Aesop's Fable, The Goose and the Golden Egg, and discover what it means for something to be sustainable. They define the word "steward" and brainstorm ways that Wisconsin's citizens can participate as forest stewards. Students learn how organizations like the Wisconsin DNR and tribal natural resource departments are working to sustain forests and participate in a webquest. As a group, students read about situations facing our forests and determine which actions would help sustain them. Upon completion students create a poster to share how they can help sustain forests.

ENDURING UNDERSTANDINGS

- All citizens have a responsibility to be stewards of the environment that sustains human life. This includes making informed decisions about forest resources.
- A citizen, acting individually or as part of a group, can make lifestyle decisions and take a variety of actions to ensure the sustainable use of our forests.

ESSENTIAL QUESTIONS

- What does it mean to be a steward of the environment?
- What are people around the state doing to sustain Wisconsin's forests?
- What can I do to help sustain Wisconsin's forests?

OBJECTIVES

Upon completion of this lesson, students will be able to:

- Define the terms "steward" and "sustainable."
- Explain what various natural resource organizations are doing around the state to sustain Wisconsin's forests.
- Explain that citizens have a responsibility to be stewards of the environment.
- List choices they can make to sustain our forests.

SUBJECT AREAS

Act 31, Language Arts, Social Studies

LESSON/ACTIVITY TIME

Total Lesson Time: 120 minutes

- Introduction10 minutes
- Activity 160 minutes
- Activity 230 minutes
- Conclusion20 minutes

STANDARDS CONNECTIONS

Standards for this lesson can be viewed online at the LEAF website (leafprogram.org).

FIELD ENHANCEMENT CONNECTION

This lesson ties closely with **Field Enhancement 3, Caring for the Future of Forests.**

**"We can learn a lot
from trees:
they're always grounded
but never stop
reaching heavenward."**

★ Everett Mamor ★

BACKGROUND INFORMATION

Wisconsin's forests play an important role in maintaining the quality of life we all enjoy. Forests provide support for us ecologically, economically, culturally, and socially. Our worldwide systems depend on these same benefits of forests. As our world population continues to grow, needs for these benefits will grow. Our ability to sustain not only Wisconsin's forests, but also all world forests, will dictate the quality of life and perhaps basic survival of generations to come.

Since we all benefit from forests, we all play a role in their future. This role may be positive or negative based on our efforts to understand and use this resource wisely. All citizens have a responsibility to be **stewards** of the resources that sustain human life. To be a forest steward requires becoming knowledgeable on forest topics and issues and making informed decisions. As members of organizations and communities, or as individuals, we have a stake in how our forests are sustained. We can influence how forests are managed by volunteering, raising funds, voting, participating in planning processes, and consumer choices.

We must also be conscious of the finite quantity of the resource at any given time. Changes in usage of Wisconsin's forests without reciprocal changes in lifestyles, means that forests elsewhere must fill this void. For instance, if we decide not to harvest forests in Wisconsin, but continue to use the same amount of forest products, those products have to come from forests elsewhere. In our worldwide cultural, economic, ecological, and social systems, any changes in the use of Wisconsin's forests will affect forests elsewhere, including tropical rainforests.

VOCABULARY

Clearcut: Cutting/harvesting all the trees in a stand.

Diverse Forest: A forest that has many different species of trees and trees of many different ages.

Fable: A short story, often including animals, that teaches a lesson.

Single-tree Selection: A method where foresters carefully choose individual trees or small groups of trees from a stand for harvest.

Stands: Groups of trees in a forest.

Steward: A person who takes responsibility to make decisions and take actions today that will allow resources to be maintained in a healthy manner.

Sustainable: The ability for something to be maintained for use today and in the future.

PROCEDURE

Introduction

Ask students if they know what a fable is. (*A short story, often including animals, that teaches a lesson*). Ask students if they have ever heard Aesop's fable *The Goose and the Golden Egg*. Allow students to share what they know about it and then read it aloud to the class (see Teacher Page 📖 1, **Aesop's Fable: The Goose and the Golden Egg**). You can also project the fable and image using the Google resource: *Educator Slideshow_Lesson 7_Aesop Fable* found at uwsp.edu/wcee/wcee/leaf/leaf-curriculum/k-12-forestry-lesson-guides.

Ask your students if they owned the goose, what they would have done. (*Answers may vary. Some will probably say they would have left the goose alone so she could lay a golden egg a day. Others might say they would take extra good care of it.*) Tell the students that for the countryman, it would have been great if the goose had continued to lay these golden eggs forever. Ask them if they think this would have been possible. (*No, the goose would have eventually died of old age.*)





Ask students if they have ever heard of the term **sustainable**. Ask students to give their ideas of what the word means. Discuss with your students that sustainable means that something can be maintained as it is today, forever. Again ask if the goose could have laid golden eggs forever. (*No.*) Tell the students that you have another version to the end of the story.

Instead of Growing Impatient...




The countryman and his wife talked about how wonderful it would be if they could keep this going forever, even after the goose was gone so they, their children, and their children's children would never be without money. They came up with a plan. They built the goose her own house and fed her the best food they could find. They found a **gander** (male goose) to introduce to her. They let the goose sit on any eggs that were not golden and soon **goslings** (baby geese) hatched. They waited until the goslings grew into geese who could lay their own eggs and, sure enough, each goose laid one golden egg every day. Within a few years, the original goose died but the farmer and his family were still receiving golden eggs every day because their plan had worked. Planning for the future allowed the countryman and his wife to sustain their source of income (the golden eggs) even after the goose had passed on.

MATERIALS LIST


For Each Student

- Copy of Student Pages  **1A-C, A Tale of Two Forests - Menominee Forest** or Student Pages  **1D-F, A Tale of Two Forests - Mohican Forest**
- Copy of Student Pages  **4A-B: Forest Heroes Webquest**
- Copy of Student Page  **3: I ... What's Your Superpower?**
- Crayons or markers
- Scissors




For the Teacher

- Google resources to support this lesson can be found at uwsp.edu/wcee/wcee/leaf/leaf-curriculum/k-12-forestry-lesson-guides
- Copy of Teacher Page  **1, Aesop's Fable: The Goose and the Golden Egg**
- Teacher Key  **1, A Tale of Two Forests Answer Key**
- Copy and cut out two sets of Student Pages  **2A-C, Situation Cards**
- Google resource: *Educator Slideshow_ Lesson 7_Aesop's Fable*

For the Class

- One or two copies of Student Pages  **2A-C, Situation Cards**
- Crayons or markers
- Easel paper (or locations throughout the room where multiple sticky notes can be shared)

Activity 1

1. Ask your students to think about what forests were like in 1848, when Wisconsin became a state. How were the forests like a golden egg for Wisconsin's citizens? (*Our forests provided building materials, jobs, and money for the economy.*) Ask the students how what happened to our forests between 1848 and 1910 was similar to what happened in the first version of the story. (*We cut down all of our forests, just like the farmer killed the goose.*)
2. Ask your students to recount some of the steps that were necessary to re-establish our forests in Wisconsin after the cutover. (*Established nurseries, planted seedlings, suppressed forest fires, educated the public, established county/state/national forests, Civilian Conservation Corps.*) Remind the students that thanks to the efforts of many during the past century, we once again have great forests. Explain that in Lesson 5, they learned how the U.S. Forest Service and Wisconsin DNR helped to re-establish and care for forests in Wisconsin. Tell them that First Nations of Wisconsin also played a role in establishing forests and continue to do so.
3. Give half the students a copy of Student Pages  **1A-C, A Tale of Two Forests - Menominee Forest** and half the students a copy of Student Pages  **1D-F, A Tale of Two Forests - Mohican Forest**. Have students follow the instructions on their student page (this part of the activity should take about 30 minutes).
 - With a partner, read the section assigned to you by your teacher (Menominee or Mohican Forest) and complete the table for your forest.
 - Pair up with a partner group who read the same section as you and discuss your answers.
 - Pair up with a partner group who read a different section from you and discuss all answers.
 - Fill out the table for the other group's section.
 - Be prepared to discuss what you have learned with the class.
4. As a class, discuss the similarities and differences between the Menominee and Mohican Forests using Teacher Key  **1, A Tale of Two Forests Answer Key**. Be sure to point out that both forests had the same origin and the difference in the health and diversity of the forests today is due to the Menominee Forest having been sustainably managed by the tribe since 1854. You can share that people travel from all over the world to see the Menominee Forest and that Menominee Tribal Enterprise is known across the globe as a leader in sustainable forestry. It is also worth noting that the Menominee Reservation can be distinguished from space – the boundary is shown by the forest cover. Consider pulling up a Google map with the satellite feature on to show students this.
5. Tell students that Wisconsin has many heroes working to sustainably manage forests today and that they are going to participate in a quick Forest Heroes Webquest to learn a few things about a hero organization. Divide students into 13 groups. Assign each group one of the organizations from the Forest Heroes Webquest. Go over the instructions on the student page.
 - Go to the website of the Forest Hero assigned to your group.
 - Review the information on the website.
 - Record what you learn in the Forest Heroes Webquest Table.
 - Be prepared to share what you have learned with your peers.

(Continued on next page.)

Before they begin, please make sure students know that some websites have an incredible amount of information while others have very limited information. Ask them to do their best to get as much information as possible but tell them that you know information for some organizations is limited. The goal of the webquest is to see that the Wisconsin DNR and all First Nations care for the forests of Wisconsin. Allow students 5-10 minutes to complete this part of the activity.


6. Have students participate in a whole-class discussion to share what they have learned about the different Forest Heroes in Wisconsin.

Activity 2

1. Ask your students to recount why our forests are currently important. (*Culturally: harvesting maple sugar and birch bark; Ecologically: wildlife habitat, oxygen, use carbon dioxide, erosion control; Economically: jobs, products, tourism; Socially: relaxation, recreation.*) Ask your students if they think that our forests will be any less important in the future. Won't people still need forests for their cultural, ecological, economic, and social benefits? (*Yes, they will.*)
 2. Tell your students that since forests are extremely important to our lives, we must work together like people in the Wisconsin DNR and in Wisconsin's First Nations to sustain our forests. Post the heading "Things We Can Do to Sustain Forests" on easel paper, poster board or somewhere in your room that students can attach sticky notes to it. Tell students that you would like them to think of ways that people can help sustain forests. Divide them into groups and tell each group to work together to come up with ways to sustain forests. Tell them to write each idea on a sticky note.
- (**NOTE:** You may have to walk around the room and prompt them with additional questions to get them to come up with a variety of answers. (*Ideas may include but are not limited to: recycle paper, buy things with less packaging, plant trees, raise money for conservation, buy a trail/park sticker, buy a hunting license, harvest trees, plant trees, fight forest fires, build and maintain recreation areas, develop better ways to utilize trees.*) Once groups appear to be done generating their ideas, have each group share their ideas with the class. Once all ideas have been shared, have students identify the things they can do personally. Ask students if they think there are ways that they and other citizens might influence what others can do. (*They can ask for laws to be changed, vote for politicians that support sustainable efforts, provide informed public input at hearings, alter their consumption of an item and persuade others to do the same.*)
3. Tell them that we will be faced with a variety of situations where they must make decisions about how to sustain our forests. Tell the students that you have some cards that describe different situations on them. They will work in groups to identify what they would do in each situation. Their answers should reflect good choices for sustaining forests. They can select more than one option and even come up with their own ideas.
 4. Divide your class into small groups. There are six cards. Depending on the group size you choose, more than one group may have the same card. Give each group a situation card from Student Pages **2A-C, Situation Cards**. Tell them to read their card and discuss which alternative(s) would lead to sustaining our forests. After all the groups have finished discussing, go over each card as a class. Have each group share their thoughts.

5. Recap with the students how they have a role in sustaining our forests. Ask students, if we don't take care of our environment who will? Ask if anyone has ever heard of the word “**steward**” before. Can anyone define it? (*Someone who takes care of or maintains something.*) Tell students that they are all stewards of our environment and responsible for taking care of our forests, lakes, air, water, land, and all other aspects of our environment.

Conclusion

Tell your students that as stewards of our forests they also help defend them so that they will be able to provide cultural, ecological, economic, and social benefits for generations to come. Pass out one Student Page  **3: I ... What's Your Superpower?** poster to each student. Tell students that they are going to create Superpower posters that they can hang around the classroom, school, hallway (on lockers) to share what action they will do (their superpower) that will help sustain forests. (*Students can draw images or write their ideas in cool ways on their superhero shield.*)

CAREERS

The career profiles in this lesson are about Brad Hutnik, Forest Silviculturist, Wisconsin Department of Natural Resources (page 204), Chad Miller, Land Manager, Stockbridge-Munsee Community Band of Mohican Indians (page 205), and Olivia Witthun, Urban Forestry Region Coordinator, Wisconsin Department of Natural Resources (page 206). A careers lesson that uses this information begins on page 222.

SUMMATIVE ASSESSMENT

Ask students to write two paragraphs to describe what a diverse forest is and why they are healthier than forests without diversity. Answers should include information about species and age diversity.

SOURCES

Book

Aesop & Winter, M. *The Aesop for Children*. Chicago: Rand, McNally & Co., 1919. PDF retrieved from the Library of Congress. www.loc.gov/item/19014083.

Video

Boutsikaris, Costa and Palmer, Anna. *The Trees Will Last Forever*. Global Oneness Project, 2021. www.globalonenessproject.org/library/films/trees-will-last-forever.

RECOMMENDED RESOURCES

Google Resources

Additional resources to support this lesson have been created in Google format. They may be accessed on the LEAF website at: uwsp.edu/wcee/wcee/leaf/leaf-curriculum/k-12-forestry-lesson-guides.

Wisconsin Forest Tales

Pferdehirt, Julia. *Chapter 8: Grandma's Walk, Wisconsin Forest Tales* (P. Harden, Illus.) with input from Frechette, J., Hoffman, M. and the Menominee History Committee (University of Wisconsin-Stevens Point, Stevens Point, WI: Natural Resource Foundation of Wisconsin, LEAF - Wisconsin's K-12 Forestry Education Program, and Wisconsin DNR. Black Earth: Trails Custom Publishing, 2004.

In Chapter 8, readers follow Molly and her classmates on a trip to a school forest that inspires them to take on a project in their own school forest. Print copies of the book are available to check out through LEAF (leafprogram.org) and a classroom set is included in the LEAF 4th Grade Kit (uwsp.edu/wcee/wcee/kits). All Wisconsin educators can request a complimentary copy from the LEAF program as well by emailing leaf@uwsp.edu. Online PDFs of Chapter 8 can be found on the DNR website dnr.wisconsin.gov/education/WisconsinForestTales.

Career Profile

Brad Hutnik, Forest Silviculturist

Meet Brad Hutnik. Brad is a forest silviculturist for the Wisconsin Department of Natural Resources. Brad studies how trees grow and uses science to determine the best ways to keep them growing strong and healthy. Brad helps foresters and other people understand problems that affect how trees grow. Problems include things like drought, heavy snow, and invasive species which can all have a negative impact on forests, wildlife, people, and businesses that rely on the forests. To find solutions to the problems, Brad sets up small research projects to learn more about the issues and the effect they are having on Wisconsin's forests.

Brad has always loved nature and being outdoors. He grew up on a farm in central Wisconsin and loved spending time in the woods. After reading a book called *A Sand County Almanac* by Aldo Leopold, Brad became even more interested in the field of natural resources. He decided to attend the University of Wisconsin-Stevens Point where he fell in love with the field of forestry. He graduated with a degree in Forest Management. Brad received additional training from the U.S. Forest Service through the National Advanced Silviculture Program.



Brad Hutnik

After Brad graduated, he worked at a paper company, an organization that helps protect land, and a private consulting firm. Brad began working as a forester for the Wisconsin DNR in 2002 and became a forest silviculturist in 2012. Brad has worked on many different projects over the years related to different topics like deer, fire, and songbird management.

Brad says his favorite part of his job is getting to work on so many different types of projects. If interested in becoming a silviculturist like Brad, he suggests working with a wide range of people and backgrounds and getting experience in different aspects of forestry. He said it helps to be curious and not afraid to work with numbers. It is also important to be comfortable with using new tools and technologies and learning new things.

Career Profile

Chad Miller, Land Manager

Meet Chad Miller. Chad is the land manager for the Stockbridge-Munsee Community Band of Mohican Indians. He is responsible for updating and following the Mohican Land Use Plan which helps protect and maintain resources for the community. It includes rules on how land can be used so that it meets the needs of the Mohican people now and in the future.

Chad and the land management department do many different things to protect and maintain resources for the Mohican Nation. They survey land and make maps using Geographic Information Systems (GIS). They also make rules for what different pieces of land can be used for, which is called zoning. The department gives building permits and other land use permits to people who want to build or work on the land. Chad also helps the tribe plan for emergencies.

Chad works closely with all natural resources departments, including forestry, to help sustain all lands of the Stockbridge-Munsee Mohican Nation. He also does real estate work for the tribe. The tribe owns land in the townships of Bartelme and Red Springs, but the land is not all together. It looks like a checkerboard. Some lands are owned by the tribe while others are not. The tribe is trying to get back pieces that have been lost. They use money from gaming (casinos) and forestry (selling timber) to purchase the land.

Chad has always been active in the outdoors and wanted a job where he could spend time outside. He went to college at the University of Wisconsin-Stevens Point and took some courses in forestry and GIS. After two years, he got a job as a GIS specialist within the tribe. He received more training while working and eventually became the land manager.

Chad loves being part of many different projects as land manager for the Stockbridge-Munsee Mohican Nation. He also likes that his work helps shape and take care of his own community. He knows what we do today affects future generations and wants to make positive contributions for the next generation and beyond. If you want to be a land manager like Chad, it is good to take many different classes and be involved in various things within your community. Building connections with the people in your community is also important.



Chad Miller

Career Profile

Olivia Witthun, Urban Forestry Region Coordinator

Meet Olivia Witthun. Olivia is an urban forestry region coordinator for the Wisconsin Department of Natural Resources. She helps **urban foresters** (foresters who take care of trees in cities towns, and villages) keep the trees that grow along their streets and in their parks healthy. She also works with members of the community to help them understand the benefits of urban trees and forests.

Olivia helps urban foresters by training and educating them. Urban foresters need to know how to plant and prune trees in a way that helps them grow. They also need to keep track of how many and what types of trees grow in certain areas, create management plans for the urban forests and help when there are emergencies related to trees.



Olivia Witthun

Olivia grew up in east central Wisconsin. She has always loved being outdoors and working with people. When she was young she enjoyed climbing trees in her grandparents' backyard. Olivia went to college and got a degree in urban forestry.

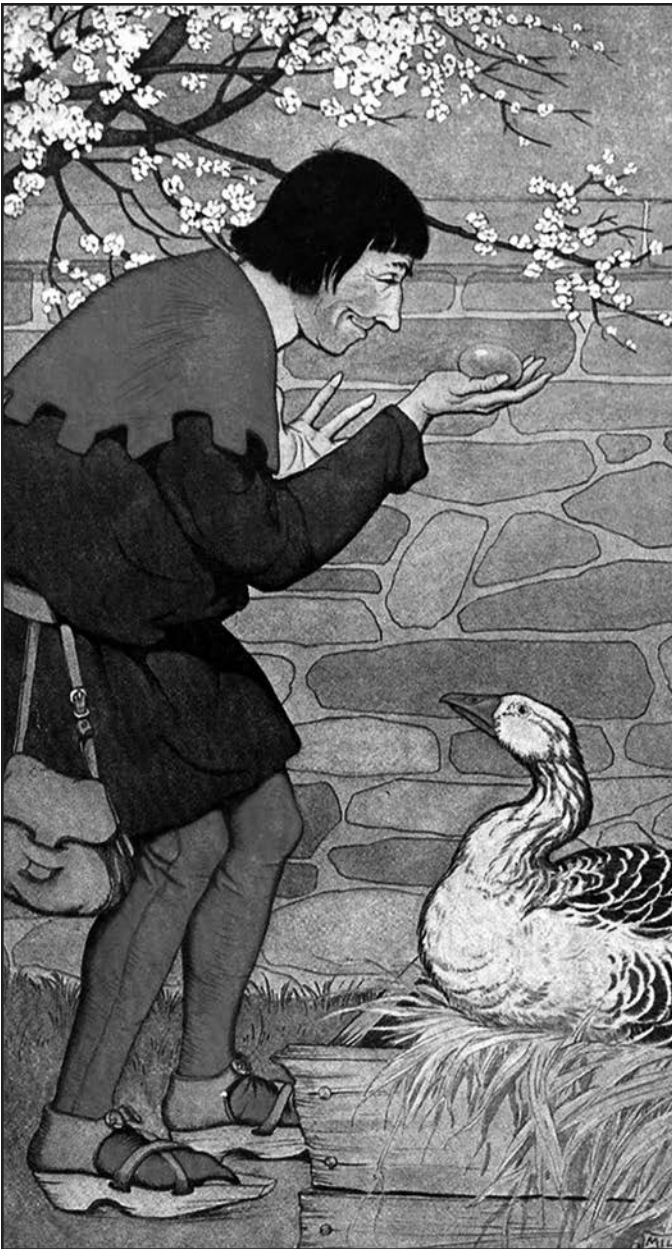
Olivia loves her job and enjoys helping the people of Wisconsin by taking care of urban forests. There are many different paths you can take to become an urban forester. Olivia says most urban foresters become a certified arborist through the International Society of Arboriculture. An **arborist** is a person who studies, manages, plants, and takes care of trees. Urban foresters who work for a community, county, or the state, need a four-year college degree like Olivia. Urban foresters who work for a business or private company, sometimes only need a two-year technical school degree.

If you are interested in becoming an urban forester, Olivia recommends finding a Youth Apprenticeship Program to participate in during high school. It will help you understand what the job is about. Your school counselor can help you find youth apprenticeship opportunities.

NOTES



AESOP'S FABLE: THE GOOSE AND THE GOLDEN EGG



There was once a countryman who possessed the most wonderful Goose you can imagine, for every day when he visited the nest, the Goose had laid a beautiful, glittering, golden egg.

The countryman took the eggs to the market and soon began to get rich.

But it was not long before he grew impatient with the Goose because she gave him only a single golden egg a day. He was not getting rich fast enough.

Then one day, after he had finished counting his money, the idea came to him that he could get all the golden eggs at once by killing the Goose and cutting it open.

But when the deed was done, not a single golden egg did he find, and his precious Goose was dead.

THOSE WHO HAVE PLENTY WANT MORE AND SO LOSE ALL THEY HAVE.

From: *Aesop for Children*. Retrieved from the Library of Congress.

A TALE OF TWO FORESTS ANSWER KEY

TOPIC	MENOMINEE FOREST	MOHICAN FOREST
Location of Forest	Menominee Reservation in what is now northeast Wisconsin about 45 miles northwest of Green Bay.	Stockbridge-Munsee Reservation in the townships of Red Springs and Bartelme in Shawano County in what is now northwestern Wisconsin.
Acreage Harvested	170,000 Acres	15,000 Acres
Description of Forest	<ul style="list-style-type: none"> • Diverse forest both by species and age. Older forest. • Northern hardwood forest with sugar maple, beech, basswood, white ash, yellow birch, hemlock; also has pine, swamp conifers, aspen and oak. • Healthier, more mature, and more diverse than other forests nearby that are not on the Menominee Reservation. 	<ul style="list-style-type: none"> • Diverse in species but not as much in age. Younger forest. • Northern hardwood forest with sugar maple, beech, basswood, white ash, yellow birch, hemlock; also has red oak, red and white pine, cedar, aspen, white birch, swamp conifers, and swamp hardwoods.
History of Forest	Always part of Menominee territory; not clearcut during cutover of Wisconsin; used by Menominee for harvesting; gathering, hunting but not overused.	Originally part of Menominee territory; given to Stockbridge-Munsee in 1856. Stockbridge-Munsee cleared some for farming; most sold to lumber companies that clearcut and harvested it.
Sustainable Forest Management Practices (Before 1930s)	<ul style="list-style-type: none"> • Original Menominee Practices: Only take what is needed and take from different locations. • Chief Oshkosh: Cut from rising sun to setting sun and only cut trees that were mature, sick or had fallen. 	<ul style="list-style-type: none"> • Original Menominee Practices: Only take what is needed and take from different locations. • No sustainable forest management before 1930s.
Sustainable Forest Management Practices (After 1930s)	<p>Goal is to maintain diversity.</p> <p>Single-tree selection; sometimes clearcut; only harvest when trees are ready/it is needed; reintroducing burning; managing invasive species; restoring to original state (increasing open space for some trees/plants/wildlife).</p>	<p>Goal is to increase diversity.</p> <p>Single-tree selection; sometimes clearcut; only harvest when trees are ready/it is needed; introducing new species; working to increase age diversity; manage invasives; adapt for climate change; assisted migration.</p>
Challenges	Invasive Species • Climate Change	Wind • Invasive Species Deer Browse • Climate Change

A TALE OF TWO FORESTS - MENOMINEE FOREST

The Menominee Forest is on the Menominee Reservation in what is now northeastern Wisconsin. The reservation is about 45 miles northwest of Green Bay. The Menominee Forest covers about 93% of the 235,000-acre reservation. About 170,000 acres of the Menominee Forest can have trees harvested from it. Interestingly, there are more trees in the forest now compared to when the reservation was established in 1854.

The Menominee Forest is one of the most **diverse forests** in the Midwest which means it is home to many different species of trees and has trees of many different ages. It is in a place where the forests change from one type (central hardwoods) to another (northern hardwoods). This is one reason it is so diverse. Most of the trees in the Menominee Forest are northern hardwood trees like sugar maple, beech, basswood, white ash, yellow birch, and hemlock. There are also other types of trees like pine, swamp conifers (evergreens that grow in wet areas), aspen, and oak. In 2018, some scientists did a study on the Menominee Forest. They found that it was more mature, diverse, and healthier than other forests nearby that were not on the reservation.

Before settlers came to Wisconsin, the Menominee had a big area of land, about 10 million acres, in northern Wisconsin and the Upper Peninsula of Michigan. It was covered by a healthy, diverse pine and hardwood forest with many different species and aged trees. The Menominee relied on the forest to meet their needs. They would travel around to fish for sturgeon, hunt, trap, make maple sugar, and gather berries, medicines, birch bark, and other materials. For thousands of years, the Menominee only took a little bit from the forest at a time. They also made sure they didn't always take things from the same spot. This way the forest resources would last forever.

The Menominee learned many things about the forest over the years. They passed this knowledge down from one generation to the next. They knew that some berries grew better after a fire, so they would burn different areas to help the berries grow and produce more. They burned other areas to make clearings for hunting. Some trees, like oak, grew well in these clearings and provided food for deer and other animals.

When settlers came to the area, things changed for the Menominee people. In 1854, treaties were signed, and a reservation was created for the Menominee. The resources available on the small reservation were not enough to support all the Menominee people. They realized they needed to find other ways to take care of themselves.

At one point, the U.S. government wanted the Menominee to move to Minnesota. They also encouraged the Menominee to become farmers. Luckily, the Menominee had a wise leader named Chief Oshkosh who helped them during this challenging time.

Chief Oshkosh didn't want the Menominee people to move to Minnesota. He understood that the Menominee had a lot of important knowledge about the land they had lived on for a very long time. He didn't think this knowledge would be as helpful to them in Minnesota. Chief Oshkosh believed that if the Menominee stayed on the lands that were part of their original territory, they could keep surviving by using their knowledge and adapting. The Menominee people found a clever new way to use their knowledge of the forests to sustain their people and meet their needs.

A TALE OF TWO FORESTS - MENOMINEE FOREST

Chief Oshkosh said that if the Menominee people started cutting trees from one side of the reservation where the sun rises and worked towards where the sun sets, they could harvest trees forever. But there were some rules they had to follow. They could only cut trees that were mature, sick, or had fallen. This was the beginning of sustainable forest management on the Menominee Reservation.

At first, the Menominee only cut trees that were already dead or had fallen. They had a small sawmill at Keshena Falls where they made lumber for building things on the reservation. In 1890, they started cutting some living trees too. They were careful and only cut a limited number of trees to make sure the forest wouldn't run out of trees like the forests in other parts of what is now Wisconsin.

In 1908, the Menominee built a new sawmill in Neopit so they could use trees that had fallen in a big storm. They continued to harvest trees in a way that kept the forest healthy. To take care of the forest and run the sawmill, Menominee Tribal Enterprises (MTE) was created. MTE follows the teachings of Chief Oshkosh and uses sustainable practices that will keep the forest healthy for a long time.

The Menominee use a special practice called **single-tree selection** to take care of many different **stands** (groups of trees) in their forests. Instead of cutting down all the trees in a stand, they carefully choose individual trees or small groups of trees to harvest. They do this to make sure the forest has a variety of different types and ages of trees. This helps the forest be healthier and stronger. When they use single-tree selection, they only harvest trees every 15 to 20 years. This gives trees that were left standing time to grow and mature before there is another harvest.

Sometimes MTE decides that it is best to remove all trees in a stand. This is called **clearcut**. Clearcuts are only done when all trees are mature but not too old and falling over. When a clearcut is done, the stand will not be cut again for a very long time, at least 40 to 50 years.

Logging and producing forest products are important to the Menominee people. However, they also think it is important to restore the forest to how it was before the treaties were signed. Restoring the forest means something different in the Menominee Forest compared to other places. While many areas in Wisconsin are trying to plant more trees, the Menominee Forest needs the opposite. It has more trees and less open space now than it did in the past.

Open spaces in the forest are important to the Menominee because the spaces allow different ecosystems, plants, and animals to grow. When the U.S. government stopped allowing fire to be used in the forests, the open spaces in the Menominee Forest filled up with trees that didn't always belong there. Now, the Menominee are working to bring back fire to some parts of the forest. This will help create open spaces again and allow different ecosystems to return.

Right now, there are two big problems the Menominee Forest is facing. The first one is invasive species. These are insects or plants that don't usually grow in the Menominee Forest. They can harm the plants and animals of the Menominee Forest. The second problem is climate change, which is causing changes in temperature and weather that can affect the forest. Warmer temperatures can change which trees grow best in the Menominee Forest and severe weather can cause more blowdowns.

To help protect the Menominee Forest, MTE has a plan. They will continue to use single-tree selection to increase the diversity and health of the forest. They believe a healthy, diverse forest will be best able to adapt to climate change.

A TALE OF TWO FORESTS - MENOMINEE FOREST

Instructions:

- ❶ With a partner, read the section assigned to you by your teacher (Menominee or Mohican Forest) and complete the table for your forest.
- ❷ Pair up with a partner group who read the **SAME** section as you and discuss your answers.
- ❸ Pair up with a partner group who read a **DIFFERENT** section from you and discuss all answers.
- ❹ Fill out the table for the other group's section.
- ❺ Be prepared to discuss what you have learned with the class.

TOPIC	MENOMINEE FOREST	MOHICAN FOREST
Location of Forest		
Acreage Harvested		
Description of Forest		
History of Forest		
Sustainable Forest Management Practices (Before 1930s)		
Sustainable Forest Management Practices (After 1930s)		
Challenges		

A TALE OF TWO FORESTS - MOHICAN FOREST

The Mohican Forest is on the Stockbridge-Munsee Band of Mohicans Reservation in the townships of Red Springs and Bartelme in Shawano County in what is now northeastern Wisconsin. The Mohican Forest covers about 85% of the 25,000-acre reservation. About 15,000 acres of the Mohican Forest can have trees harvested from it.

The Mohican Forest is a young forest that grew back after it was **clearcut** and burned in the late 1800s and early 1900s. The land has very rich soil that was left behind by glaciers. The soil is good for northern hardwood trees like sugar maple, beech, basswood, white ash, yellow birch, and hemlock. The Mohican Forest is in a place where the forests change from one type (central hardwoods) to another type (northern hardwoods) called the **tension zone**. Because of this, trees that are not usually found in northern hardwood forests grow well in the Mohican Forest. These trees include red oak, red and white pine, cedar, aspen, white birch, swamp conifers (evergreens that grow in wet areas), and swamp hardwoods (hardwoods that grow in wet areas).

The Mohican Forest is **diverse** in species which means that it has many different types of trees (at least 31) growing in its **stands** (groups of trees). The stands do not have much age diversity which means the stands only have trees of similar ages growing in them.

Before settlers came to Wisconsin, the land that is now the Mohican Forest was part of Menominee territory. It was a healthy, diverse pine and hardwood forest with many different species and many different aged trees. The Menominee relied on the forest to meet their needs. For thousands of years, the Menominee only took a little bit from the forest at a time. They also made sure they didn't always take things from the same spot so the forest resources would last forever. In the Treaty of 1856, the U.S.

government granted the Menominee permission to sell land in the townships of Red Springs and Bartelme to the Stockbridge-Munsee Indians. It became the Stockbridge-Munsee Reservation. Some members of the Stockbridge-Munsee community tried farming, but it didn't work very well. The land that was not covered in forest was sandy and swampy. Many Stockbridge-Munsee people struggled to make ends meet.

The pine trees on the Stockbridge-Munsee Reservation were coveted (greatly desired) by lumber companies outside the reservation. In 1871, the U.S. government oversaw the sale of a large portion of Stockbridge-Munsee's forested land that was deemed excess (the U.S. government decided the tribe did not need). The Stockbridge-Munsee community was divided about if they should sell sections of their forested land to the lumber companies. For the sale to take place, the majority of the Stockbridge-Munsee members needed to vote in favor of the sale. Many people were angry when the land was sold without any proof that the majority of the members had agreed to the sale.

In 1887, the reservation was allotted (divided into) small parcels that were given to individual members of the tribe. Many members lost their land because they did not understand what taxes were or could not pay the taxes for their land. Others were forced to sell their land and some were victims of swindlers (people cheating them). By the 1920s, the Stockbridge-Munsee Community had lost almost all their reservation lands and the lumber companies had clearcut most of the forest. Once the trees were gone, the lumber companies abandoned the land.

In the mid 1930s, a law was passed that recognize Indian communities and set aside money to get back some of their land. The Stockbridge-Munsee regained about 15,000 acres from their original reservation in the townships of Bartelme and Red Springs.

A TALE OF TWO FORESTS - MOHICAN FOREST

Over the years, the tribe bought back even more land for a total of about 25,000 acres. The land had been clearcut but was not good for farming because it had too many rocks. It was a good place to build a community and a great location for trees to grow. Around this same time, the Civilian Conservation Corps started planting trees on county, state, federal, and reservation lands. A few red pine plantations were planted on the Stockbridge-Munsee Reservation.

By the 1970s, the Mohican Forest and pine plantations had grown enough to become a resource for the Stockbridge-Munsee Community Band of Mohican Indians, and they needed a forestry department. The number one goal of the Mohican Forestry Department has always been sustainability. They want to have as many species as possible in the forest and have trees of all ages. When the department creates plans for the forest, or plans a harvest, they don't just think about the next 10 or 25 years, they look at least seven generations into the future.

The plan for the Mohican Forest only allows trees to be harvested from stands that are mature and ready. Some stands are left as reserves and never harvested at all. The goal of all harvests is to improve the health and diversity of the Mohican Forest. To do this, the forestry department uses sustainable methods like single-tree selection. During **single-tree selection**, foresters carefully choose individual trees or small groups of trees to harvest so they can make sure the forest has many different types and ages of trees. Money earned from harvests is used to get more land for the Stockbridge-Munsee to preserve for generations to come.

Wind is the largest threat to the Mohican Forest. In June of 2022, there was a major storm with straightline winds that blew down many trees. Several stands of trees had to be clearcut after the storm, which was very disappointing. There is not a lot the Stockbridge-Munsee can do to

prevent wind damage to the forest, but having a diverse forest in age and species will ensure the forest can continue to be sustained into the future.

Invasive species and a large deer population also threaten the Mohican Forest. The Mohican Forest is not one continuous forest but is made up of different parcels of land that have spaces in between them. These openings give invasive species more opportunities to enter the forest. The forestry department works hard to protect the center of the reservation from invasive species. Sometimes they remove invasive species that are growing in the forest, and other times they plant seedlings to keep invasives from moving in. The large number of deer in the Mohican Forest is also a problem. The Mohican Forest has five times the number of deer a healthy forest should have. It is difficult to increase the diversity of the Mohican Forest when there are so many deer eating seedlings, saplings, leaves, and branches.

A long-term threat to the Mohican Forest is climate change. Because the Mohican Forest is on the tension zone, a small change in temperature could change what species grow best in the Mohican Forest. To help the forest adapt, the forestry department is looking at which species grow better in a more southern climate. When they write their management plan and plan cuts, they may choose to keep tree species that are more successful in warmer temperatures and harvest species that need a colder climate. They may also decide to plant some species of trees that grow well in locations that are 20 or more miles south of the forest, which is called assisted migration.

No matter what challenges the Mohican Forest faces, increasing the diversity of species and age in the forest will help it be successful and will continue to be part of the forest management plan.

A TALE OF TWO FORESTS - MOHICAN FOREST

Instructions:

- ❶ With a partner, read the section assigned to you by your teacher (Menominee or Mohican Forest) and complete the table for your forest.
- ❷ Pair up with a partner group who read the **SAME** section as you and discuss your answers.
- ❸ Pair up with a partner group who read a **DIFFERENT** section from you and discuss all answers.
- ❹ Fill out the table for the other group's section.
- ❺ Be prepared to discuss what you have learned with the class.

TOPIC	MENOMINEE FOREST	MOHICAN FOREST
Location of Forest		
Acreage Harvested		
Description of Forest		
History of Forest		
Sustainable Forest Management Practices (Before 1930s)		
Sustainable Forest Management Practices (After 1930s)		
Challenges		

SITUATION CARDS

Fun at the Park

You enjoy visiting a state park and often hike and camp there. The Department of Natural Resources (DNR) is making a plan for how to manage the forest for the next 10 years.

It is considering things such as harvesting trees, trail development, and building of additional campgrounds.

WHAT COULD YOU AND YOUR FAMILY DO TO SEE THAT THE FOREST PROVIDES MORE OPPORTUNITIES TO HIKE AND CAMP?

- ☐ There is nothing you can do.
- ☐ Contact the DNR for a copy of the plan, read it, and let the DNR know what you like and don't like.
- ☐ Find a new forest to hike and camp in.
- ☐ Write a letter to your local newspaper encouraging others to learn about the plan and get involved.
- ☐ Attend a public meeting that the DNR will hold and speak to the group on your thoughts.
- ☐ Stop hiking and camping.

WHAT ELSE COULD YOU DO?

Fast Food Choices

It is lunchtime and you are hungry. You go with your family to a fast food restaurant. You notice that they want to give you large plastic cups and want to put everything in a bag. You are concerned about the waste of paper and plastic used to make these items, especially when they will go in the trash as soon as you are done eating.

WHAT COULD YOU DO?

- ☐ Ask for a paper cup instead. A paper cup is made from a renewable resource.
- ☐ Tell them you don't need a straw and ask the restaurant to think about switching to paper straws which are made from a renewable resource.
- ☐ Take your food and hide in the corner where no one can see you.
- ☐ Ask to not have a bag.
- ☐ Take the bag and cup home and reuse them.
- ☐ Nothing, you are only one family, so what good will it do?
- ☐ Don't eat there in the future.
- ☐ Tell them you don't want the food anymore and ask them to throw it away.

WHAT ELSE COULD YOU DO?

SITUATION CARDS

Green Space in the City

A person has recently donated a piece of land to the city. Some of the land is forest; some is just weeds. A group called Citizens for Green Space is asking the city to make the land into a park and nature center. You like this idea.

WHAT COULD YOU DO?

- ☐ Find out more about the group and if you agree with their ideas, join the group and help them.
- ☐ Call your city council member and tell them you would like them to support the park.
- ☐ Nothing, someone else will do it.
- ☐ Write a letter to the local paper supporting the idea of a park.
- ☐ Nothing, you don't have the time.
- ☐ Talk about it with your neighbors and friends and encourage them to join the group or call city council members.

WHAT ELSE COULD YOU DO?

Should They Sell It?

Your school owns 20 acres of forest. Nothing has been done with the forest for years. Someone has asked the school to sell them the property. The school board has been looking for money to build a new soccer field and is considering selling the forest to help pay for the field.

WHAT COULD YOU DO?

- ☐ Call a school board member and encourage them to sell the property. You like soccer.
- ☐ Ask the school for permission to visit the property. Look at the property and decide what you think should be done after you have seen the property and collected other facts.
- ☐ Ask the school to register the property as a school forest. The school could work with a forester to sustainably manage the forest and use it for educational purposes.
- ☐ Attend a school board meeting and tell the board how you feel.
- ☐ If a school board election is coming up soon, find out who supports your view and have your parent(s) vote for that person.
- ☐ Do nothing, the school board will just do whatever they want.

WHAT ELSE COULD YOU DO?

SITUATION CARDS

Choosing What to Buy

You have gone to the grocery store with a parent. You are helping pick out the items.

You notice that everything seems to come in the single serving size.

You have concerns over the usage of extra packaging.

WHAT OTHER KINDS OF ITEMS COULD YOU BUY?

- ☐ Even though those little cereal boxes look fun, we've got bowls at home so let's buy the big box.
- ☐ Buy whatever looks cool.
- ☐ Wow, that's a whole sack lunch in a box – it's got everything – juice, meat, cheese, crackers, cookies all in a plastic tray.
- ☐ Buy the big bag of potato chips and some reusable storage containers to put my chips in.
- ☐ Hey, I want some juice boxes. In fact, I can drink three in one sitting.

WHAT ELSE COULD YOU DO?

End-of-year Celebration

Your school is having a large end-of-year celebration for all students, and you are on the committee to help plan it.

HOW SHOULD YOU CELEBRATE AND RECOGNIZE STUDENTS?

- ☐ Give all students a balloon filled with helium to release into the sky at the end of the school day.
- ☐ Print a certificate for students with a coupon for a free scoop of ice cream at the local ice cream shop for them to enjoy over the summer.
- ☐ Give everyone some sparkly, glitter confetti to throw in the air when the bell rings at the end of the day.
- ☐ Give all students a sapling or small plant to take home.
- ☐ Give all students a tiny container of bubbles to blow as they leave school.
- ☐ Give all students a pencil with the school's name on it.
- ☐ Give all students a reusable water bottle with the school logo on it.

WHAT ELSE COULD YOU DO?

I ... WHAT'S YOUR SUPERPOWER?

A large, empty, double-lined trapezoidal shape, likely a template for a drawing or writing. The shape is oriented vertically, with the top being wider than the bottom. It consists of two parallel lines forming the outer boundary and a second set of parallel lines slightly inside, creating a double-line effect. The top two sides are horizontal, and the bottom two sides are slanted inwards towards the center.

FOREST HEROES WEBQUEST (INSTRUCTIONS)

- Instructions:**
- ❶ Go to the website of the Forest Hero assigned to your group.
 - ❷ Review the information on the website.
 - ❸ Record what you learn in the Forest Heroes Webquest Table (You may not be able to find all the answers, and that is okay.)
 - ❹ Be prepared to share what you have learned with your peers.
-

• **Group 1: Wisconsin Department of Natural Resources – Sustainable Forestry**
dnr.wisconsin.gov/topic/timbersales/benefits#:~:text=What%20is%20sustainable%20forestry%3F,benefits%20for%20years%20to%20come

• **Group 2: Bad River Band of Lake Superior Chippewa – Forestry**
www.badriver-nsn.gov/natural-resources/forestry

• **Group 3: Brothertown Nation – Environment and Natural Resources**
brothertownindians.org/environment-and-natural-resources

• **Group 4: Forest County Potawatomi – Land and Natural Resources**
lnr.fcpotawatomi.com

• **Group 5: Ho-Chunk Nation – Department of Natural Resources**
ho-chunknation.com/government/executive-branch/natural-resources

• **Group 6: Lac Courte Oreilles Band of Lake Superior Chippewa – LCO Conservation Department**
lco-nsn.gov/lco-conservation

• **Group 7: Lac Du Flambeau Band of Lake Superior Chippewa – Natural Resources Tribal Forestry Program**
www.ldftribe.com/departments/22/Natural_Resources/Tribal_Forestry_Program.html

• **Group 8: Menominee Indian Tribe of Wisconsin – Menominee Tribal Enterprises**
www.mtewood.com/SustainableForestry/ForestManagement

• **Group 9: Oneida Nation – Environmental, Health, Safety, Land and Agriculture Division**
oneida-nsn.gov/resources/environmental/about-us/what-we-do

• **Group 10: Red Cliff Band of Lake Superior Chippewa – Forestry and Wildlife**
www.redcliff-nsn.gov/divisions_services/treaty_natural_resources/natural_resources_department/forestry_wildlife.php

• **Group 11: Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa) - Forestry**
sokaogonchippewa.com/forestry

• **Group 12: St. Croix Chippewa Indians of Wisconsin – St. Croix Environmental and Natural Resources**
stcroixojibwe-nsn.gov/resources/epa

• **Group 13: Stockbridge-Munsee Community Band of Mohican Indians - Forestry**
www.mohican.com/services/natural-resources/forestry

FOREST HEROES WEBQUEST (TABLE)

Name: _____

NAME OF FOREST HERO	
MISSION OR GOAL	
1-3 THINGS THEY DO TO SUSTAIN FORESTS (or other natural resources like land, water, wildlife, fish)	
ADDITIONAL INTERESTING INFORMATION	