



FORESTS OF THE FIRST STEWARDS

Higher Education Discussion Guide

Forests of the First Stewards | Main Episode | Curriculum Outline

LEARNING OBJECTIVES:

1. Make connections between the various concepts learned across each episode.
2. Evaluate the role of forests play in the livelihood, culture and spiritual beliefs of the Menominee Nation.
3. Examine the use of TEK and western science and technology to implement sustainable management and preserve culture and tradition.

LEARNING PROCEDURE:

1. Show students the Main Episode
2. Deliver a lecture that provides more background information.
3. Outline instructions for individual and group activities and due dates.
4. Reflection and Discussion
5. Assessment Unit Exam: Can take place during the class period or submitted online.

MAIN EPISODE OVERVIEW

Across this series, students have explored how forests are connected to history, culture, science, and the future.

In Episode 1, students learned about the historical relationship between the Menominee Nation and their forest, and how cultural values have guided long-term stewardship of the land.

In Episode 2, students examined how forests are actively managed through systems such as sustainable harvesting and fire management, and how these systems support both ecological health and community needs.





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In Episode 3, students explored how forest resources are used to create cultural products, how knowledge is passed across generations, and how education and environmental observation support future stewardship.

In Episode 4, students learned how forestry education, research, and innovation prepare the next generation of professionals and contribute to sustainable solutions for forest management.

In this final capstone lesson, students will connect ideas across all four episodes to understand forests as interconnected systems shaped by people, knowledge, and time.

SUMMARY OF ACTIVITIES:

Reflection and Discussion: 15 to 20 minutes:

- Place students in group of 2 to 4
- Give them 15 minutes to discuss the following topics and have groups present a summary of their discussion/ share their perspectives with the class.
- Potential Topics:
 - How does the Menominee forest symbolize sovereignty?
 - How the Menominee are utilizing TEK and western science to further sustainable management of their forests.
 - How are Cheif Oshkosh's teachings present in current management practices of MTE?
 - The forest is a center of identity, culture, spirituality, and tradition for the Menominee.

Unit Review Trivia (Group) Activity: Divide students into groups of 3 to 4. This activity will serve as a review for the unit exam. You can use Blooket.com to create a trivia style game comprising questions that will likely be on the exam. Have one member from each team log into the game, they can work with their team to answer the questions during the game. Depending on how many teams you have, you can play multiple rounds until you get to two teams. An optional prize for winning team(s) can be extra credit on the unit exam.

Individual Activity:

Short Story (1 to 2 pages): Write a fictional short story about the Menominee forest. Students are encouraged to get creative, using the history of the forest, the Menominee's use of TEK to manage the forest and the cultural, spiritual, and cultural importance of the forest for the Menominee. Students will be expected to incorporate concepts of what they have learned about Menominee Tribal Enterprises and their management of the forest and other concepts across this unit.

Assessment: Unit Exam

This quiz will serve as an assessment to measure students' retention of information. This exam can be administered in class or as an online assignment. The exam should consist of at least 25 questions.

Potential Exam Questions:

1. Define ecological monitoring.
2. What is ecological silviculture.
3. Identify the four operational principles of ecological sylviculture. (Select all that applies).
4. What is heterogeneity?



5. Which operational principle of ecological silviculture considers what is left behind during silvicultural interventions? (Multiple choice)
6. What is the WIST?
7. Which operational principle of ecological silviculture considers timeframes that are appropriate to sustain and restore specific functions?
8. Discuss the importance of partnerships like that between the WEDC and WIST.
9. Why is ecological monitoring valuable to long-term forest management?
10. **True or False:** Ecological silviculture prioritizes wood production.
11. Name at least two traditional indigenous uses of maple syrup.
12. What was the significance of the LaFollette Act of 1908?
13. Who currently manages the Menominee forests?
14. What three components make up the Menominee land ethic?
15. How did the Dawes Act (1887) of the Allotment Era conflict with the Menominee belief system?
16. What is sugarbush and what is its significance in Menominee culture?
17. What are the three components of the Menominee belief system and how is that demonstrated in how their management practices?
18. Define sustained yield.
19. What is the Continuous Forest Inventory?
20. What is the MTE?
21. Who was Chief Oshkosh and what are some of his teachings?
22. What is the meaning of "Akia"?
23. Name at least three tree species found in the Menominee Forest.
24. Define even-aged management.
25. Define uneven- aged management.
26. What is silviculture and what is it used for?
27. Define Annual Allowable Cut (AAC) and what is the current AAC for Menominee Tribal Enterprises (MTE)?
28. What forest products does MTE use to power their forest products operations, and what are the benefits?
29. What is the Kotar Habitat Typing System?
30. How has the reintroduction of fire impacted the Menominee's relationship to their forests?
31. What is phenology and what role does it play in Menominee culture and management?
32. Name three species of trees found in the Menominee forests and their uses.
33. What Menominee tradition is being impacted by the Emerald ash borer?
34. When was the Sustainable Development Institute established by the College of the Menominee Nation?
35. Name three environmental cues that plants and animals respond to.
36. What is the Midwest Climate Adaptation Science Center (MW CASC) Tribal Research Experience for Undergraduates (REU)?
37. What is the Menominee name for the April full moon? (Multiple choice)
38. What is the Menominee name for the May full moon? (Multiple choice)
39. What is the Menominee name for the June full moon? (Multiple choice)
40. What is the Menominee name for the August full moon? (Multiple choice)





UNIT OVERVIEW INFORMATION:

Congratulations on making it through this unit! You have learned about the history and continuation of stewardship of the Menominee nation. As you wrap up this unit, here is an overview of important unit concepts to review with your students.

EPISODE 1 THE HISTORY:

The Menominee Nation has been actively managing their forests for more than 150 years. The Menominee Forest is more than 200,000 acres consisting of thirteen **forest cover types (MTE)**. Menominee forests are home to 30 species of trees; some examples include: White pines (*Pinus strobus*) (*Conium maculatum*), Sugar Maple (*Acer sacrum*), Oaks (*Quercus spp.*), Aspens (*Populus spp.*), and Hickories (*Juglandaceae spp.*). Some White pines (*Pinus strobus*) are more than 200 years old. The Menominee forests also support a diverse cast of wildlife such as bears, otters, cormorants, and trout throughout the more than 300 miles of streams in the forests. ([American Forests](#))

The dominating forest cover types are Northern Hardwood (32%) and White Pine (16%) (Source: <https://www.mtewood.com/SustainableForestry>). The Menominee Tribal Enterprises (MTE) manages this vast forest utilizing strategic harvesting practices, **sustained yield** management, and **traditional ecological knowledge (TEK)**. MTE has built on understanding and integrating advanced science, technology, and business within a cultural context. The MTE produces 14 million board feet of saw timber annually. Their management practices maintain one of the most diverse and vital forests in the Lake States.





Throughout the 1800s and in the early 1900s, the US federal government-maintained control over reservations. This control limited the influence that indigenous tribes had on federal policy. Despite the control of the government during the **Federal Indian Policy** period, the Menominee Tribe was able to affect critical management of their forests.

*Supplemental: Review the Federal Indian Policy timeline

The Menominee employs a management approach that consists of both science and traditional ecological knowledge. This is visible in their practice of **sustained yield**. There are three principles that make up the Menominee belief system:

1. The Menominee creation story
2. All things have spirits and should be respected. The forest is often referred to as “he”.
3. The land belongs to the entire tribe, protecting the land is everyone’s responsibility.

Sustainability is an important component of the Menominee culture. They see themselves as stewards of the forests and regard that stewardship as a sacred responsibility. This responsibility means, to the Menominee, to never overtake natural resources and follow the natural cycles. The Menominee also have a deep regard for biodiversity, with their management practices ensuring that it is sustained, such as **Continuous Forest Inventory (CFI)**. This is evident in the Menominee **land ethic**, which contains three elements:

1. The forest must remain sustainable for future generations.
2. The forest must be carefully managed, and the needs of the people are provided for.
3. All pieces of the forest are kept maintaining diversity.

Menominee believes that the value of healthy forests extends far beyond economic metrics. Ecological, cultural, and spiritual value are just as important to them. This value system is often exemplified in management practices, such as forest managers allowing some trees to reach full maturity before they are harvested. By using this method, the Menominee has been able to harvest half a billion board feet of lumber since the 1800s.

As a result of employing science and TEK there is more standing timber in the Menominee forests than there was 150 years ago. ([American Forests](#))

Chief Manabush did not want his people to become lazy by only harvesting the sap that freely flowed, so he instructed them to produce syrup from the sap. This process was timely and challenging. Maple syrup and its production would become a central fixture in the lives of the Menominee people. The **sugarbush** was at the center of the cultural, ecological, and economic significance for the Menominee. As the Spring brought warmer weather, families would move to a specific area of the maple forest, there they would set up camp and a **wigwam**.





Though harvesting maple sap and producing sugar is hard work, it is also viewed as a enjoyable and celebratory in Menominee culture. Wigwams were erected and maintained each year in the sugarbush, typically there was one dedicated to storing the birchbark equipment, the other was used to convert sap into sugar. Maple sugar/syrup was often at the heart of celebration and daily life for the Menominee. Syrup was used to season vegetables, fruits, grains and fish. It was often added to medicine to entice children to take it and water, creating a refreshing beverage. ([Milkwaukee Public Museum](#))

During the 1600s Native Americans would trade maple syrup with fur traders for wool and other goods. Europeans realized the value of maple syrup and were taught how to harvest it by the Menominee, Ojibwe, and other tribes. This indigenous knowledge would be the foundation of a booming industry.

EPISODE 2 MENOMINEE TRIBAL ENTERPRISES (MTE) AND END USE PRODUCTS:

The Menominee land ethic is deeply intertwined with their cultural and spiritual beliefs. The Menominee view the forest as a living entity and its management, their sacred charge.

"Start with the rising sun and work toward the setting sun, but take only the mature trees, the sick trees, and the trees that have fallen. When you reach the end of the reservation, turn and cut from the setting sun to the rising sun and the trees will last forever." -Chief Oshkosh

The above quote comes from Chief Oshkosh, a former chief of the Menominee tribe, and serves as an instruction to utilize sustainable yield for forest management. For the Menominee, sustaining the forest sustains cultural identity and values (**Miller, 2021**). Chief Oshkosh's teachings remain a cornerstone of how the Menominee has and continue to manage **Akia**. Sustainable management practices that reflect Chief Oshkosh's teachings are their use of **sustained yield** across a wide range of forest cover types, habitats and age classes (**MTE Website**). Menominee Tribal Enterprises' (MTE) management prioritizes forest diversity, optimizing growth and increasing saw log quality of timber. Some of the forest management strategies employed by the MTE are:

- Developing and refining sustained yields silviculture prescriptions to achieve stand objectives.
- Following guidelines of Kotar Habitat Typing system to correlate tree species to site-specific plant association habitat types.
- Managing forest within limits of Annual Allowable Cut (AAC)
- Partnership and cooperation with researchers and other agencies to continue to develop and refine prescriptions to meet management goals.

The Menominee Tribe is taking a step towards reintroducing practices such as **prescribed burning/controlled fire** that were once banned due to colonial policies. Fire has been used to maintain forest ecosystems by providing disturbance that some tree species rely on. Due to years of fire suppression because of colonial policies, it impacted not only the health and resilience of the forests, but also the connection the Menominee had with the land. Using





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science and TEK, the Menominee are restoring the relationship to nature by bringing back the use of fire. By reintroducing fire as a forest management practice, the Menominee see a regeneration of species that they have traditionally used for food and medicine. ([The Forest is Our Relative: Menominee Stewardship Shows the Power of Indigenous Voices in Forestry](#))

“What’s best for the forest, then the people, and lastly profit.” -Chief Oshkosh

The Menominee understands that strong management that prioritizes the health of the forest and strengthens biodiversity means provision for them and the next generation. When the Menominee employs management practices such as controlled burning/prescribed, it is not for the sake of economic profit alone. The use of fire is as cultural as it is ecological. The current AAC for the Menominee Forest restricts annual timber harvests to 20million board feet. Once harvested, timber is transformed into a variety of products that are sold globally. Some of the wood products that come from the Menominee forests are lumber and veneer ([Menominee Tribal Enterprises](#)). Menominee Tribal Enterprises also utilizes woody biomass in their biomass fueled-district. This system generates steam and electricity using wood chips for their forest products operations. This new system was implemented at the MTE in 2016 with goal of generate energy independence, reduce carbon footprint and emissions, protecting air quality ([Forest Proud](#))

EPISODE 3 PRODUCTS AND EDUCATION:

Black ash has been used for generations by the Menominee in basking weaving, an art form that is at the center of Menominee cultural identity. Traditionally, the Menominee harvests Black ash in June and July. The wood strips from the trees are processed by pounding the logs to remove water and separate growth layers. Thin strips are soaked in water to prevent them from breaking during the weaving process. ([Mistry, 2024](#))

Basket weaving is culturally significant across Native American cultures. Basket weaving traditionally was not only a way for tribes to showcase their individual uniqueness, but they also served a functional role in the daily lives of Native tribes like the Menominee. Baskets served as an integral item in Native communities across the US as they were used to carry food, water, clothing, and other belongings. These baskets are not only works of art that showcase creativity, but they are also generations of tradition woven into patterns with intention. ([Basket Weaving's Importance in Native American Culture](#))

For the Menominee tribe, basket weaving is not a thing of the past. Instead, it is being revived and kept alive through workshops, lectures, and public outreach. Though there is a strong resurgence of the tradition, the **emerald ash borer** (EAB), an invasive insect, poses a significant threat to the Black ash species and the ecosystems and culture that relies on them. It is reported that forests with the presence of the EAB see more than 90% of their ash species die within six years of the EAB’s introduction to the area. EABs live in the bark of ash trees, feeding the tissues of the tree. The EAB has been able to spread to other forests when infested trees are transported to non-infested areas. EAB is an example of an ecological issue that not only impacts the forest, but those that rely on it. In the face of this threat, the Menominee tribe is working diligently to preserve as many strips as possible of Black ash bark before the species is no longer present. ([Mistry, 2024](#))

Throughout the history of, the Menominee have and continue to utilize wood from their forest to build and sustain their culture. Basswood is traditionally used for rope and wigwams; birch is used to build canoes. Ironwood is used to carve and make weapons. ([Pearce, 2023](#))



The Sustainable Development Institute was established in 1993 by the College of the Menominee Nation with the institute mission being to provide a mechanism for the Menominee to use their relationship with their forests to guide their knowledge, experiences and expertise of sustainable management and new sectors and economies. The institute provides a 2-year degree that provides students with the foundation to pursue a bachelor's degree. The SDI integrates TEK into research, sharing intergenerational knowledge, storytelling, and outreach. One example of how the SDI is integrating TEK and technological innovation is the Midwest Climate Adaptation Science Center (MW CASC) Tribal Research Experience for Undergraduates (REU). This program is a professional opportunity for college students. The internship provides students with research experience where they perform careful and respectful observations of ecosystems informing responses to ecological change. Interns use TEK and western science approaches to develop a catalog of field observations, inventorying biodiversity, ecological relationships, weather, etc. Observations and data collected is used to further understand regional climate change and the ecological impacts. ([College of Menominee Nation - Sustainable Development Institute \(SDI\)](#))

The Menominee tribe has used phenology or "nature's calendar" for generations to inform cultural practices, ceremonies and rituals. Menominee culture centers around the change of seasons, animal migrations and spawning, and the availability to harvest food such as wild berries. The Menominee traditionally harvests Black ash in June and July; this coincides with the ripening of wild strawberries. Phenology is essential to how the Menominee have built their traditional wisdom and cultural knowledge. Phenology guides when and how the Menominee engage with nature and steward their forests. The Menominee names for the monthly moon cycles are a great example of how phenology is used to inform TEK and stewardship.

- April = "Sugar Making Moon"
- May = "Budding Moon"
- June = "Strawberry Moon"
- August = "Blueberry Moon"
- September = "Rice Threshing Moon"
- October = "Falling Leaves Moon"

By using phenology / "nature's calendar", the Menominee has a deep connection with nature and understanding when resources are available. This allows them to build management around natural cycles.

([College of the Menominee Nation: Sustainable Development Institute \(SDI\)](#))





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REFERENCES

For additional information:

- [USDA Forest Service](#)
- [Plant and Soil Sciences eLibrary](#)
- [D'Amato, 2025](#)
- [University of Wisconsin – Madison Arboretum](#)
- [Wisconsin Institute for Sustainable Technology, UW-Stevens Point](#)
- <https://menominee-nsn.gov/CulturePages/BriefHistory>
- <https://www.menominee.edu/sustainable-development-institute>
- <https://www.mtewood.com/>
- [Trosper 2007](#)
- [\(Milkwaukee Public Museum\)](#)
- [Maple Valley Cooperative](#)
- [American Forests](#)
- [The Canadian Encyclopedia](#)
- [US Fish and Wildlife Service](#)
- [Washington Washington's State Trust Lands, Communities and Schools Network](#)
- [The Aldo Leopold Foundation](#)
- [CO State Forest Service, Colorado State University](#)
- [Bureau of Indian Affairs](#)
- <https://menominee-nsn.gov/CulturePages/BriefHistory>
- <https://www.menominee.edu/sustainable-development-institute>
- <https://www.mtewood.com/>
- [Forestry Glossary, Government of Canada](#)
- [Michigan Forests Forever Teacher's Guide, Michigan State University Extension](#)
- [Menominee Tribal Enterprises](#)
- [University of New Hampshire Extension](#)
- [Tennessee Dept. Of Agriculture\)](#)
- [Wisconsin Dept. Of Natural Resources](#)
- [USDA Forest Service](#)
- [North Carolina Forestry Association\)](#)
- [American Forests](#)
- [Trosper 2007](#)
- [Miller, 2021](#)
- [The Forest is Our Relative: Menominee Stewardship Shows the Power of Indigenous Voices in Forestry\)](#)
- [Tree Keepers: Where Sustaining the Forest Is a Tribal Tradition](#)
- [Forest Proud\)](#)
- <https://menominee-nsn.gov/CulturePages/BriefHistory>
- <https://www.menominee.edu/sustainable-development-institute>
- <https://www.mtewood.com/>
- [USDA National Invasive Species Information Center\)](#)
- [College of the Menominee Nation: Sustainable Development Institute \(SDI\)](#)
- [Mistry, 2024](#)
- [Basket Weaving's Importance in Native American Culture\)](#)
- [Pearce, 2023](#)
- [College of Menominee Nation - Sustainable Development Institute \(SDI\) \)](#)



Additional Resources from LEAF: Wisconsin's K-12 Forestry Education Program:



LEAF-Wisconsin's K-12 Forestry Education Program
College of Natural Resources
University of Wisconsin - Stevens Point

- [Lesson 1: American Indians and the Forest](#)
- [Lesson 7: Sustaining Our Forests](#)
- [Career Profile - McKaylee Duquain](#)
- [Wisconsin Forest Tales](#)
- [K-1st Grade Field Enhancement - Sensing the Forest](#)
- [2nd-3rd Grade Field Enhancement - Observing Forest Interactions](#)
- [4th Grade Field Enhancement - Unlocking a Forest's Past](#)
- [5th-6th Grade Field Enhancement - Studying Forest Layers](#)
- [5th-6th Grade Field Enhancement - Woods Worth](#)
- [5th-6th Grade Field Enhancement - Competition in the Forest](#)