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U.S. Endowment
for Forestry and Communities

FORESTS OF THE FIRST STEWARDS

9th-12th Grade Discussion Guide

Lesson Plan: Menominee Tribal Enterprises (MTE) & End-Use Forest Products

EPISODE OVERVIEW:

Menominee Tribal Enterprises

We meet up with the crew at MTE for an interview as they walk us through harvesting, sustainability, and production. Through the interview we touch on the history of the mill, learn the unique process of selecting timber to be processed, and the origins of the process passed down by Chief Oshkosh and how this practice leads to sustainable harvesting and a healthy forest. We meet and interview John Awonohpay, who gives us a visual guide through every step of the process, from the selection process to harvesting to the final product, from out in the field through the MTE processing facility.

Fire Crew

We travel to the Fire and Forest Management Station to learn more about how the techniques the Menominee are actively utilizing to manage the forest. We learn about slash and burn techniques and their efforts to mulch the forest floor to limit the spread of fire and avoid permanent damage to the forest. We also touch on their efforts to re-introduce controlled burns, and the history and cultural connection of using fire to manage and promote a healthy and diverse forest.





Warm-up:

What happens to a tree after it's cut down?

Briefly connect to prior learning about Menominee forest stewardship. Explain that this lesson's focus is on how sustainable practices extend from the forest into industry, including timber processing and fire management.

Learning Objectives

By the end of this lesson, students will be able to:

- Evaluate sustainable forestry practices used by Menominee Tribal Enterprises (MTE).
- Analyze how forest resources move through economic supply chains from harvesting to end-use products.
- Assess how fire management techniques contribute to forest health and sustainability.

Activity Summaries

Students explore:

- The lifecycle of timber from forest to finished product
- Sustainable harvesting methods used by MTE
- Fire management as a tool for ecological balance





VOCABULARY

- **Timber harvest** : The process of felling trees and preparing them for transport to be processed as lumber, firewood, pulp, biomass, etc.
- **Felling** : The cutting down of trees.
- **Allowable Cut** : The volume of timber that may be harvested during a given period (usually a year) that is specified by a sustained-yield forest plan.
- **Cellulose** : Cellulose is the main structural material that makes up plant cell walls. It gives trees and other plants their strength and rigidity, helping them stand upright and grow tall. Because it's so strong and abundant, cellulose is also used to make products like paper and other wood-based materials. Think of it as the steel framework inside a building, giving plants the strength to hold everything together.
- **Hardwood** : 1. Trees belonging to the botanical group Angiospermae. 2. The xylem of Angiospermae – note hardwood shows extreme variation in vertical and horizontal (radial) systems of elements but, with few exceptions, is composed of vessels and rays – note the wood of hardwoods may be either physically hard (high specific gravity) or soft (low specific gravity).
- **Management Plan** : A written document that outlines the goals, practices, and schedules for managing land, forests, or other natural resources. Management plans typically include assessments of ecological conditions, proposed treatments, timelines, and monitoring strategies to achieve desired outcomes.
- **Succession Planning** : The intentional establishment of new plants or trees in a planned sequence to follow natural ecological succession or management goals. Succession planting promotes species diversity, forest regeneration, and long-term ecosystem stability.
- **Prescribed Burn** : A controlled fire that is intentionally lit in order to reduce hazardous fuel buildup (to prevent larger, catastrophic wildfires), or to meet land management objectives like restoring fire-dependent ecosystems, promoting native vegetation growth, controlling pests, or improving wildlife habitat.
- **Natural disturbances** : Weather events and other natural events that periodically or cyclically affect a forest by damaging or killing trees, such as windstorms, fires, ice, flooding, or insect outbreaks.
- **Legacy trees** : Mature, large trees left in a stand after a harvest to promote ecological, habitat, and structural diversity. These trees often provide valuable elements like nesting and roosting spots, tree cavities used by animals as shelter, and decadence that supports fungi and lichens. They may also help maintain soil integrity and produce seeds that help regenerate the next generation of trees.
- **Slash and Burn** : The cutting and burning of vegetation, primarily in tropical areas, prior to using the land for agriculture
- **Fire Regime** : The characteristic frequency, extent, intensity, severity, and seasonality of fires within an ecosystem
- **Fuel Load** : The volume or oven-dry weight of fuel per unit area – note fuel load (or loading) is often described across size or “timelag” classes, and is live or dead, herbaceous, or woody.

BACKGROUND INFORMATION

Menominee Tribal Enterprises (MTE) operates a highly sustainable forestry and timber production system. Their approach, rooted in practices passed down from Chief Oshkosh, ensures that harvesting does not exceed forest regeneration.

Fire management is also critical to sustaining healthy, resilient forests. The Menominee use controlled burns and forest floor management techniques to reduce wildfire risk, recycle nutrients, and maintain biodiversity.



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Learning Procedure

1. Review prior lesson concepts on Menominee sustainability.
2. Introduce MTE and Fire Crew topics.
3. Present episode segments:
 - a. MTE timber harvesting and processing
 - b. Fire and Forest Management techniques
4. Guide students through applied activities analyzing systems and tradeoffs.
5. Facilitate reflection and discussion.
6. Conduct assessment.

Activities (Choose 2-4)

Activity 1: Timber Supply Chain Mapping

Students create a flowchart showing:

- Tree selection
- Harvesting
- Processing at MTE
- Final wood products

They label where sustainability practices occur at each step.

Activity 2: Forestry Practices – Compare and Contrast

Students compare:

- Selective harvesting
- Clear-cutting

They evaluate environmental and economic tradeoffs.

Activity 3: Fire Management Analysis

Students examine:

- Controlled burns
- Historical vs. modern fire suppression

They discuss how each impacts forest ecosystems.

Activity 4: Career Exploration

Students research careers such as:

- Forester
- Fire management specialist
- Environmental engineer
- Logger
- Mill operations manager

*Include pathways such as forestry programs and industry certifications.

Discussion & Reflection (Choose 1-2)

Data Collection

Students collect and organize:

- Steps in timber production
- Sustainability practices observed
- Fire management techniques and outcomes

*They may present this as charts, diagrams, or notes.



Discussion Questions

- How does MTE balance economic production with sustainability?
- What makes selective harvesting more sustainable than clear-cutting?
- Why is fire an important tool in forest management?
- What tradeoffs exist in managing natural resources?
- How do Menominee practices compare to modern industrial forestry?

Storytelling Prompts

- Describe the journey of a tree from forest to final product.
- Imagine you are part of a fire crew—what decisions do you make and why?

Assessment (Choose 1-2)

Essay Prompts

- Analyze how forest products move through economic systems and impact communities. What are the benefits and challenges that forest-dependent communities face?
- Choose a forest product. Describe the life cycle of the product from seedling to end use product.
Consider:
 - What is the product?
 - Who uses the product?
 - What geographic location is your forest product from?
 - How was the seedling established (planted, natural regen.)?
 - How long did the tree grow from seedling to cut?
 - How was the log processed?
 - Where does the product get distributed?
 - How long is the product used?
 - Where is the product disposed of after it has completed its usefulness?





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Short Quiz

1. What is selective harvesting?
2. What is one benefit of controlled burns?
3. Define supply chain in the context of forestry.
4. How does MTE ensure long-term forest health?

Group or Individual Presentation

Students present on:

- Timber supply chains
- Fire management techniques
- Careers in forestry and natural resource management

Standards Alignment

- NGSS (Science)
 - HS-ESS3-1: Construct an explanation based on evidence for how natural resources influence human activity.
 - HS-ETS1-3: Evaluate solutions to complex real-world problems using prioritized criteria and tradeoffs.
- Common Core (ELA)
 - RI.9-10.7 / RI.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats.
 - SL.9-10.4 / SL.11-12.4: Present information and supporting evidence clearly and logically.



References

For additional information:

- <https://menominee-nsn.gov/CulturePages/BriefHistory>
- <https://www.menominee.edu/sustainable-development-institute>
- <https://www.mtewood.com/>

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](#)

