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FORESTERS**
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U.S. Endowment
for Forestry and Communities

FORESTS OF THE FIRST STEWARDS

9th - 12th Grade Discussion Guide

Main Episode

This episode combines all four mini-episodes into a cohesive exploration of Menominee forestry, connecting history, industry, culture, education, and future sustainability.

INTRODUCTION

Students are introduced to the Menominee Nation and their longstanding relationship with the forest. The episode explores how Indigenous knowledge, sustainable industry practices, cultural traditions, and modern research all contribute to forest stewardship.

Guiding Question:

How can forests be managed to support ecosystems, economies, and cultures—both now and in the future?

LEARNING OBJECTIVES

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

- Analyze the historical and cultural relationship between the Menominee Nation and forest stewardship
- Evaluate sustainable forestry practices across harvesting, production, and land management
- Examine how forest resources support cultural traditions and modern industries
- Assess the role of education, research, and careers in shaping sustainable futures
- Synthesize Traditional Ecological Knowledge (TEK) with modern scientific approaches

Lesson / Activity Time (45–60 minutes total)

Introduction: 5 minutes

Video / Content Exploration (24-min episode): 10–15 minutes

Activities: 20–25 minutes

Reflection & Discussion: 10 minutes

Assessment: 5–10 minutes





ACTIVITY SUMMARIES

- Students will explore:
 - Indigenous forest stewardship and sustainability
 - Timber production and supply chains
 - Fire management and ecosystem balance
 - Cultural uses of forest resources
 - Education, research, and forestry careers

INTERMEDIATE VOCABULARY

- **Ecosystem:** spatially explicit, relatively homogeneous unit of the earth that includes all interacting organisms and components of the abiotic
 - environment within its boundaries –note an ecosystem can be of any size (e.g., a log, pond, field, forest, or the earth’s biosphere)
- **Resilience:** the capacity of a (plant) community or ecosystem to maintain or regain normal function and development following disturbance
- **Renewable resource:** a resource that remains available for use at future times and at levels not diminished by present use –note two types of renewable resources are those that are not dependent on or affected by human activity, such as wind and those that may be increased or decreased by human activity, such as timber growth and soil productivity
- **Phenology:** The study of the time of appearance of characteristic periodic phenomena in the life cycle of organisms in nature (e.g., migration in birds and flowering and leaf-fall in plants) particularly as these phenomena are influenced by environmental factors –note phenology especially involves the effects of temperature or day length
- Conservation:
 - 1. protection of plant and animal habitat
 - 2. the management of a renewable natural resource with the objective of sustaining its productivity in perpetuity while providing for human use compatible with sustainability of the resource
 - note for a forest this may include managed periodic cutting and removal of trees followed by regeneration conservation
- **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.
- **Forest Stewardship:** The management of forests for all goods, benefits, and values that can be sustained for present and future generations
 - **Traditional Ecological Knowledge (TEK):** Knowledge developed by Indigenous communities over generations through direct relationship with the environment.
 - **Biodiversity:** 1. The variety and abundance of life forms, processes, functions, and structures of plants, animals, and other living organisms, including the relative complexity of species, communities, gene pools, and ecosystems at spatial scales that range from local through regional to global. 2. An index of richness in a community, ecosystem, or landscape and the relative abundance of these species.
 - **Ecological Silviculture:** A system for managing forestlands that emulates natural disturbances and forest processes, often used to help protect rare species and sustain biological diversity in addition to producing timber. This approach uses an understanding of forest ecosystems to achieve integrated environmental, economic, and societal outcomes.
 - **Natural regeneration:** Regrowth of the forest after a harvest through seeds, seedlings, or vegetative sprouts that originate from within or from adjacent forest stands.
 - **Resources:** the natural resources of an area (e.g., timber, grass, watershed values, recreation values, wildlife habitat)
 - **Sustainability:** the long-term capacity to maintain the health, productivity, diversity, and overall integrity of forests, ranging from stands to ecoregions, in the context of human activity and use





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BACKGROUND INFORMATION

The Menominee Nation has sustainably managed its forests for generations using cultural values and Traditional Ecological Knowledge. Their approach balances ecological health with economic needs through practices like selective harvesting, controlled burns, and long-term planning. Menominee Tribal Enterprises (MTE) demonstrates how sustainability extends into industry, ensuring forest products are responsibly harvested and processed.

Cultural traditions such as basket weaving highlight the deep connection between people and forest resources. Educational institutions, including the Menominee College Sustainable Development Institute and university forestry programs, integrate traditional knowledge with scientific research to prepare future leaders.

LEARNING PROCEDURE

- Introduce key concepts and vocabulary
- Present the full episode, highlighting:
 - History & cultural foundations
 - Timber harvesting & fire management
 - Cultural practices & education
 - Research & future careers
- Guide students through integrated activities
- Facilitate discussion connecting all themes
- Assess student understanding





ACTIVITIES (CHOOSE 3-5 TOTAL)

1. Forest Systems Mapping: Students create a visual model showing connections between:
 - a. Forest management
 - b. Ecosystem health
 - c. Community well-being
 - d. Industry and economy
2. Timber Supply Chain Analysis: Students map the journey from:
 - a. Tree selection → harvesting → processing → final product
(Include checkpoints)
3. Fire Management Case Study: Analyze:
 - a. Controlled burns vs. fire suppression
 - b. Effects on biodiversity and forest resilience
4. Cultural Resource Exploration: Examine uses of forest materials:
 - a. Basket weaving
 - b. Shelter, tools, canoes
 - c. Identify sustainability practices and cultural meaning.
5. Career Pathway Investigation: Students research a forestry-related career:
 - a. Education requirements
 - b. Responsibilities
 - c. Role in industry/sector

Data Collection

- Students gather and organize:
- Examples of sustainable practices
- Forestry process steps and outcomes
- Cultural uses of forest resources
- Fire management strategies
- Ecosystem observations
- (Charts, diagrams, or structured notes)

Discussion Questions

- How does the Menominee Nation balance environmental, cultural, and economic priorities?
- Why is fire an important tool in forest management?
- How do forests support both traditional culture and modern industry?
- What role does education play in the future of sustainability?
- How can Traditional Ecological Knowledge and science work together?





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Storytelling Prompts

- Tell the story of a tree from seedling to final product
- Write from the perspective of the forest across time
- Describe how a forest resource connects generations
- Imagine you are a forestry student solving a sustainability challenge

ASSESSMENT (CHOOSE 1-2)

Essay Prompts

1. Analyze how Menominee forestry practices demonstrate sustainability
2. Evaluate the role of Traditional Ecological Knowledge in modern science
3. Explain how forest resources move through economic and cultural systems
4. Assess the role of education and research in environmental sustainability

Short Quiz

- What is forestry?
- Define Traditional Ecological Knowledge
- What is one benefit of prescribed burns?
- What is phenology?
- What is ecosystem resilience?
- How does the Menominee approach maintain biodiversity?

Group or Individual Presentation

Students present on:

- Menominee forestry practices
- Timber supply chains
- Fire management
- Cultural forest products
- Phenology and ecosystem monitoring
- Forestry careers and education pathways

Standards Alignment

NGSS (Science)

- HS-ESS3-1
- HS-ESS3-3
- HS-ESS3-4
- HS-LS2-2
- HS-LS2-6
- HS-LS2-7
- HS-ETS1-3





Common Core (ELA)

- RI.9-10.2 / RI.11-12.2
- RI.9-10.3 / RI.11-12.3
- RI.9-10.7 / RI.11-12.7
- SL.9-10.1 / SL.11-12.1
- SL.9-10.4 / SL.11-12.4
- W.9-10.2 / W.11-12.2

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](#)