Into the Outdoors

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U.S. Endowment for Forestry and Communities

FORESTS OF THE FIRST STEWARDS

6th - 8th Grade Discussion Guide

Episode/Lesson Plan #4: Education Continued and Overview/Epilogue

INTRODUCTION

How do students today become the forest professionals of tomorrow?

In this episode, we continue exploring education and take a closer look at how universities are preparing the next generation of forestry professionals.

We visit the University of Wisconsin–Stevens Point to learn how students are studying forestry, conducting research, and testing new ideas that connect forest resources to modern products. In the laboratory, we explore how materials are tested for compostability and how science is used to understand how products break down and return to the environment.

Through this work, students learn how to apply both scientific thinking and real-world problem solving to support sustainable forestry and product development.

This episode highlights how education, innovation, and careers all play a role in shaping the future of forests and the people who care for them.

LEARNING OBJECTIVES (6-8)

1. Explain how education and research contribute to innovation in forestry and forest products.
2. Describe how scientific testing, such as compostability studies, helps evaluate the environmental impact of materials.
3. Reflect on how knowledge from previous lessons connects to future opportunities in forestry and sustainability.
4. Demonstrate understanding of key concepts from the lesson.

STANDARDS ALIGNMENT

1. **NGSS (Science)**
   a. MS-LS2-3: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of ecosystems.
   b. MS-ESS3-3: Apply scientific principles to reduce human impacts on natural systems.
2. **Common Core (ELA)**
   a. RI.6-8.1: Cite textual evidence to support analysis of scientific and technical information.
   b. SL.6-8.4: Present claims and findings supported by evidence.

LESSON TIME ESTIMATE AND SUMMARY

(lesson time estimate 60 minutes)

Learning Objective	Activity	How Students Show They Learned	Time Estimate
Explain how education supports innovation in forestry	Watch UW–Stevens Point segment on forestry education and research	Students identify and explain how education prepares students for real-world forestry challenges	8–10 min
Describe how compostability testing evaluates environmental impact	Explore lab segment showing breakdown of materials and testing processes	Students explain how compostability testing works and why it is important for sustainability	8–10 min
Reflect on how knowledge from previous lessons connects to future opportunities in forestry and sustainability	Reflection: Reflect on key ideas from both segments and connect them to modern forestry and sustainability practices	Students participate in the reflection and discussion prompts within the class using evidence from the episode	10-12 min
Demonstrate understanding of key concepts from the lesson	Assessment: Short quiz or presentation (group or solo) demonstrating what was learned in today's segments	Students answer 5 questions or share a presentation with takeaways from this episode	12-15 min

VOCABULARY

1. **Forestry Education:** Formal learning and training programs that prepare students for careers in forest management, science, and related fields.
2. **Forestry Research:** Scientific study focused on understanding forests, forest products, and sustainable management practices.
3. **Compostability:** The ability of a material to break down naturally into non-toxic components that can return to the soil.
4. **Material Testing:** The process of evaluating how materials behave under certain conditions, such as heat, moisture, or decomposition.
5. **Sustainable Product Design:** Creating products with consideration for environmental impact, including how materials are sourced, used, and disposed of.
6. **Innovation:** The process of developing new ideas, methods, or technologies to solve problems or improve systems.
7. **Career Pathway:** A sequence of education, training, and work experiences that leads to a specific career.

BACKGROUND INFORMATION

Forestry Education and Innovation

Forestry today extends beyond traditional forest management and includes education, research, and product innovation. Universities and research institutions play a key role in preparing students for careers in forestry by combining classroom learning with hands-on scientific study.

At institutions such as the University of Wisconsin–Stevens Point, students study forest ecosystems, resource management, and sustainable product development. This includes exploring how forest materials can be used in products and how those products interact with the environment over time.

Compostability and Material Science

One important area of forestry research is understanding how materials break down in natural environments. Compostability testing helps determine whether products can safely return to the soil without harming ecosystems. Scientists test materials under controlled conditions to observe how they decompose, how long the process takes, and whether any harmful residues remain. This research supports the development of more sustainable products and helps reduce environmental impact.

Career Pathways in Forestry

Forestry careers today include a wide range of roles such as scientists, researchers, educators, forest managers, and sustainability specialists. These careers require a combination of scientific knowledge, technical skills, and an understanding of environmental systems.
Education programs help prepare students for these roles by connecting academic learning with real-world applications in forests, laboratories, and communities.

LEARNING PROCEDURE

1. **Introduction**
   - Show a short clip or image of UW–Stevens Point forestry labs or students working in research settings.
   - Facilitate a discussion:
     - How do people learn to become forestry professionals?
     - What kinds of skills do you think are needed to study forests scientifically?
     - How might science help improve the way we use forest resources?
   - Briefly introduce that this episode explores how education and research prepare students for careers in forestry and support innovation in sustainable forest products.

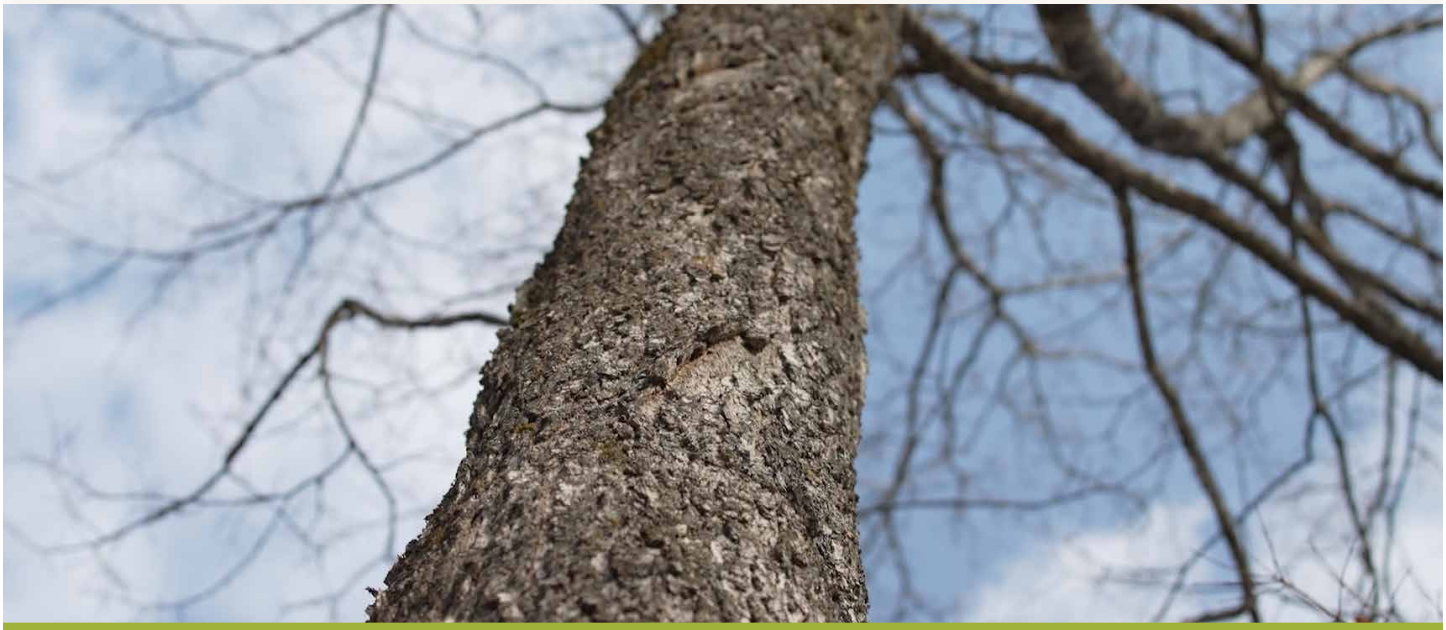
2. **Activity 1: Forestry Education and Innovation**
   - Students explore how university programs prepare students for careers in forestry and research.

3. **Activity 2: Compostability and Material Testing**
   - Students examine how scientists test materials to understand environmental impact.

4. **Reflection/Discussion**
   - Students share key takeaways and learnings from this episode and lesson.

5. **Assessment (Quiz or Presentation)**
   - Students demonstrate learning through a short quiz or a single/group presentation on the subject matters in this episode.

6. **Teacher Tips**
   - Encourage students to support their ideas with evidence from the episode or discussion.
   - Use guiding questions to deepen thinking rather than providing direct answers.
   - Allow flexibility for discussion time, as middle school students benefit from processing and sharing perspectives.



ACTIVITIES

Activity 1: Forestry Education and Innovation

- Objective: Explain how forestry education prepares students for careers and supports innovation in forest science.
- Materials: UW–Stevens Point video segment , paper or notebook
- Steps:
  - Watch the university segment featuring forestry education and research.
  - Discuss with students:
    - What are students learning in this environment?
    - How does education connect to real-world forestry work?
  - Students write a short response explaining how education supports forestry careers and innovation, using evidence from the episode.
- Tips:
  - Encourage students to focus on real-world application rather than just describing the video.

Activity 2: Compostability and Material Testing

- Objective: Describe how material testing helps evaluate environmental impact and supports sustainability.
- Materials: Laboratory segment showing compostability testing, paper or notebook
- Steps:
  - Watch the lab segment focused on material breakdown and compostability testing. Discuss with students:
  - Why is it important to test how materials break down?
  - How does this support environmental decision-making?
- Students explain in their own words how compostability testing works and why it matters for sustainability.
- Tips:
  - Allow diagrams or written explanations depending on student preference.

REFLECTION AND DISCUSSION

Students reflect on how education and innovation shape the future of forestry.

- Reflection prompts:
  - How does education help improve how we use and care for forests?
  - Why is research important for solving environmental challenges?
  - How do careers in forestry connect to sustainability and community needs?
  - What is one idea from this episode that connects to earlier lessons?

- Discussion questions:
  - How does education prepare students for forestry careers?
  - Why is scientific testing important in developing sustainable products?
  - What is compostability, and why does it matter?
  - How do research and innovation support forest sustainability?
  - What kinds of careers exist in forestry today?
  - How does this episode connect to what you learned in earlier episodes?
  - Why is it important to connect science, education, and real-world problem solving?

ASSESSMENT (SHORT QUIZ OR GROUP PRESENTATION)

Student understanding will be evaluated through a combination of written responses, discussion participation, and application of key concepts.

Students will demonstrate their learning by:

- Using evidence from the episode to support ideas
- Explaining connections between sustainability and forestry
- Developing claims about forest stewardship over time

Short Quiz

1. What is forestry education, and why is it important?
2. What does compostability mean?
3. Why do scientists test how materials break down?
4. Name one forestry-related career.
5. How does education support innovation in forestry?

OR

Group Presentation

Students work in small groups to create a short presentation explaining how education, research, and innovation contribute to the future of forestry.

- Requirements:
  1. Include at least one example from the episode
  2. Explain compostability or material testing
  3. Identify one forestry career pathway
  4. Describe how education connects to real-world forestry
  5. Presentation format options:
     - Poster

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