



MIDDLE SCHOOL LESSON – PEOPLE NEED WOOD PRODUCTS

Companion to Video Managing Forests for Multi-Use
Forest Products in our Daily Lives

FOREST PRODUCTS IN OUR DAILY LIVES

Managing Forests for Multi-Use

Developed By Gina Smith, LEAF – Wisconsin’s K-12 Forestry Education Program

Target Grade Level: 6-8

Appropriate for 9-12

Appropriate for 4-5 if educators provide reading support/modifications

Suggested resources for K-4 included

Science Categories

Forestry, Properties of Wood, Wood Products, Sustainability

Time Frame ~2 hours

- Introduction & Activity 1: 45-60 minutes
- Activity 2: 30-45 minutes
- Conclusion: 30-45 minutes

Materials

- Managing Forests for Multi-Use video
 - At a minimum 1:48 Jim Bokern, Forest History Association of Wisconsin through 5:06 Douglas Cox, Menominee Nation
- Activity 1 Student Sheet: Wood Products - Jigsaw Reading
 - All students need a copy of pg 1
 - Each student needs a copy of EITHER Before 1800: Wisconsin’s First Nations (pg 2-3) OR





1800-1940: Settling and Growth of Wisconsin – Logging Era (pg 4-6)

- Activity 2 Student Sheet: Properties of Wood Historically Used as Building Materials
- Online access to Wood Handbook – Wood as an Engineering Material, Chapter 2 Characteristics and Availability of Commercially Important Woods from the Forest Products Lab. https://www.fpl.fs.usda.gov/documnts/fplgtr/fplgtr282/chapter_02_fpl_gtr282.pdf
- (optional) LEAF Wood ID Blocks <https://www.uwsp.edu/wcee/wcee/kits/wood-identification-blocks-kit/>
- Written Assessment of Learning Student Sheet

Key Words

- Ciiporokes, saplings, wigwams, log homes, timber framed homes, wood framed homes, heartwood, sapwood, texture, grain, coarse grain, fine grain, warping

Learning Objectives

Students will be able to:

- Identify important woods used as building materials in Wisconsin's early history
- Examine the properties and purpose of different types of wood used in building materials
- Examine the impact using wood as a building material had on Wisconsin's forests and how it led to sustainable forest management
- Explore current and future uses of wood as a building material

Activity Summary

This lesson will start out by having students participate in a jigsaw reading activity to explore how wood was used by Wisconsin's First Nations and earliest settlers to construct dwellings and boats. In activity 2, students examine the properties of wood historically used as building materials to gain an understanding of why specific woods were selected for various purposes. The lesson concludes with an opportunity for students to demonstrate what they learned in an evidence-based writing activity.

Vocabulary

- Ciiporokes – Dwelling built by the Ho-Chunk who lived in the Teejop (Madison) area
- Saplings – Young trees that are flexible
- Wigwams – Dome-shaped dwellings built by the Menominee
- Log homes – Simple homes built from resources found on the land surrounding them
- Timber framed homes – Home that had a frame built from flat-edged logs that were covered with flat boards of wood
- Wood framed homes – Home built on stone foundations using standard-sized lumber for a frame which was covered with wood siding
- Heartwood: dense inner part of a tree trunk; hardest timber comes from heartwood
- Sapwood: soft, outer layers between the heartwood and the bark of the tree
- Texture/Grain: The arrangements of wood fibers



- Coarse grain: Wood with open growth rings with uneven texture – a more irregular look
- Fine grain: wood with tighter growth rings with even texture – a more even look
- Warping: when wood is bent out of shape; usually due to wetness or heat

Background Information

The reading materials included in this lesson provide sufficient background information. Please be sure to review all reading materials prior to completing this lesson with your students.

Learning Procedure

Introduction: Segment from *People Need Wood Products*

- If you have ample time, show the full video, *People Need Wood Products*.
 - Ask student to share what they learned from the video
- If you are pressed for time, watch the historical segments from *People Need Wood Products*
 - 1:48; Jim Bokern, Forest History Association of Wisconsin
 - 3:00; Douglas Cox, Menominee Nation)
 - Ask students to share what they learned from these segments

Activity 1: Wood Products - Jigsaw Reading

You may choose to have students begin this activity reading independently or with a partner.

- Assign each student/pair one of the texts to read (Before 1800: Wisconsin's First Nations OR 1800-1940: Settling and Growth of Wisconsin – Logging Era)
- Students should read their assigned section of text and take notes on the Jigsaw Reading Activity for *People Need Wood Products* student page. They should note the different types of wood used, how the wood was used, and why the wood was selected.
- Once all students/partner groups have completed reading and taking notes on their section, have the students pair up with another student/partner group and take turns sharing what they learned. They should record this information on their student page also.
- Have students complete the Reflection Writing Prompt for this activity independently. Compare and contrast how the types of dwellings or boats made by members from Wisconsin's First Nations were similar to and different from those made by settlers arriving in Wisconsin in the 1800s-1900s. Require students to use and cite at least three pieces of evidence from the Jigsaw Readings in their answers. Review how to use and cite evidence with students if necessary.

Activity 2: Properties of Wood Historically Used as Building Materials

You may choose to have students complete this activity independently, with a partner or in a small group.

- Use the following link to help all students access an online copy of the Forest Products



Lab's Wood Handbook – Wood as an Engineering Material, chapter two, Characteristics and Availability of Commercially Important Woods. It can also be found by doing an online search of the following “Forest Products Laboratory Wood Handbook Chapter 2”.

https://www.fpl.fs.usda.gov/documnts/fplgtr/fplgtr282/chapter_02_fpl_gtr282.pdf

- Instruct students to use pages 2-3 through 2-18 to complete the table of properties for wood that was used to build homes/boats by Wisconsin's First Nations and earliest settlers.
- Use basswood as an example to introduce students to the different properties and their definitions
- Consider checking out the Wood ID Kit from LEAF – Wisconsin's K-12 Forestry Education Program to use with this activity. The Wood ID Kit contains blocks of the following woods that are identical or very similar to those from the activity: basswood, birch, redcedar, elm, hickory, pine, spruce, hemlock and white oak. Samples can be used to help students understand the difference between the types of wood and their properties. The kit also contains several other wood samples that are not from the lab. The kit is free for educators throughout Wisconsin to use and can be reserved (for up to 4 weeks) from the LEAF website: <https://www.uwsp.edu/wcee/wcee/kits/wood-identification-blocks-kit/>
- Have students complete the Reflection Writing Prompt for this activity independently. Select three different types of wood from the table above. Use information from the table and evidence from the text (Jigsaw Reading Activity) to explain why Wisconsin's First Nations and settlers arriving to Wisconsin in the 1800s-1900s used those specific woods for shelters or transportation. Require students to use and cite at least three pieces of evidence from the table or texts from Activity 1 in their answers. Review how to use and cite evidence with students if necessary.

Conclusion: Assessment

Have students complete the Reflection Writing Prompt for this activity independently. *Select three different types of wood from the table in Activity 2 – Properties of Wood Historically Used as Building Materials and explain why Wisconsin's First Nations and settlers arriving to Wisconsin in the 1800s-1900s used those specific types of wood to build shelters or canoes/boats for transportation.* Require students to use and cite at least three pieces of evidence from the table (Activity 2) or texts (Activity 1) in their answers. Review how to use and cite evidence with students if necessary.

Extending the Lesson (Optional)

Elementary School Recommendations

While this lesson can be completed by upper elementary students, with either support from educators or minor modifications regarding the reading texts, the following LEAF lessons may be more appropriate for lower-middle elementary students.

LEAF 4th Grade Forestry Lesson Guide, Lesson 1: American Indians and the Forests

- Students learn what Wisconsin's forests were like before European settlement and discover how American Indians living in what is now Wisconsin relied on forests and altered them to meet



their basic needs. To accomplish this, students read about an Indian Nation who was living in the forests of what is now Wisconsin before it became a state. Students will share what they learn with their peers and compare and contrast the history of Wisconsin's First Nations. <https://www.uwsp.edu/wp-content/uploads/2024/03/leaf-4-lesson-1-american-indians-and-the-forest.pdf>

LEAF 4th Grade Forestry Lesson Guide, Lesson 2: Forests Built Wisconsin

- Students explore the importance of forests to early settlers and the Indigenous people living in Wisconsin at the time of settlement. Students participate in a mapping exercise to discover the role forests played in the settling of Wisconsin and how it changed the lands of Wisconsin's First Nations. Students use evidence to write a paragraph about how settlement changed Wisconsin forests. <https://www.uwsp.edu/wp-content/uploads/2023/11/leaf-4-lesson-2-forests-built-our-state.pdf>

LEAF 2nd-3rd Grade Forestry Lesson Guide, Lesson 4: Forests Are Important to Me!

- Students explore and graph their personal forest values. Using a checklist, they discover how many of the forest products they use are made right here in Wisconsin and map them. As a conclusion, students create a collage and write about why they value forests. <https://www.uwsp.edu/wp-content/uploads/2023/11/leaf-2-3-lesson-4-forests-are-important-to-me.pdf>

LEAF K-1st Grade Forestry Lesson Guide, Lesson 4: Forest Products Time Machine

- Students learn about historical uses of forest resources. Students begin by sharing ways we use the forest while playing a game of Hot Pine Cone. Next, the class explores forest resources used to create products of the past, while relating them to present-day goods. To conclude, students examine forest products and draw a picture of one they use every day. <https://www.uwsp.edu/wp-content/uploads/2023/11/leaf-k-1-lesson-4-forest-product-time-machine.pdf>

Middle/High School Recommendations:

Wisconsin's Flying Trees: The Plywood Industry's Contributions to World War II

- Have students read and discuss the article from Wisconsin Magazine of History: Volume 92, number 3, spring 2009 <https://content.wisconsinhistory.org/digital/collection/wmh/id/49881>

Legacy Lumber from WWI Research Helps Repair the U.S. Capitol Building

- Have students read and discuss the article from the United States Forest Service website about how legacy wood stored at the USFS Forest Products Lab in Madison, WI, was used to repair wood items damaged in the January 6 attack on the U.S. Capitol. <https://research.fs.usda.gov/fpl/news/featured/legacy-lumber-wwi-research-helps-repair-u.s.-capitol-building>

Related Links

- DNR forestry home page: <https://dnr.wisconsin.gov/topic/forestry>
- USFS Wood Handbook: Wood as an Engineering Material <https://research.fs.usda.gov/treearch/62200>



Student Pages

See additional documents that will need to be included:

- Activity 1_Jigsaw_Wood Products
- Activity 2_Properties of Wood Used as Building Materials
- Wood Products Assessment

Standards

WISCONSIN STANDARDS FOR SCIENCE (Middle School)

- SCI.CC6.m Students model complex and microscopic structures and systems and visualize how their function depends on the shapes, composition, and relationships among their parts. They analyze many complex natural and designed structures and systems to determine how they function. They design structures to serve particular functions by taking into account properties of different materials and how materials can be shaped and used.
- SCI.PS1.A.m The fact that matter is composed of atoms and molecules can be used to explain the properties of substances, diversity of materials, states of matter, phase changes, and conservation of matter.
- SCI.ETS2.B.m All human activity draws on natural resources and has both short- and long-term consequences, positive as well as negative, for the health of people and the natural environment.

WISCONSIN STANDARDS FOR SOCIAL STUDIES (Middle School)

- SS.Hist2.a.m Explain patterns of continuity over time in the community, the state, the United States, and the world.
- SS.Hist2.b.m Explain patterns of change over time in the community, the state, the United States, and the world.

WISCONSIN STANDARDS FOR ENVIRONMENTAL LITERACY AND SUSTAINABILITY

- ELS.EX3.B.m Examine the relationships among resource use, environmental quality, and human health and well-being.
- ELS.EX5.C.m Examine how historical and contemporary factors shape a sustainability issue.

WISCONSIN STANDARDS FOR ENGLISH LANGUAGE ARTS (Middle School 6-8)

- ELA.R.6-8.1 Cite textual evidence to support an analysis of what the text says explicitly/ implicitly and make logical inferences.
- ELA.R.6-8.2 Summarize texts, from a variety of genres, to determine a theme or central idea and how it is developed by key supporting details over the course of a text.
- ELA.W.6-8.2 Write arguments to support claims with clear reasons, relevant evidence and literary theory.
- ELA.W.6-8.3 Create writing that utilizes organization: introduce a topic; organize ideas, concepts and information; provide a concluding statement appropriate to the mode of writing.
- ELA.W.6-8.4 Produce clear and coherent writing in which the development, organization



- and style are culturally sustaining and rhetorically authentic to task, purpose and audience.
- ELA.SL.6-8.1a-d Engage effectively in a range of collaborative discussions with diverse partners on topics, texts, and issues, building on others' ideas and expressing one's thinking clearly.
 - ELA.SL.6-8.2 Analyze the main ideas and supporting details presented in diverse media and formats and explains how it contributes to a topic, text, or issue under study.

Resources

- Bloedorn, Kerry. (Spring 2002) Rhinelander's Floating Trees: History of the Rhinelander Boat Company. The New North Complimentary Community Magazine. [https://www.thenewnorthonline.com/forms/magazinepdf/newnorthmagazine2\[6029\].pdf](https://www.thenewnorthonline.com/forms/magazinepdf/newnorthmagazine2[6029].pdf)
- Cosier, Susan. (2023, October 2). Searching for Wisconsin's Dugout Canoes. Undark. <https://undark.org/2023/10/02/wisconsin-dugout-canoes/>
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- Wisconsin State Historical Society, n.d. Maintaining the Original Exterior Wood Features on Your Historic Building. <https://www.wisconsinhistory.org/Records/Article/CS4285>.
- Wisconsin State Historical Society, n.d. Shipbuilding in Wisconsin. <https://www.wisconsinhistory.org/Records/Article/CS1822>
- The Wooden Canoe Museum, n.d. Discovering the History of Wood Canoes. <https://woodencanoemuseum.org/index.php/builders>