Into the Outdoors

Educational Partner: WISCONSIN DEPT. OF NATURAL RESOURCES

WISCONSIN'S FORESTRY FLEET

7th-8th Grade Discussion Guide

Developed by: Joseph Kanke

SCIENCE CATEGORIES
Conservation, Careers, Ecology, Forestry

TIMEFRAME
1.5-2 hours

MATERIALS
Computers or other means to access research.
One-Pager Template

KEY WORDS
CADD, Timber Sale, STEM, Forestry, Entomology, Pestilence, Ecological
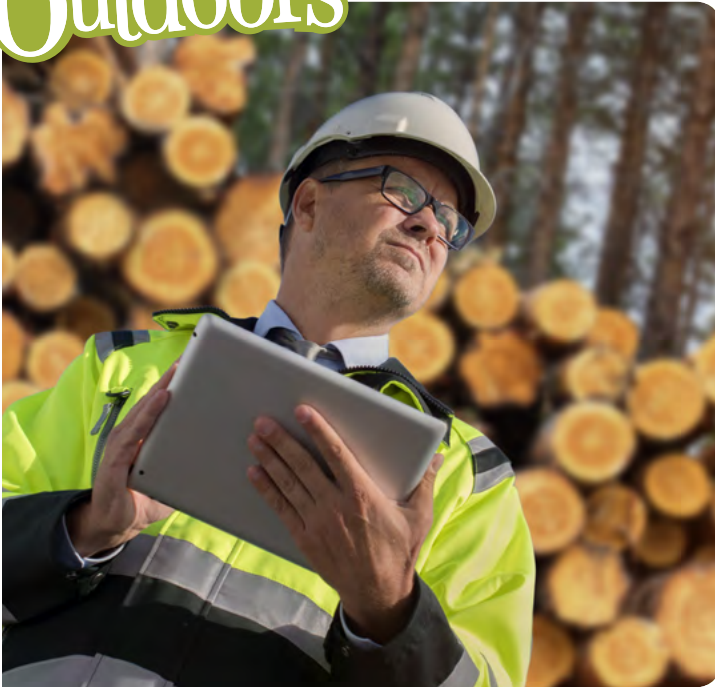

LEARNING OBJECTIVES

Students will be able to:

- Generate a diverse list of forestry careers.

- Choose a forestry career of interest to investigate more deeply.

- Share details about the student's chosen forestry career and how they see their own talents and skills being used in the future of forestry.

ACTIVITY SUMMARY

This lesson will explore the wide variety of career opportunities positions that exist in the field of forestry. Students will understand how the Department of Natural Resources, or DNR, connects to forestry partners across the state of Wisconsin to sustain ecological, economic, social and cultural benefits.

Students will be introduced to a variety of careers in forestry which exist in the diverse workforce before focusing on a position of interest to investigate further. After students research a forestry career of their choosing, they will create a one pager and showcase their learning in a classroom gallery walk. Finally, students will consider what they know about human impacts on the natural environment and consider what new positions and skills may be needed in forestry in the future.

VOCABULARY

CADD - Computer Aided Design and Drafting

TIMBER SALE - Various tracts of timber planned to be offered for sale

PESTILENCE - Disease

FORESTRY - The science or practice of planting, managing and caring for forests

ENTOMOLOGY - The study of insects

ECOLOGICAL - The relation of living organisms to one another and their surroundings

STEM - Science, Technology, Engineering, Math

BACKGROUND INFORMATION

Wisconsin's forests provide many things such as wildlife habitat, recreation and clean air and water. To sustain our diverse forests requires a diverse workforce. Some positions include: forest ranger, forester, forestry technician, health specialist and pilot. Together they fight and suppress wildfires, extract timber for sale, collect forest data, conduct research and identify problems related to insects and diseases.

Sometimes overlooked is the importance of forestry in an urban setting. An arborist engages in planting new trees and caring for those that already exist to maintain their health.

Forests are vulnerable to multiple threats; both natural and human. As we look to the future forestry careers will need to take into consideration these threats as well as potential new ones and work together to maintain the careful balance required to maintain the health and resilience of our forests.

LEARNING PROCEDURE

INTRODUCTION:

Introduce students to a variety of forestry careers. Students will pick from a class-generated list of careers and choose one to investigate further. Following research, students will generate a one pager and share their findings using a gallery walk.

Students will consider what they know about human impacts on the environment and how these impacts may affect the future of forestry.

ACTIVITY 1:

Following the Go Wild forestry segment, generate a list of all the possible forestry careers using the Give One, Get One protocol.

Individually students are given five minutes to write a list with a brief description of every forestry career they are able to recall from the video. If students are aware of other forestry careers that weren't highlighted, they should add them to their list as well.

After students have generated their lists, ask them to stand up and find a partner. Instruct students that they will have five minutes. One partner should begin by sharing one career, the brief description and what they found interesting about it. Then, the second partner will share a different career, description and points of interest. If either partner didn't have the career their partner shared, they should add it to their list.

When the timer sounds instruct students to find a new partner. Repeat step two three or four times with a new partner.

ACTIVITY 2:

From the generated list of careers, task students with choosing one career that they think sounds the most interesting. Students will be given time to do further research and create a one-pager. Students may either use blank paper and divide it into four quadrants with a central title (forestry career of their choice) or use the one pager template on page 5.

- At the center of the page students should write the forestry career they have chosen.

- Quadrant 1: Include a detailed description of the career. This could come from a combination of what was shared in the video as well as independent research.

- Quadrant 2: Provide a visual that is connected to the career. Examples of the visual could include a drawing, graph or printed image. The visual should include labels and/or a description of its significance.

- Quadrant 3: Share three quotes or chunks of text that students encountered in their independent research along with an explanation of their relevance.

- Quadrant 4: What are three to five lingering questions that remain about the forestry career of your choice following independent research.

Once students have completed their one pagers, post them around the room for a gallery walk. Provide students with sticky notes so they can make comments and ask questions to attach to the one pagers.

CONCLUSION:

Whole group: Ask students to share some of the activities people in forestry careers perform to promote sustainability.

Think-Ink, Pair Share: Pose the question, "Given what you know about the impact humans have on the natural environment what activities will be important to the future of forest sustainability?"

Provide students with five minutes to journal and two minutes to share their thoughts with a partner.

EXTENDING THE LESSON (Options for extended/additional activities and lessons)

• Write a set of interview questions you would like to ask someone who works in forestry. Email someone in the field and share responses with the whole class.

• Take a survey of forests where you live. What types of tree are most common? Create graphs which represent tree coverage, types of trees and approximate ages of trees.

• Work with you school to diversify and expand the canopy of your schools grounds.

• Take a field trip to a state forest. Research beforehand how the forest is accessed and used and look for evidence of its use.

• Invite speakers (in person or virtually) to talk about their forestry careers.

• Research forest fires. What are some of the causes? When you hear manage forest fires, what does that mean?

RELATED LINKS

• DNR forestry "home page" for an overview of our programs: dnr.wisconsin.gov/topic/forestry

• Wisconsin's Statewide Forest Action Plan: dnr.wisconsin.gov/topic/forestplanning/actionplan2020

• EEK site: Environmental Careers | Job Education for Kids | EEK! Wisconsin: eekwi.org/engage/careers

• Occupational Outlook Handbook: bls.gov/ooh/farming-fishing-and-forestry/home.htm

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FORESTRY CAREER QUADRANT WORKSHEET

Developed by: Joseph Kanke

Career Description:

3-5 Questions:

3 Quotes from Research:

CAREER:

_____

Visual:

The following National Common Core Standards can be met teaching;

WISCONSIN'S FORESTRY FLEET

5TH GRADE:

CCSS.ELA-LITERACY.RI.5.1   Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-LITERACY.RI.5.9   Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

CCSS.ELA-LITERACY.RF.5.4.A   Read grade-level text with purpose and understanding.

CCSS.ELA-LITERACY.W.5.2   Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.5.4   Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.SL.5.1   Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.5.4   Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

CCSS.ELA-LITERACY.SL.5.5   Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

6TH GRADE:

CCSS.ELA-LITERACY.RI.6.1   Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RI.6.2   Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

CCSS.ELA-LITERACY.RI.6.7   Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

CCSS.ELA-LITERACY.W.6.2   Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-LITERACY.W.6.4   Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.W.6.7   Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

CCSS.ELA-LITERACY.SL.6.1   Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
CCSS.ELA-LITERACY.SL.6.4	Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

7TH GRADE:

CCSS.ELA-LITERACY.RL.7.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-LITERACY.RL.7.2	Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.
CCSS.ELA-LITERACY.W.7.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
CCSS.ELA-LITERACY.W.7.7	Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
CCSS.ELA-LITERACY.SL.7.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
CCSS.ELA-LITERACY.SL.7.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
CCSS.ELA-LITERACY.SL.7.5	Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

8TH GRADE:

CCSS.ELA-LITERACY.RI.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-LITERACY.RI.8.2	Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
CCSS.ELA-LITERACY.W.8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
CCSS.ELA-LITERACY.W.8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
CCSS.ELA-LITERACY.SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.8.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
CCSS.ELA-LITERACY.SL.8.5	Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

9TH-10TH GRADE:

CCSS.ELA-LITERACY.RI.9-10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-LITERACY.RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
CCSS.ELA-LITERACY.RI.9-10.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
CCSS.ELA-LITERACY.W.9-10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
CCSS.ELA-LITERACY.W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
CCSS.ELA-LITERACY.SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
CCSS.ELA-LITERACY.SL.9-10.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
CCSS.ELA-LITERACY.SL.9-10.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

11TH-12TH GRADE:

CCSS.ELA-LITERACY.RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
CCSS.ELA-LITERACY.RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
CCSS.ELA-LITERACY.RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
CCSS.ELA-LITERACY.W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

CCSS.ELA-LITERACY.W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
CCSS.ELA-LITERACY.SL.11-12.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
CCSS.ELA-LITERACY.SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
CCSS.ELA-LITERACY.SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

NEXT GENERATION SCIENCE STANDARDS:

5TH GRADE:

5-ESS3-1   Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. Performance Expectation Grade: 3-5 5

6TH TO 8TH GRADE:

MS-LS2-5   Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

9TH TO 12TH GRADE:

HS-LS2-7   Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.