APPENDIX

GLOSSARY

BIAS: An opinion or belief that strongly favors one side of an issue.

BURN BARREL: A metal receptacle, most often a barrel, used for burning waste outdoors. Waste includes materials legal to burn such as wood and paper and materials illegal to burn such as plastic and metal.

CAMBIUM: The growing part of a trunk of a tree.

CLIMATE: Weather conditions for a region including temperature, precipitation, and wind.

CLIMATE CHANGE: The long-term fluctuations in precipitation, temperature, and wind caused mainly by variations in earth's orbital rotations, volcanic activity, human land use practices, and the combustion of fossil fuels.

COMPOSITION: The species in a community.

CONDUCTION: Transfer of heat through a material.

CONVECTION: Transfer of heat through a liquid or gas.

CROWN FIRE: A fire that spreads across the tops of trees or shrubs.

CROWNING: The movement of fire from a surface fire into the crown of trees. This is usually accomplished through ladder fuels.

CUTOVER: Land that has been logged. This term is often used as "the Cutover," which refers to northern Wisconsin after it was heavily logged during the period from the 1850s to the 1920s.

DANGEROUS: Something that can hurt you.

DEFENSIBLE SPACE: The area within 30 feet of a structure.

ECOSYSTEM FUNCTION: A function that supports life including the fixation of energy, cycling of matter, and flow of energy through food webs.

EXTIRPATED: The extinction of a species from a specific area.

FIRE BEHAVIOR: The manner in which a fire reacts to its environment.

FIRE INTENSITY: The amount of heat released per second as a wildland fire burns in a specified area; calculated by measuring the flame length, rate of spread, and heat per unit area.

FIRE PREVENTION: A variety of actions taken to decrease the risk of ignition of wildland fires; accomplished through education, engineering, and enforcement of laws.

FIRE REGIME: A cultural and biological system that defines the size, distribution, intensity, and frequency of fire in a given area.

FIRE SEASON: The periods of the year when wildland fires are likely to occur; there are two main fire seasons in Wisconsin – spring (March to June) and fall (September to November).

FIRE TRIANGLE: The three elements (i.e., fuel, oxygen, heat) necessary for combustion to occur.

FIREWISE BUILDINGS: Buildings designed with features that reduce the risk of the building burning in a wildfire. Firewise buildings use fire resistant materials, have open areas without fuels surrounding the house, and have good access roads.

FIREWISE PRACTICES: Actions homeowners can take to protect their homes from wildfire.

FOREST STRUCTURE: The vertical and horizontal spacing of trees in a forest. Vertical layers are the overstory and the understory. Horizontal spacing is the density of tree cover across the landscape.

FOREST THINNING: The removal of some of the trees in a forest; often done to reduce the risk of wildfire.

FUEL: Any material that can burn; any substance that contributes to the growth or spread of fire.

FUEL CHARACTERISTICS: Properties including quantity, chemistry, compaction, continuity, moisture content, and size.

GROUND FIRE: A fire that burns the organic material in the soil layer such as peat or duff.

HAZARD: Potential for a fire to start and spread.

HEAT TRANSFER: Energy transfer by radiation, convection, or conduction.

IGNITE: To cause something to start burning.

INFORMED DECISION: Deciding how to act on something after learning more about it.

KNOWLEDGE: Awareness and understanding of facts.

LADDER FUELS: Fuels which provide a vertical path for fire to move from ground level to the crowns of trees.

LAND CONVERSION: The change of an area from one land use to another.

LAND COVER: The ecological features present across the landscape such as forest, urban area, and field.

LAND USE: The human activities occurring across a landscape such as forest management, land development, and agriculture.

LIKERT SCALE: A rating system used to determine a person's perception of an issue. For example, a number system from 1-5 is used and "1" indicates a respondent strongly agrees with the statement and "5" indicates a respondent strongly disagrees.

NEWS ANCHOR: A person at a television station who reads the news and connects stories to reporters on the scene.

PERCEPTION: The feelings, attitudes, views, and judgments that a person has about something or someone.

PHENOMENON: An observable fact or event.

PRESCRIBED FIRE: A fire used to deliberately burn wildland fuels under specific conditions to meet desired management goals (e.g., fuel management, disease and pest control, wildlife habitat).

PRESUPPRESSION: Activities undertaken to prepare for fire suppression; includes the construction of access roads, preparation of suppression strategies, and training of suppression teams.

PROP: An object used by an actor or actress in a play.

PUBLIC OPINION SURVEY: A survey used to measure public understanding and perception of an issue.

RADIATION: Heat that travels in a wave.

RATE OF SPREAD: The speed (feet per minute) at which a wildland fire moves into new fuels.

RELATIVE HUMIDITY: The ratio of the amount of water vapor in the air at a specific temperature to the maximum amount that the air could hold at that temperature, expressed as a percentage.

RESPONSIBLE ADULT: A grown-up who takes care of something and uses it safely.

RISK: Potential for a fire to ignite.

SAFE: Something that won't hurt you.

SAMPLE POPULATION: The subgroup of a target population that is actually studied.

SAMPLING: The process of selecting a group of people to be studied from within a larger population being studied.

SCIENTIFIC METHOD: A method of research in which a problem is identified or observed, a hypothesis is formulated, and the hypothesis is tested.

SCRIPT: The words that actors read during a play.

SPECIES INTRODUCTION: The arrival and establishment of organisms that are not native to an ecosystem.

SPOTTING: The ignition of new fires outside of the original fire area caused by wind-blown sparks or embers.

SUCCESSION: The gradual change from one biological community to another.

SUPPRESSION: The act of confining and extinguishing a wildland fire.

SURFACE FIRE: A fire that burns fuels on the forest floor such as leaf litter and small vegetation.

SYSTEM DIAGRAM: A tool that helps describe how complex systems work; they are helpful in showing how a change in one factor may affect another factor.

TARGET POPULATION: The group of interest in a research project.

TOPOGRAPHY: The relative elevation and configuration of features in a landscape.

TORCHING: The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

WILDFIRE: A wildland fire that ignites and spreads without the intent of the landowner.

WILDLAND FIRE: An outdoor fire involving primarily vegetative fuels.

WILDLAND/URBAN INTERFACE: An area where human structures are in close proximity to wildland fuels.

WISCONSIN MODEL ACADEMIC STANDARDS

LEAF Wildland Fire lessons address Wisconsin Model Academic Standards in English Language Arts, Environmental Education, Mathematics, Science, Social Studies, and Visual Arts. On the following pages, you will find the standards listed by lesson along with an explanation of how they are addressed by each lesson.

K-1ST GRADE LESSON: MY FEELINGS ABOUT FIRE

VISUAL ARTS A.4.1
Visual Memory and Knowledge

Standard is: Develop a basic mental storehouse of images.

Students give examples of events in their lives that relate to emotions and share examples of safe and dangerous situations.

VISUAL ARTS I.4.1
Personal and Social Development

Standard is: Use art to understand how they feel.

Students indicate their feelings with emotion cards as they look at the pictures of safe and dangerous fire situations.

VISUAL ARTS I.4.3
Personal and Social Development

Standard is: Talk or write about feelings in a work of art.

Students discuss their feelings related to pictures of safe and dangerous fire situations.

2ND-3RD GRADE LESSON: SMOKEYTOONS: A LOOK AT FIRE AND HUMAN BEHAVIOR

SCIENCE D.4.4
Properties of Earth Materials

Standard is: Observe and describe changes in form, temperature, color, speed, and directions of objects and construct explanations for the changes.

Students examine ashes made from burning paper and describe how fire changed the paper to ash.

VISUAL ARTS E.4.3
Visual Communication and Expression

Standard is: Communicate basic ideas by producing popular images and objects such as folk art, traditional arts and crafts, popular arts, mass media, and consumer products.

Students produce comic strips to convey a fire prevention message.

VISUAL ARTS K.4.3
Making Connections

Standard is: Use what they are learning about life, nature, the physical world, and people to create art.

Students use the information they have learned about to create comic strips that convey a fire prevention message.

4TH GRADE LESSON: THE PESHTIGO THEATER COMPANY PRESENTS: THE LIFE OF FIRE

ENGLISH LANGUAGE ARTS A.4.1
Reading and Literature

Standard is: Use effective reading strategies to achieve their purposes in reading.

- Read aloud with age-appropriate fluency, accuracy, and expression
- Discern how written texts and accompanying illustrations connect to convey meaning

Students design a play set from a script and picture and act out the play by reading a script.

ENGLISH LANGUAGE ARTS C.4.2
Oral Language

Standard is: Listen to and comprehend oral communications.

- Recall the content of stories after hearing them, relate the content to prior knowledge, and answer various types of factual and interpretive questions about the stories

Students answer questions after each scene in a play and discuss the answers.

ENGLISH LANGUAGE ARTS C.4.3
Oral Language

Standard is: Participate effectively in discussion.

- Volunteer relevant information, ask relevant questions, and answer questions directly
- Reflect on the ideas and opinions of others and respond thoughtfully
- Ask for clarification and explanation of unfamiliar words and ideas

Students answer and discuss questions after each scene in a play.

SOCIAL STUDIES A.4.4
Geography: People, Places, and Environments

Standard is: Describe and give examples of ways in which people interact with the physical environment including use of land, locations of communities, methods of construction, and design of shelters.

Students participate in a play and discussion that explores the role humans have played in wildland fire and how it has altered our environment.

SOCIAL STUDIES A.4.8
Geography: People, Places, and Environments

Standard is: Identify major changes in the local community that have been caused by human beings, such as a construction project, a new highway, a building torn down, or a fire; discuss reasons for these changes; and explain their probable effects on the community and the environment.

Students participate in a play and discussion that explores how human communities have been altered by wildland fire.

5TH-6TH GRADE LESSON: IN THE HOT SEAT: THE PROCESS AND SCIENCE OF DECISION-MAKING

ENVIRONMENTAL EDUCATION B.8.10
Energy and Ecosystems

Standard is: Explain and cite examples of how humans shape the environment.

Students are faced with a series of dilemmas about human actions and fire and must make decisions on how best to respond.

ENVIRONMENTAL EDUCATION D.8.1
Decision and Action Skills

Standard is: Identify options for addressing an environmental issue and evaluate the consequences of each option.

Students are faced with a series of dilemmas about human actions and fire and must make decisions on how best to respond.

ENVIRONMENTAL EDUCATION D.8.4
Decision and Action Skills

Standard is: Explain the political, legal, and budgetary options for resolving local, state, and national environmental issues.

Students participate in mock town council meeting and lobby for and determine the consequences of the passage of certain legislation.

ENVIRONMENTAL EDUCATION D.8.5
Decision and Action Skills

Standard is: Explain how personal actions can impact an environmental issue.

Students are faced with a series of dilemmas about human actions and fire and must make decisions on how best to respond. Discussion that follows helps students understand the impact of each action.

SCIENCE A.8.6
Science Connections

Standard is: Use models and explanations to predict actions and events in the natural world.

Students use system diagrams to represent how events and outcomes are related.

SOCIAL STUDIES D.8.4
Economics: Production, Distribution, Exchange, Consumption

Standard is: Describe how investments in human and physical capital, including new technology, affect standard of living and quality of life.

Students participate in a mock town meeting where they try to pass legislation that will cost their community money, but will provide for increased safety and quality of life.

SOCIAL STUDIES E.8.5
The Behavioral Sciences: Individuals, Institutions, and Society

Standard is: Describe and explain the means by which groups and institutions meet the needs of individuals and societies.

Students participate in a mock town meeting and learn how the government provides for the needs of citizens and the betterment of society.

7TH-8TH GRADE LESSON: NATURAL PHENOMENA INVESTIGATORS (NPI)

ENGLISH LANGUAGE ARTS A.8.1
Reading and Literature

Standard is: Use effective reading strategies to achieve their purpose in reading including using texts to find information, make decisions, and to select, summarize, and analyze orally and in writing.

Student groups read a variety of textual information to find pertinent information, draw conclusions, and report their findings orally to their investigation group and class.

ENGLISH LANGUAGE ARTS A.8.4
Reading and Literature

Standard is: Read to acquire information including the use of technical resources such as charts, tables, travel schedules, timelines, and manuals.

Students interpret data from a variety of sources including tables, written logs, maps, and background information.

ENGLISH LANGUAGE ARTS B.8.1
Writing

Standard is: Create or produce writing to communicate with different audiences for a variety of purposes including writing a clear and pertinent response to verbal or visual materials that communicate, explain, and interpret the reading.

Student investigation groups review a variety of materials to develop a statement that reflects the circumstances leading to a fire. They are given additional materials and must adjust their statement based on additional knowledge.

ENGLISH LANGUAGE ARTS C.8.1
Oral Language

Standard is: Orally communicate information, opinions, and ideas effectively to different audiences for a variety of purposes.

Student investigation groups are asked to make a statement to the class about their findings.

ENGLISH LANGUAGE ARTS C.8.3
Oral Language

Standard is: Participate effectively in discussion including explaining and advancing opinions by citing evidence and referring to sources.

Students in investigation groups participate in discussions to debate findings and come to a consensus on what to report to the class.

ENGLISH LANGUAGE ARTS F.8.1
Research and Inquiry

Standard is: Conduct research and inquiry of self-selected or assigned topics, issues, or problems and use an appropriate form to communicate the findings, including using multiple sources.

Students research several topics related to wildland fire using a variety of resources provided and work in teams to develop position statements on each.

ENVIRONMENTAL EDUCATION A.8.4
Questioning and Analysis

Standard is: Use critical thinking strategies to interpret and analyze gathered information.

Students use critical thinking to analyze data, primary sources, maps, and definitions to investigate the spread and control of a wildland fire.

ENVIRONMENTAL EDUCATION A.8.5
Questioning and Analysis

Standard is: Use the results of their investigations to develop answers, draw conclusions, and revise their personal understanding.

Students make predictions about the spread of a wildland fire and then use data, primary sources, maps, and definitions to investigate the wildland fire and postulate why their predictions may not have been correct.

MATHEMATICS A.8.1
Mathematical Processes

Standard is: Use reasoning abilities to evaluate information, perceive patterns, identify relationships, evaluate strategies, and justify statements.

Students work in investigation teams to identify relationships, evaluate strategies, and justify statements using primary source documents.

MATHEMATICS D.8.2
Measurement

Standard is: Demonstrate an understanding of basic measurement facts, principles, and techniques.

Students measure the rate of the spread of the fire using locations on a map and the map scale of miles. They compute the rate in feet per minute.

MATHEMATICS E.8.4
Statistics and Probability

Standard is: Use the results of data analysis to make predictions, develop convincing arguments, and draw conclusions.

Student investigation groups use a variety of data, maps, primary sources, and definitions to predict, draw conclusions, and develop convincing arguments to be shared with the class.

SCIENCE C.8.6
Science Inquiry

Standard is: State what they have learned from investigations, relating their inference to scientific knowledge and to data they have collected.

Students discuss information in investigation teams and present their findings to the class.

SCIENCE H.8.3
Science in Social and Personal Perspectives

Standard is: Understand the consequences of decisions affecting personal health and safety.

Students discuss post-fire dilemmas and examine the pros and cons of each action.

9TH-12TH GRADE LESSON: WILDLAND FIRE ISSUES AND EDUCATION

ENGLISH LANGUAGE ARTS F.12.1
Research and Inquiry

Standard is: Conduct research and inquiry on self-selected or assigned topics, issues, or problems and use an appropriate form to communicate their findings.

- Formulate questions addressing issues or problems that can be answered through a well-defined and focused investigation.
- Develop research strategies appropriate to the investigation, considering methods such as questionnaires, experiments, and field studies.
- Evaluate the usefulness and credibility of data and sources by applying tests of evidence including bias, position, expertise, adequacy, validity, reliability, and date.

Students develop, conduct, and analyze the results of a survey to test hypotheses they have written.

ENVIRONMENTAL EDUCATION A.12.3
Questioning and Analysis

Standard is: Evaluate personal investigations and those of others, critiquing procedures, results, and sources of data and suggest improvements to the investigation.

Students conduct a survey and analyze the results. They discuss bias in surveys and how that could be eliminated.

ENVIRONMENTAL EDUCATION A.12.4
Questioning and Analysis

Standard is: State and interpret their results accurately and consider other explanations for their results.

Students analyze data collected from a survey and interpret the findings of the study.

SCIENCE C.12.1
Science Inquiry

Standard is: When studying science content, ask questions suggested by current social issues, scientific literature, and observations of phenomena; build hypotheses that might answer some of these questions; design possible investigations; and describe results that might emerge from such investigations.

Students use the scientific method to generate a hypothesis about a wildfire social phenomena and generate questions as part of a survey to test their hypothesis.

SCIENCE C.12.3
Science Inquiry

Standard is: Evaluate the data collected during an investigation, critique the data-collection procedures and results, and suggest ways to make any needed improvements.

Students conduct a survey and analyze the results. They discuss bias in surveys and how that could be eliminated.

WISCONSIN MODEL ACADEMIC STANDARDS

Standard	K-1st Grade Lesson	2nd-3rd Grade Lesson	4th Grade Lesson	5th-6th Grade Lesson	7th-8th Grade Lesson	9th-12th Grade Lesson
ENGLISH LANGUAGE ARTS						
A.4.1						
A.8.1						
A.8.4						
B.8.1						
C.4.2						
C.4.3						
C.8.1						
C.8.3						
F.8.1						
F.12.1						
ENVIRONMENTAL EDUCATION						
A.8.4						
A.8.5						
A.12.3						
A.12.4						
B.8.10						
D.8.1						
D.8.4						
D.8.5						

(Continued on page 174.)

WISCONSIN MODEL ACADEMIC STANDARDS

Standard	K-1st Grade Lesson	2nd-3rd Grade Lesson	4th Grade Lesson	5th-6th Grade Lesson	7th-8th Grade Lesson	9th-12th Grade Lesson
MATHEMATICS						
A.8.1					✓	
D.8.2					✓	
E.8.4					✓	
SCIENCE						
A.8.6				✓		
C.8.6					✓	
C.12.1						✓
C.12.3						✓
D.4.4		✓				
H.8.3					✓	
SOCIAL STUDIES						
A.4.4			✓			
A.4.8			✓			
D.8.4				✓		
E.8.5				✓		
VISUAL ARTS						
A.4.1	✓					
E.4.3		✓				
I.4.1	✓					
I.4.3	✓					
K.4.3		✓				

SUBJECT AREAS

	ENGLISH LANGUAGE ARTS	GEOGRAPHY	HEALTH	MATHE-MATICS	SCIENCE	SOCIAL STUDIES	VISUAL ARTS
K-1ST GRADE LESSON My Feelings About Fire							
2ND-3RD GRADE LESSON SmokeyToons: A Look at Fire and Human Behavior							
4TH GRADE LESSON The Peshtigo Theater Company Presents: The Life of Fire							
5TH-6TH GRADE LESSON In the Hot Seat: The Process and Science of Decision-making							
7TH-8TH GRADE LESSON Natural Phenomena Investigators (NPI)							
9TH-12TH GRADE LESSON Wildland Fire Issues and Education							

MULTIPLE INTELLIGENCES

Multiple Intelligences can be thought of as different modes of learning and retaining information. Generally, everyone has all the multiple intelligences, but in varying strengths. Students excel when they have an opportunity to express themselves in their preferred intelligences, but also need to have opportunities to strengthen other areas. The table below lists each of the Wildland Fire lessons and the multiple intelligences that are addressed.

V-L: VERBAL-LINGUISTIC
Using language to express ideas and concepts, thinking symbolically and reasoning abstractly, and the ability to create conceptual verbal patterns.

L-M: LOGICAL-MATHEMATICAL
Skillfully able to think logically, inductively, categorically; recognize patterns; and work with abstract concepts.

V-S: VISUAL-SPATIAL
Perceiving images and spatial elements and representing those expressions effectively.

B-K: BODILY-KINESTHETIC
Creatively using the whole body to illustrate ideas and concepts.

M-R: MUSICAL-RHYTHMIC
Discriminating among musical components and using instruments or the voice to express understanding.

INTER: INTERPERSONAL
Demonstrating empathy toward or appreciating the thoughts and feelings of others.

INTRA: INTRAPERSONAL
Analyzing one's own thoughts and motivations and expressing understanding of those thoughts and feelings through behavior.

NAT: NATURALISTIC
Sensing patterns in and making connections with nature and the environment.

	V-L	L-M	V-S	B-K	M-R	Inter	Intra	Nat
K-1st Grade Lesson - My Feelings About Fire	✓	✓	✓			✓		✓
2nd-3rd Grade Lesson - SmokeyToons: A Look at Fire and Human Behavior	✓	✓	✓			✓	✓	✓
4th Grade Lesson - The Peshtigo Theater Company Presents: The Life of Fire	✓	✓		✓		✓	✓	
5th-6th Grade Lesson - In the Hot Seat: The Process and Science of Decision-making	✓	✓	✓			✓	✓	
7th-8th Grade Lesson - Natural Phenomena Investigators (NPI)	✓	✓	✓			✓	✓	
9th-12th Grade Lesson - Wildland Fire Issues and Education	✓	✓				✓		

LESSON CONNECTIONS TO THE *LEAF WILDLAND FIRE CONCEPTUAL GUIDE*

The objectives of each lesson in the ***LEAF Wisconsin K-12 Wildland Fire Lesson Guide*** are based on subconcepts outlined in the ***LEAF Conceptual Guide to K-12 Wildland Fire Education in Wisconsin***. This chart identifies the subconcepts covered by each lesson.

	Theme 1: What Is Wildland Fire?												Theme 2: Why Is Wildland Fire Important?							Theme 3: How Do We Manage Wildland Fire?						Theme 4: What Is the Future?										
Sub-concept	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K-1st		✓																								✓										
2nd-3rd	✓	✓	✓																							✓										
4th	✓	✓	✓				✓							✓	✓											✓										
5th-6th	✓	✓											✓									✓				✓	✓			✓		✓				
7th-8th	✓	✓	✓		✓											✓																✓				
9th-12th		✓											✓					✓									✓					✓	✓			

LEAF WISCONSIN K-12 FORESTRY EDUCATION LESSON GUIDE OVERVIEWS

This ***LEAF Wisconsin K-12 Wildland Fire Lesson Guide*** is a supplement to the ***LEAF Wisconsin K-12 Forestry Education Lesson Guide*** (LEAF Guide). The LEAF Guide is comprised of six grade specific units: K-1, 2-3, 4, 5-6, 7-8, and 9-12. The LEAF Guide is obtained by participating in a LEAF workshop. Workshop participants receive forestry background information and practical experience using the LEAF Guide. Workshops vary in length and format, sometimes including an option for graduate credit and/or hands-on field experiences.

K-1 UNIT

5 CLASSROOM LESSONS, 1 CAREERS LESSON, 3 FIELD ENHANCEMENTS

The K-1 Unit is an introduction to trees and forests. Students learn about the parts of a tree, what forests are, and why they are important.

LESSON 1 - TREE HARDWARE
Students are introduced to the parts of a tree and its life stages through songs, games, and role playing.

LESSON 2 - WHAT'S IN A FOREST?
Students learn about living and nonliving parts of a forest by playing a game and creating artwork.

LESSON 3 - MY FAVORITE FOREST USE
Students discover the value of forests by studying *Tree Spy* collages and singing a song.

LESSON 4 - FOREST PRODUCT TIME MACHINE
Students explore historical uses of forest resources and compare them to present-day goods by surveying pictures and creating drawings.

LESSON 5 - ANIMALS NEED FORESTS, TOO
Students find out what forests do for animals and play a game to search for basic needs.

CAREERS EXPLORATION
Students learn about forestry-related careers, participate in a matching exercise, and draw their favorite career.

FIELD ENHANCEMENT 1 - ALL ABOUT MY TREE
Students adopt a tree and record their observations to create a class scrapbook.

FIELD ENHANCEMENT 2 - SENSING THE FOREST
Students use all their senses to discover the living and nonliving parts of a forest.

FIELD ENHANCEMENT 3 - SEARCHING FOR BASIC NEEDS
Students examine the needs of animals and evaluate if their playground can support various critters.

2-3 UNIT

6 CLASSROOM LESSONS, 1 CAREERS LESSON, 3 FIELD ENHANCEMENTS

The 2-3 Unit expands on basic ideas about forests and helps students understand their connection to forests. Students learn about energy flow, basic tree identification skills, forest products, and what it means to be a forest steward.

LESSON 1 - TO BE A TREE
Students use their knowledge of tree parts to learn basic tree identification skills. Basic needs and life stages of a tree are also emphasized through a game and drawing activity.

LEAF WISCONSIN K-12 FORESTRY EDUCATION LESSON GUIDE OVERVIEWS

LESSON 2 - WHAT MAKES A FOREST?
Students discover how living things are influenced by nonliving things through a matching activity, song or skit, and creating a class mural of Wisconsin forests.

LESSON 3 - FOREST ENERGY FLOW
Students learn about energy flow in the forest by role-playing producers, consumers, and decomposers.

LESSON 4 - FORESTS ARE IMPORTANT TO ME!
Students explore forest values and discover what forest products come from Wisconsin using a checklist. Creative writing and an art project help students examine why they value forests.

LESSON 5 - DECISIONS, DECISIONS
Students are introduced to the concept of forest management by creating a plan for their schoolyard. A card game and song highlight some of the people involved in forest management.

LESSON 6 - I CAN BE A FOREST STEWARD
Students find out what it means to be a forest steward and make decisions about good stewardship activities through an *I Spy*-like picture and board game.

CAREERS EXPLORATION
Students learn about professionals in Wisconsin with forestry-related careers, match jobs and duties, and draw themselves in a career that interests them.

FIELD ENHANCEMENT 1 - I CAN BE A FORESTER
Students get a taste of what foresters do by collecting and discussing data.

FIELD ENHANCEMENT 2 - OBSERVING FOREST INTERACTIONS
Students explore living and nonliving forest features on a hike and spend time observing and drawing parts of a forest.

FIELD ENHANCEMENT 3 - FOREST ENERGY SCAVENGER HUNT
Students follow the flow of energy in a forest by going on a scavenger hunt.

4 UNIT
7 CLASSROOM LESSONS, 1 CAREERS LESSON, 3 FIELD ENHANCEMENTS

The 4 Unit focuses on Wisconsin forest history. Students learn about the logging days, farming the Cutover, events that led to modern forestry, and why forests are important today.

LESSON 1 - NATIVE AMERICANS AND THE FOREST
Students read the journal of an early explorer to learn what Wisconsin forests were like before European settlement and how Native Americans used the forests.

LESSON 2 - FORESTS BUILT OUR STATE
Students explore the importance of forests to early settlers and learn how forests played a role in settling Wisconsin through a mapping activity.

LESSON 3 - HELP WANTED – LUMBERJACKS
Students examine the steps and people involved in an 1800s logging process by following a tree from northern Wisconsin to a house in Iowa.

LESSON 4 - BROKEN DREAMS
Students experience what it was like to farm in Wisconsin during the "Cutover" by role-playing and studying letters, photographs, and documents.

LESSON 5 - I SAW IT ON THE 6 O'CLOCK NEWS
Students learn about 150 years of events in Wisconsin that have led to the forests of today by participating in a live newscast.

LEAF WISCONSIN K-12 FORESTRY EDUCATION LESSON GUIDE OVERVIEWS

LESSON 6 - FORESTS ARE IMPORTANT TO YOU AND ME
Students discover reasons why Wisconsin forests are important to our quality of life through guided imagery, brainstorming, and an interactive media presentation.

LESSON 7 - SUSTAINING OUR FORESTS
Students are introduced to the sustainability and stewardship of forests by listening to a fable, brainstorming, reading situation cards, and creating an art project.

CAREERS EXPLORATION
Students learn about professionals in Wisconsin with forestry-related careers, play career bingo to learn about skills used in each profession, and describe and draw themselves in a career.

FIELD ENHANCEMENT 1 - UNLOCKING A FOREST'S PAST
Students uncover a forest's history by becoming detectives, collecting data, and making predictions about a forest.

FIELD ENHANCEMENT 2 - ARE FORESTS IMPORTANT TODAY?
Students find out why forests are ecologically, economically, and socially valuable by searching in a forest and playing scavenger hunt bingo.

FIELD ENHANCEMENT 3 - CARING FOR THE FUTURE OF FORESTS
Students learn what a tree needs to grow, how to choose an appropriate site, and how to properly plant a tree by putting one in their schoolyard.

5-6 UNIT
8 CLASSROOM LESSONS, 1 CAREERS LESSON, 3 FIELD ENHANCEMENTS

The 5-6 Unit connects the science of forests with human aspects. Students learn about forest layers, ecosystems, and energy flow. This information is related to the value of trees, forest ownership, and management.

LESSON 1 - ME AS A TREE
Students learn about a tree's functions, basic needs, life stages, and role in the forest community by comparing trees and humans.

LESSON 2 - WHAT MAKES A FOREST?
Students explore parts of forest ecosystems and forest layers through an interactive game and discussion.

LESSON 3 - FORESTS ARE ALWAYS CHANGING
Students examine forest succession, disturbances, and renewability by completing a sustainability worksheet and role-playing.

LESSON 4 - ECOSYSTEM EXTRAVAGANZA
Students are introduced to forest functions such as photosynthesis, energy flow, and the cycling of matter through reading and creating a diagram. The roles of producers, consumers, and decomposers in forests are also examined.

LESSON 5 - WE ALL NEED TREES
Students learn about the values of forests and their impact on the environment by categorizing values and writing and producing a commercial.

LESSON 6 - WHAT IS MANAGEMENT?
Students discover what's happened in Wisconsin's history that led us to modern forestry and about management techniques by creating a timeline and reading a "choose your own adventure" type story.

LESSON 7 - WHO OWNS IT?
Students observe how management goals of landowners impact forest ecosystems by studying a plat map and answering questions. They also learn about the roles individuals and groups play that affect forest management.

LEAF WISCONSIN K-12 FORESTRY EDUCATION LESSON GUIDE OVERVIEWS

LESSON 8 - WHOSE JOB IS IT?
Students learn about stewardship and how their choices affect the future of forests by participating in a mock school board meeting.

CAREERS EXPLORATION
Students become aware of careers that are forestry-related by listening to descriptions of them and playing charades.

FIELD ENHANCEMENT 1 - WOOD'S WORTH
Students make their own tree scale stick and use it to calculate the number of products that can be made from individual trees. They also go on a scavenger hunt to explore many ways that forests are valuable.

FIELD ENHANCEMENT 2 - STUDYING FOREST LAYERS
Students observe the structural layers of a forest and draw a color-coded picture. They also embark on two exploration activities to discover which animals can be found in each of the forest layers.

FIELD ENHANCEMENT 3 - COMPETITION IN A FOREST
Students learn how trees compete for their basic needs through observation and a simulation.

7-8 UNIT

8 CLASSROOM LESSONS, 1 CAREERS LESSON, 3 FIELD ENHANCEMENTS

The 7-8 Unit highlights a wide variety of topics related to Wisconsin's forests. Students learn about forest biomes, types of forests, biodiversity, forest management, forest trends, forest issues, forest products, and sustaining forests.

LESSON 1 - DISCOVERING WISCONSIN'S FORESTS
Students are introduced to the types of forests in Wisconsin and factors that affect their distribution through data comparison, a mapping activity, and video research.

LESSON 2 - BIODIVERSITY AND THE FOREST CONNECTION
Students analyze three ecosystems to determine their interconnections and create a Venn diagram. They also discuss the value of Wisconsin's forests in terms of biodiversity.

LESSON 3 - HOW FORESTS ARE MANAGED
Students explore forest management plans, multiple use, and sustainability through a simulation, video, and game.

LESSON 4 - FOREST MANAGEMENT ISSUES
Students examine forest management, factors that influence decisions, effects, and conflicts through brainstorming, discussion, and issue analysis.

LESSON 5 - MANY FORESTS, MANY VALUES, MANY REASONS
Students assess forest values and discover how forests shape the economy, environment, and society using games, story analysis, and brainstorming.

LESSON 6 - MAKING BROADER CONNECTIONS
Students make connections between forests of Wisconsin and forests worldwide and discuss challenges to Wisconsin's forests by tracing the life cycle of a product and playing Forest Jeopardy. They also participate in a sustainability simulation to learn about demand.

LESSON 7 - KEY STRATEGIES FOR OUR FUTURE
Students learn how science, technology, and collaboration are keys to sustaining Wisconsin's forests by analyzing articles. They then make predictions about the future by creating a *Fantasy Future Forest*.

LEAF WISCONSIN K-12 FORESTRY EDUCATION LESSON GUIDE OVERVIEWS

LESSON 8 - SUSTAINING OUR FORESTS: CITIZENS' ROLES
Students discover how people in Wisconsin practice good forest stewardship and debate their own choices through jigsaw readings and dilemma cards.

CAREERS EXPLORATION
Students learn about professionals in Wisconsin with forestry-related careers and examine the skills, education, and experience necessary for each type of job.

FIELD ENHANCEMENT 1 - TREE IDENTIFICATION
Students are introduced to dichotomous keys and tree identification vocabulary to identify common Wisconsin trees.

FIELD ENHANCEMENT 2 - FOREST MAPPING
Students work in groups to map features of a forest plot using data collection, tree identification, measurement, and ageing.

FIELD ENHANCEMENT 3 - FOREST DIVERSITY
Students study and collect data on three components of diversity that can be found in Wisconsin forests.

9-12 UNIT

5 CLASSROOM LESSONS, 1 CAREERS LESSON

The 9-12 Unit has an environmental science focus. Students learn about forest ecosystem processes, succession, the economics of forest products, and science and technology.

LESSON 1 - THE FOREST ODYSSEY
Students learn about forest ecosystem functions and processes by reading an Aldo Leopold essay, doing research, and creating an original science-based essay as a class.

LESSON 2 - A HISTORY OF SUCCESSION
Students explore how Wisconsin's forests have changed due to human and natural influences through a teacher presentation, readings, and a video. Current changes in Wisconsin's forests are discussed using a Wisconsin Land Cover Map.

LESSON 3 - FOREST BIODIVERSITY: TREE CASE STUDIES
Students study how Wisconsin's climate and natural history influence forest biodiversity. They use case studies to develop insights into the question, "What is a healthy level of forest biodiversity?" In groups, they create an original poster and presentation.

LESSON 4 - THE FOREST MARKETPLACE
Students identify factors that influence the supply of and demand for forest resources using basic economic principles. Using veneer as an example, students use graphs to describe markets in different geographic regions and examine the relationship between Wisconsin's forest resources and those of the rest of the world.

LESSON 5 - FOREST SCIENCE AND TECHNOLOGY
Students analyze the environmental impacts associated with wood, concrete, and steel by creating life cycle analyses. They study the roles that forest management, technology, and consumption play in sustaining forests and develop proposals to reduce the environmental impacts of wood use.

CAREERS EXPLORATION
Students learn about job opportunities in natural resource fields by creating a resume from the education and experiences of college students in Wisconsin.

LESSON FEEDBACK FORM (WILDLAND FIRE LESSON GUIDE)

We want to hear from you! Your comments and suggestions will contribute to the effectiveness of the *LEAF Wisconsin K-12 Wildland Fire Lesson Guide*.

Subject Areas and/or Grade Levels Taught _____

Name (optional) _____

School Name (optional) _____

School Address (optional) _____

School Phone (optional) _____

School Email (optional) _____

What recommendations do you have to improve the guide/lesson? **If comments relate to a specific part of a particular lesson, please list page numbers for reference.**

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Please send comments to: LEAF, WCEE/CNR UWSP, Stevens Point, WI 54481, leaf@uwsp.edu