Sources

Fish Knowledge

What makes a fish a fish?

Background Information

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Background Information

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Home Sweet Home

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To the Point

Background Information

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Activity

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Shared Interests

Background Information

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Aquatic Exotics

Background Information

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Activity

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Restoration Nation

Background Information

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Taking Stock

Background Information

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Activity

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Making Decisions

Background Information

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Activity

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Great Conservationists

Background Information

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Activity

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Field Knowledge

Tackling Tackle

Background Information

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Activity

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Got Skills

Background Information

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Activity

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Golden Rules

Background Information

- Wisconsin Department of Natural Resources, "Guide to Wisconsin Hook and Line Fishing Regulations 2008-2009."

Activity

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- Elizabeth Rhyner, "Will There Be Fish For Dinner Tonight?" activity submitted to the Wisconsin Department of Natural Resources Angler Education Program.

Safety First

Background Information

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- California Department of Boating and Waterways, **dbw.ca.gov** Accessed: January 2009.

Activity

- Adapted and expanded from Wisconsin Department of Natural Resources, Master Angler Program, Theresa Stabo, et al., Outdoor Empire Publishing, 1991.

Reading the Water

Activity

- Adapted and expanded from Wisconsin Department of Natural Resources, Master Angler Program, Theresa Stabo, et al., Outdoor Empire Publishing, 1991.

Fish Out of Water

Activity

- Adapted and expanded from Wisconsin Department of Natural Resources, Master Angler Program, Theresa Stabo, et al., Outdoor Empire Publishing, 1991.

Cooking, Cleaning, and Companions

Background Information

- Recipe from "These Are Fish, They Bite Sometimes," Maureen Mecozzi, et al., published by the Wisconsin Natural Resources Magazine, 1990, pg. 13.

Activity

- Adapted and expanded from Wisconsin Department of Natural Resources, Master Angler Program, Theresa Stabo, et al., Outdoor Empire Publishing, 1991.

Glossaries

Definitions

- Merriam Webster, **merriam-webster.com**
- Biology Online, **biology-online.org**

All lessons are based on background information from Wisconsin Department of Natural Resources, Master Angler Program, Theresa Stabo, et al., Outdoor Empire Publishing, 1991.

Master Materials List

Profile of a Swimmer

- Appendix A: Wisconsin's Game Fish

What Makes a Fish a Fish?

- Fish Wildcards/Fish Field Guide*
- Appendix B: Salmonid Dissection Guide
- Appendix B: Fish Anatomy Transparency
- Appendix B: Speaking Anatomically

Which Fish is This?

- Appendix C: A Key to Common Wisconsin Fish
- Appendix C: Credits for Fish Drawings
- Appendix C: Fish Images
- Fish Wildcards/Fish Field Guide*

Fish Food

(One set for each group of four or five students.)

- Appendix D: Steady State? Game handouts
- Stopwatches
- Scissors

Water of Life

- Appendix E: Field Trip Record sheet
- Distilled water
- Salt
- Decanter (if possible) or flask
- 25 x 200 mL tube with screw cap
- Large syringe
- Drinking straw
- Blue, yellow, and red food coloring

Home Sweet Home

- Appendix F: Field Trip Record sheet
- A variety of travel brochures
- Research materials
- Computers

To the Point

- Topographic map of your area*
- Map and information about your local watershed
- Internet access or handouts

Shared Interests

- Appendix G: Field Trip Record sheet
- Butcher paper or poster board
- Markers
- A local zoning map

Aquatic Exotics

- Appendix H: PowerPoint Presentation: Invasive Images

Restoration Nation

- Optional: Guest speaker

Taking Stock

(One set for each group of six students.)

- Appendix I: Balancing Act Game handouts
- Open top containers
- Dried pinto beans
- Graduated cylinders (250 ml or larger)
- Measuring spoon sets
- Cups
- Papers rolled into cones or funnel with large opening

Making Decisions

- Appendix J: Sample Resolutions
- Internet/computer access

If you have downloaded this booklet, please see the appendix that follows for additional materials.

Great Conservationists

- Pencil

Tackling Tackle

- Appendix K: Tackle Craft Instructions
- Appendix K: Tackle Craft Pictures
- Appendix K: Tackle Cue Cards
- Appendix K: Tackle Transparencies
- A wide sampling of tackle*
- Tackle craft supplies
- A clear tank with water
- Fishing line

Got Skills?

- Appendix L: Knot-testing Experiment
- Appendix L: Getting Rigged
- Rope for practice knots
- Eye bolts or shower curtain rings
- Hooks and fishing line*
- A sampling of tackle*
- Tires/hoops/Backyard Bass®*

Golden Rules

- Appendix M:
  A Key to Common Wisconsin Fish
- Appendix M: Fish images
- Appendix M: Fish Identification Cheat Sheet
- Scraps of paper
- DNR fishing regulations*
- Three boxes or bowls

Safety First

- PFDs
- Rods and reels*
- Paddles
- Other skit supplies

Reading the Water

- Appendix A: Wisconsin's Game Fish
- Lake chart for a local lake
- Fish reference books* or Internet access

Fish Out of Water

- Tackle*
- PFDs
- Fishing licenses
- First Aid kit

Cooking, Cleaning, and Companions

- Fillet knives
- Spoons/fish scalers
- Plastic bags/newspaper
- DNR's Choose Wisely guide*
- First Aid kit
- Recipe supplies

* Materials Notes

- Fish Wildcards available from the DNR.
- *Fish of Wisconsin* by Dave Bosanko is a pocket-sized, inexpensive field guide.
- The Website **wiscfish.org** is an excellent tool for identifying fish and learning morphology.
- Maps of the state can be ordered for a low price from the Wisconsin Geological and Natural History Survey.
- Current Fishing Regulations and the *Choose Wisely* guide can be found on the DNR Website or wherever fish licenses are sold.
- A limited selection of tackle is available for classroom use through the Tackle Loaner program. Go to the DNR Website at **dnr.wi.gov/fish/kidsparents/loanerequipment** for more information.
- Backyard Bass® can be purchased from **ironwoodpacific.com** or borrowed from many DNR tackle loaner sites: **dnr.wi.gov/fish/kidsparents/loanerequipment**.

If you have downloaded this booklet, please see the appendix that follows for additional materials.

Environmental Education

Students will	Hook, Line, & Thinker: Science Guide											Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
A.8.1 Identify environmental issue questions that can be investigated using resources and equipment available											X								
A.8.3 Use techniques such as modeling and simulating to organize information gathered in their investigations						X													
A.8.4 Use critical-thinking strategies to interpret and analyze gathered information				X		X		X		X	X								
A.8.5 Use the results of the investigation to develop answers, draw conclusions, and revise their personal understanding						X		X		X	X				X				
A.8.6 Communicate the results of investigations by using a variety of media and logially defend their answers						X													
A.12.1 Identify questions that require skilled investigation to solve current problems cited in literature, media, or observed through personal observations											X								
A.12.3 Evaluate personal investigations and those of others, critiquing procedures, results, and sources of data and suggest improvements to the investigation						X		X		X	X								
A.12.4 State and interpret results of their investigations to groups concerned with the issue										X					X				
A.12.5 Communicate the results of their investigations to groups concerned with the issue						X					X								
B.8.1 Describe the flow of energy in natural and a human-built ecosystem using the laws of thermodynamics			X	X															
B.8.2 Explain how change is a natural process, citing examples of succession, evolution, and extinction	X	X		X															
B.8.4 Map the levels of organization of matter		X	X	X															
B.8.5 Give examples of human impact on various ecosystems						X	X	X	X										

Environmental Education

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B.8.6 Describe major ecosystems of Wisconsin					X														
B.8.8 Explain interactions among organisms or populations of organisms		X	X		X	X		X											
B.8.10 Explain and cite examples of how humans shape the environment			X			X	X		X	X									
B.8.15 Analyze how people impact their environment through resource use						X	X	X	X	X									
B.8.16 Recognize the economic, environmental, and other factors that impact resource availability and explain why certain resources are becoming depleted										X									
B.8.17 Explain how human resource use can impact the environment; e.g. erosion						X	X		X	X									
B.8.18 Identify major air, water, or land pollutants and their sources						X	X	X	X										
B.8.19 Distinguish between point and nonpoint source pollution						X													
B.8.21 Identify and analyze individual, local, regional, national, and global effects of pollution on plant, animal, and human health						X													
B.8.22 Identify careers related to natural resources and environmental concerns									X	X									
B.8.23 Identify governmental and private agencies responsible for environmental protection and resource management									X	X									
B.12.1 Evaluate the relationship of matter and energy and the flow of energy in natural, managed, and built systems			X	X															
B.12.2 Describe the value of ecosystems from a natural and a human perspective			X	X	X					X									
B.12.3 Evaluate the stability and sustainability of ecosystems in response to changes in environmental conditions			X	X				X	X										

Environmental Education

Students will	Hook, Line, & Thinker: Science Guide											Hook, Line, & Thinker: Field Guide						
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B.12.4 Analyze the factors that determine the number of organisms that can exist in a given area			X	X	X			X											
B.12.5 Analyze past and current trends in ecosystem degradation and species extinction	X					X	X	X	X										
B.12.6 Predict population response to changes in environmental conditions			X	X					X										
B.12.8 Relate the impact of human activities in ecosystems to the natural process of change, citing examples of succession, evolution, and extinction								X	X										
B.12.9 Evaluate ways in which technology has expanded our ability to alter the environment and its capacity to support humans and other living organisms							X			X									
B.12.10 Identify and evaluate multiple uses of natural resources and how society is influenced by the availability of these resources										X									
B.12.11 Assess how changes in the availability and use of natural resources will affect society and human activities										X									
B.12.12 Evaluate the environmental and societal costs and benefits of allocating resources in various ways and identify management strategies to maintain economic and environmental sustainability							X		X	X									
B.12.13 Analyze how different political and governmental systems manage resource development, distribution a, consumption, and waste disposal.										X					X				
B.12.16 Analyze how natural resource ownership and trade influences relationships in local, national, and global economies.							X	X					X						
B.12.17 Explain the concept of exported/imported pollution; eg watersheds						X													
B.12.18 Analyze cause and effect relationships of pollutants and other environmental changes on human health						X													

Environmental Education

Students will	Hook, Line, & Thinker: Science Guide												Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
B.12.19 Illustrate how environmental quality affects the economic well-being of a community								X		X	X								
C.8.1 Define and provide examples of environmental issues, explaining the role of beliefs, attitudes, and values										X	X								
C.8.3 Use questioning and analysis skills to determine beliefs, attitudes, and values held by people involved in an environmental issue											X								
C.8.4 Evaluate the credibility of information, recognizing social, economic, political, environmental, technological, and educational influences											X								
C.12.2 Explain the factors that contribute to the development of individual and societal values											X	X							
C.12.3 Maintain a historical perspective when researching environmental issues; include past, present, and future considerations											X								
C.12.4 Identify strengths and weaknesses of different approaches to investigating an envrionmental issue and identify some of the assumptions of each approach								X											
D.8.1 Identify options for addressing an environmental issue and evaluate the consequences of each option						X	X	X	X	X	X								
D.8.3 List reasons why an individual or group chooses to participate or not in an environmental activity.																			X
D.8.4 Explain the political, legal and budgetary options for resolving local, state, and national environmental issues											X								
D.8.5 Explain how personal actions can impact an environmental issue						X		X	X			X						X	X
D.8.6 Develop a plan for improving or maintaining some part of the local environment and identify their role in accomplishing this plan						X													

Environmental Education

Students will	Hook, Line, & Thinker: Science Guide											Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
D.8.7 Identify examples of how personal beliefs can influence environmental decisions											X	X							
D.8.8 Give examples of education, economic, and government institutions' influence on an envrionmental issue, and the role of citizens in policy formation							X		X		X								
D.12.1 Identify a variety of approaches to environmental issues, evaluate the consequences of each, and select and defend a position						X	X	X	X	X									
D.12.4 Describe the rights and responsibilities of citizenship in regard to environmental problems and issues							X												
D.12.5 Develop a plan to maintain or improve some part of the local or regional environment, and enlist support for the implementation of that plan						X													
D.12.6 Identify and analyze examples of the impact beliefs and values have on environmental quality												X			X	X			
D.12.7 Analyze political, educational, economic, and governmental influences on envrionmental issues, and the role of citizens in policy formation									X						X				
D.12.8 Use cost-benefit analysis to evaluate proposals to improve environmental quality											X				X				
D.12.9 Describe regulatory and economic approaches to improving the environment and explain the advantages and disadvantages of each											X								

Language Arts and Social Studies

Language Arts Students will	Hook, Line, & Thinker: Science Guide											Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
B.8.1 Create or produce writing to communicate with different audiences for a variety of purposes												X							
B.12.1 Create or produce writing to communicate with different audiences for a variety of purposes												X							
C.8.1 Orally communicate information, opinions, and ideas effectively to different audiences for a variety of purposes						X													
C.12.1 Prepare and deliver formal oral presentations appropriate to specific purposes and audiences						X													
F.8.1 Conduct research and inquiry on self-selected or assigned topics, issues, or problems and use an appropriate form to communicate their findings						X					X								
F.12.1 Conduct research and inquiry on self-selected or assigned topics, issues, or problems and use an appropriate form to communicate their findings						X					X								
Social Studies Students will																			
A.8.1 Use a variety of geographic representations, such as political, physical, and topographic maps, a globe, aerial photographs, and satellite images, to gather and compare information about a place						X													
A.8.11 Give examples of the causes and consequences of current global issues, such as the expansion of global markets, the urbanization of the developing world, the consumption of natural resources, and the extinction of species, and suggest possible responses by various individuals, groups, and nations						X		X	X	X									

Language Arts and Social Studies

Social Studies Students will	Hook, Line, & Thinker: Science Guide											Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
A.12.4 Analyze the short-term and long-term effects that major changes in population in various parts of the world have had or might have on the environment						X				X									
A.12.11 Describe scientific and technological development in various regions of the world and analyze the ways in which development affects environment and culture						X	X	X	X										
A.12.12 Assess the advantages and disadvantages of selected land use policies in the local community, Wisconsin, the United States, and the world						X	X		X										
C.8.3 Explain how laws are developed, how the purposes of government are established, and how the powers of government are acquired, maintained, justified, and sometimes abused											X								
C.8.7 Locate, organize, and use relevant information to understand an issue of public concern, take a position, and advocate the position in a debate											X								
C.8.8 Identify ways in which advocates participate in public policy debates											X								
C.12.8 Locate, organize, analyze, and use information from various sources to understand an issue of public concern, take a position, and communicate the position											X								
C.12.9 Identify and evaluate the means through which advocates influence public policy											X								
C.12.10 Identify ways people may participate effectively in community affairs and the political process											X								

Physical Education*

Students will	Hook, Line, & Thinker: Science Guide											Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
B.8.1 Demonstrate competence in modified versions of movement forms such as performing in a variety of simple folk and square dances														X					
B.8.3 Demonstrate increasing competence in more advanced specialized physical skills														X				X	
B.12.1 Demonstrate competence in an increasing number of more complex versions of different types of movement forms such as outdoor activities														X				X	
B.12.2 Demonstrate competence and work toward advanced proficiency in selected activities such as getting nine out of ten arrows in the target from 40 feet														X					
C.8.1 Understand and apply more advanced movement and game strategies such as explaining and demonstrating strategies involved in tennis doubles													X	X				X	
C.8.3 Identify and apply principles of practice and conditioning to enhance performance such as understanding that conditioning will allow one to play for longer periods of time without fatigue													X	X					
C.12.2 Independently apply advanced, movement-specific information													X	X				X	
C.12.4 Identify and apply characteristics and critical elements of highly skilled performance to develop movement competence or proficiency such as using internal and external information to modify movement during performance													X	X					
D.8.1 Feel satisfaction when engaging in physical activity																		X	X
D.8.2 Recognize the social benefits of participation in physical activity such as the joy of participating with a team and sensing team fulfillment																		X	X
D.8.3 Enjoy learning new activities																	X	X	X

Physical Education*

*Note: Revised Wisconsin's Model Academic Standards for Physical Education are expected in 2010. Standards1, 2, 5, and 6 apply as they were drafted in early 2010.

Students will	Hook, Line, & Thinker: Science Guide												Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
D.12.1 Derive pleasure from participating in physical activities in competitive and recreational settings																	X	X	X
D.12.2 Pursue new activities both alone and with others																	X	X	
D.12.3 Recognize the strengths and weaknesses of teammates and provide opportunities for everyone to enjoy success within skill limitations																	X		
F.8.2 Solve problems by analyzing causes and potential solutions															X	X	X	X	
F.8.3 Make choices based on the safety of self and others																X		X	X
F.8.4 Consider the consequences when confronted with a behavior choice															X	X		X	
F.8.6 Work cooperatively with a group to achieve group goals in competitive as well as cooperative settings																X		X	X
F.12.1 Apply rules, procedures, and etiquette in all physical-activity settings															X	X	X	X	X
F.12.5 Take appropriate leadership or supportive roles in activities																X		X	X
F.12.6 Create a safe environment for their own skill practice and group activities																X		X	X
Revised Physical Education Standards for 2010																			
1 Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.														X				X	
2 Demonstrates understanding of movement concepts, principals, strategies, and tactics as they apply to the learning and performance physical activities.														X				X	
5 Exhibits responsible personal and social behavior that respects self and others in physical activity settings.														X	X	X	X	X	X
6 Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.																		X	X

Science

Students will	Hook, Line, & Thinker: Science Guide											Hook, Line, & Thinker: Field Guide						
	What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, & Companions
A.8.6 Use models and explanations to predict actions and events in the natural world								X		X									
A.8.7 Design real or thought investigations to test the usefulness and limitations of a model										X									
A.8.8 Use themes of evolution, equilibrium, and energy to predict future events or changes in the natural world						X													
A.12.1 Apply the underlying themes of science to develop defensible visions of the future						X													
A.12.3 Give examples that show how partial systems, models, and explanations are used to give quick and reasonable solutions that are accurate enough for basic needs										X									
A.12.4 Construct arguments that show how conflicting models and explantions of events can start with similar evidence								X											
A.12.5 Show how the ideas and themes of science can be used to make real-life decisions about careers, work places, life styles, and use of resources					X				X										X
B.8.6 Explain the ways in which scientific knowledge is useful and also limited when applied to social issues									X	X									X
C.8.1 Identify questions they can investigate using resources and equipment they have available											X						X		
C.8.2 Identify data and locate sources of information including their own records to answer the questions being investigated											X						X		

Science

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C.8.4 Use inferences to help decide possible results of their investigations, use observations to check their inferences								X	X										
C.8.6 State what they have learned from investigations, relating their inferences to scientific knowledge and to data they have collected.													X					X	
C.8.11 Raise further questions which still need to be answered								X	X										
C.12.1 Ask questions suggested by…observations of phenomena, build hypothesis…design possible investigations…and describe results that might emerge from such investigations									X										
C.12.4 During investigations, choose the best data-collection procedures and materials available								X									X		
C.12.7 Evaluate articles and reports…using criteria related to accuracy, degreee of error, sampling, treatment of data, and other standards of experimental design								X											
E.12.2 Analyze the geochemical and physical cycles of the earth and use them to describe movements of matter				X															
F.8.5 Show how different structures both reproduce and pass on characteristics of their group		X																	
F.8.6 Understand that an organism is regulated both internally and externally	X																		
F.8.7 Understand that an organism's behavior evolves through adaptation to its environment					X														
F.8.8 Show how organisms both depend on and contribute to the balance or imbalance of populations and/or ecosystems, which in turn contribute to the total system of life on the planet			X		X		X	X		X									

Science

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F.8.9 Explain how some of the changes on earth are contributing to changes in the balance of life and affecting the survival and population growth of certain species						X	X	X	X										
F.8.10 Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends					X	X	X	X	X	X								X	
F.12.5 Understand the theory of evolution, natural selection, and biological classification	X	X																	
F.12.6 Using concepts of evolution and heredity, account for changes in species and the diversity of species, include the influence of these changes on science		X																	
F.12.7 Investigate how organisms both cooperate and compete in ecosystems					X			X		X								X	
F.12.8 Using science themes, infer changes in ecosystems prompted by the introduction of new species, environmental conditions, chemicals, and air, water, or earth pollution						X	X	X	X	X								X	
F.12.9 Using science themes, investigate energy systems to show how energy is stored in food and how energy is released by digestion and metabolism			X																
F.12.10 Understand the impact of energy on organisms in living systems						X													
F.12.11 Investigate how the complexity and organization of organisms accommodates the need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain an organism					X														

Science

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G.8.2 Explain how current scientific and technological discoveries have an influence on the work people do and how some of these discoveries also lead to new careers										X									
G.8.3 Illustrate the impact that science and technology have had, both good and bad, on careers, systems, society, environment, and quality of life.													X						
G.8.5 Investigate a specific local problem to which there has been a scientific…solution, including proposals for alternative courses of action, the choices that were made…and subsequent community satisfaction									X		X								
G.8.7 Show evidence of how science and technology are interdependent, using some examples drawn from personally conducted investigations										X									
G.12.1 Identify personal interests in science and technology, implications that these interests might have for future education, and decisions to be considered											X								
G.12.5 Choose a specific problem in our society, identify alternative scientific or technological solutions to that problem and argue its merits											X								
H.8.1 Evaluate the scientific evidence used in various media to address a social issue, using criteria of accuracy, logic, bias, relevance of data, and credibility of sources											X								
H.8.2 Present a scientific solution to a problem involving…life and environmental…sciences and participate in a consensus-building discussion to arrive at a group decision							X		X		X								

Science and Math

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H.12.1 Using science themes and knowledge of…life and environmental sciences…analyze the costs, risks, benefits, and consequences of a proposal concerning resource management in the community and determine the potential impact of the proposal…							X		X		X								
H.12.2 Evaluate proposed policy recommendations in science and technology for validity, evidence, reasoning, and implications, both short and long-term							X				X								
H.12.3 Show how policy decisions in science depend on social values, ethics, beliefs, and time-frames as well as considerations of science and technology							X												
H.12.4 Advocate a solution or combination of solutions to a problem in science or technology									X			X							
H.12.5 Investigate how current plans or proposals concerning resource management…will have an impact on the environment, ecology, and quality of life in a community or region											X								
H.12.7 When making decisions, construct a plan that includes the use of current scientific knowledge and scientific reasoning									X		X								

Projects WET and WILD are national programs that focus on aquatic resources. Materials are distributed at workshops arranged by the Wisconsin Department of Natural Resources. Please see their Web page on the DNR's Website, **dnr.wi.gov/education/pltwildwet**.

Projects WET and WILD

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		What Makes a Fish a Fish	Which Fish is This	Fish Food	Water of Life	Home Sweet Home	To the Point	Shared Interests	Aquatic Exotics	Restoration Nation	Taking Stock	Making Decisions	Great Conservationists	Tackling Tackle	Got Skills	Golden Rules	Safety First	Reading the Water	Fish Out of Water	Cooking, Cleaning, and Companions
Wild Aquatic																				
8	Fishy Who's Who		X			X														
19	Designing a Habitat					X														
21	Where Does Water Run?						X													
24	Water Canaries				X															
39	Wetland Metaphors					X														
43	Hooks and Ladders			X		X														
49	Micro-Odyssey			X																
52	Blue-Ribbon Niche					X		X												
66	Pond Succession					X														
69	Eat and Glow	X																		
75	Edge of Home					X														
85	Net Gain, Net Effect										X			X						
91	Watered Down History						X	X												
110	Water Wings						X													
118	Riparian Retreat					X		X												
121	How Wet Is Our Planet?			X																
124	Facts and Falsehoods											X								
132	Watershed						X													
136	What's in the Air?						X													
140	What's in the Water?						X													
145	Something's Fishy Here						X			X										
151	Alice in Waterland						X													
158	Fishable Waters									X	X			X						
177	Aquatic Roots								X											
180	Where Have All the Salmon Gone?										X			X						
184	To Dam or Not to Dam									X										
188	Aquatic Times											X								
190	Silt: A Dirty Word						X	X												
198	Dragonfly Pond							X												
204	Living Research													X						

Projects WET and WILD

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Project WILD																				
23	How Many Bears?			X																
28	My Kingdom for a Shelter					X														
36	Oh Deer!			X																
41	Wild Words												X							
44	We're in This Together						X		X			X								
46	Carrying Capacity			X																
61	Habitat Lap Sit					X		X												
64	Who Fits Here?	X																		
66	Which Niche?	X																		
82	Micro-trek Treasure Hunt							X												
96	What's For Dinner?			X																
105	Energy Pipeline			X																
122	Quick Frozen Critters	X																		
128	Adaptation Artistry	X																		
152	Planting Animals								X		X									
166	Ecosystem Facelift									X										
172	Bottleneck Genes	X																		
203	Ethi-Reasoning												X							
216	Pay to Play										X			X						
267	History of Wildlife Management											X								
270	Wild Bill's Fate											X								
272	Know Your Legislation											X								
297	Wildlife Issues									X										
308	Migration Barriers							X												
310	Shrinking Habitat							X												
321	To Zone or Not to Zone							X												
326	Hazardous Links,Possible Solutions						X													
330	World Travelers								X											
341	Riparian Zone							X												
345	Changing the Land							X												

Projects WET and WILD

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364	Philosphical Differences											X								
371	Career Critters									X										
385	Wildwork										X									
387	Checks and Balances										X									
434	Litter We Know						X													
440	Improving Wildlife Habitat									X										
443	Enviro-Ethics														X					
446	Can Do!											X								
	Project Wet																			
19	Water Log															X				
25	Adventures in Density				X															
79	Life in the Fast Lane					X														
129	Branching Out						X													
133	Capture, Store, Release					X														
166	Just Passing Through							X												
186	Rainy Day Hike						X													
219	A-Maze-Ing Water						X													
223	Color Me a Watershed						X	X												
232	Common Water							X												
Page	Project WET																			
238	A Drop in the Bucket						X													
267	Sum of the Parts						X													
279	Where Are the Frogs?						X													
316	Humpty Dumpty									X										
322	Macroinvertebrate Mayhem						X													
338	The Pucker Effect						X													
388	Hot Water											X								
397	Perspectives											X								
425	What's Happening?											X								
457	Water Write												X							

Water Action Volunteers

Water Action Volunteers (WAV) is a cooperative program between the University of Wisconsin–Extension and the Wisconsin Department of Natural Resources. All WAV activities can be downloaded from the WAV Website, **watermonitoring.uwex.edu/wav/pubs**.

Hook, Line, & Thinker: Science Guide

Hook, Line, & Thinker: Field Guide

Activity Name	Related Lesson Plan
Stream Walk Outdoors	Home Sweet Home
Watershed in a Box: Indoor Service Project with Younger Students	To the Point Shared Interests
Stream and River Clean Up: Service Project	Restoration Nation Great Conservationists
Erosion in a Bottle	To the Point
Urban Runoff Model	To the Point
Biotic Index Survey: Outdoor "Critter Search"	Fish Food
Storm Drain Stenciling: Service Project	To the Point
Human Watershed	Shared Interests

Fishing Journal

Date & Time **Location** (DETAILED)

_____ _____

_____ _____

Weather Details

AIR TEMPERATURE: _____

WATER TEMPERATURE: _____

SKY:	Clear	Partly Cloudy	_____ % Cover	Overcast
WIND:	Direction _____	Calm	Breezy	Windy
PRECIPITATION:	None	Drizzle	Hard Rain	Snow

Catch

1 SPECIES: _____ SIZE: _____ KEPT?: _____

BAIT: _____ METHOD: _____

LOCATION OF CATCH (CURRENT, WAVES, STRUCTURE): _____

2 SPECIES: _____ SIZE: _____ KEPT?: _____

BAIT: _____ METHOD: _____

LOCATION OF CATCH (CURRENT, WAVES, STRUCTURE): _____

3 SPECIES: _____ SIZE: _____ KEPT?: _____

BAIT: _____ METHOD: _____

LOCATION OF CATCH (CURRENT, WAVES, STRUCTURE): _____

4 SPECIES: _____ SIZE: _____ KEPT?: _____

BAIT: _____ METHOD: _____

LOCATION OF CATCH (CURRENT, WAVES, STRUCTURE): _____

Next Time Bring:

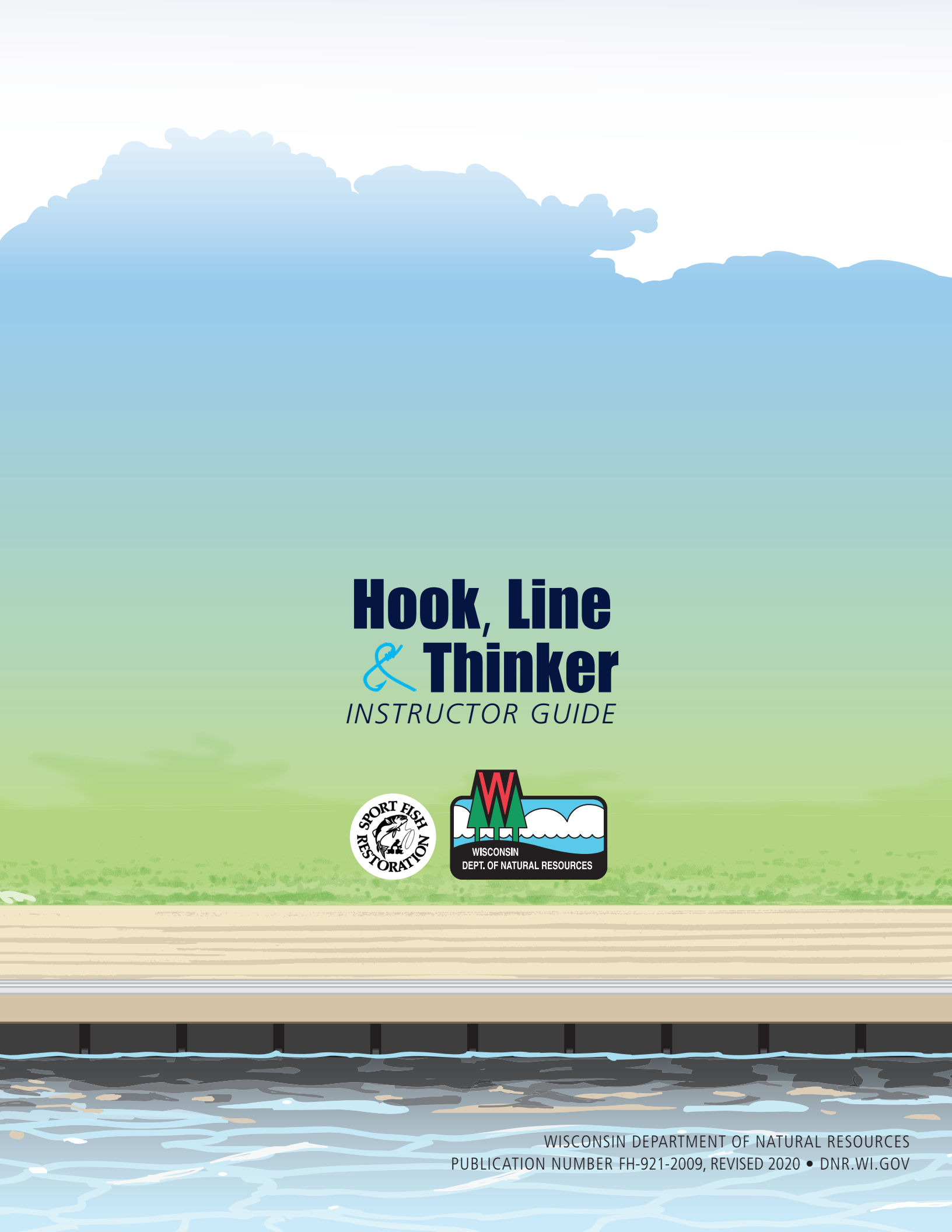
_____

_____

Special Notes: (INSECT HATCH, SPAWNING, ETC)

_____

_____



Hook, Line & Thinker

INSTRUCTOR GUIDE

SPORT FISH RESTORATION

WISCONSIN DEPT. OF NATURAL RESOURCES

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