



Summer 2002

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Project Learning Tree Coordinators

For a complete listing of state coordinators for Project WILD:

http://www.projectwild.org/aboutPW/state_coordinators.htm

Maine: 207-287-3303,
lisa.kane@state.me.us

New Hampshire: 603-271-3212,
jsilverberg@wildlife.state.nh.us

New York: 607-674-4017,
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Vermont: 802-241-3700,
mark@fwd.anr.state.vt.us

NORTHERN WOODLANDS MAGAZINE

802-439-6292

www.northernwoodlands.com

Editorial Mission

To inspire landowners' sense of stewardship by increasing their awareness of natural history and the principles of conservation and forestry that are directly related to their land.

To encourage loggers, foresters and purchasers of raw materials to continually improve the standards by which they utilize the forest's resources.

To increase the public's awareness and appreciation of the social, economic and environmental benefits of a working forest.

To raise the level of discussion about environmental and natural resource issues.

To educate a new generation of forest stewards.

Please allow your students to keep their copy of each edition of the magazine, and encourage them to share what they have learned with their families.

Teacher's Guide

Welcome to the Summer 2002 edition of *Northern Woodlands*. As you and your students wind down towards summer, *Northern Woodlands* offers readings that will capture your students' imaginations—on subjects from the fire ecology of northeastern mountain peaks to the upcoming ban on chromated copper arsenate pressure-treated wood. You and your students will also find book excerpts and reviews of several books you may want to add to your summer reading list.

This teacher's guide serves as a companion to *Northern Woodlands* magazine. In it are several in-class and outdoor activities that expand upon ideas presented in some of the magazine's articles. For each activity, we offer recommendations of related publications, contacts, and websites, as well as Project WILD and Project Learning Tree activities that build upon each activity theme. We also indicate the state curriculum standards each activity fulfills.

We'd like to extend special thanks to the sponsors of this project. As a result of their support, over 5,000 students throughout the Northeast receive four issues of *Northern Woodlands* each school year. The sponsors are: Vermont Department of Forests, Parks and Recreation; USDA Forest Service State and Private Forestry; Maine TREE Foundation; Freeman Foundation; Mill River Lumber; Forest Resources Association; Mascoma Savings Bank; Merchants Bank; several members of the Maine Forest Products Council; and a number of individuals.

We would love to know your thoughts about our teacher's guide. If you have comments or suggestions, or if you need more (or less) copies of the magazine for your students or would like additional copies of this guide, just call or e-mail Ghostwriters Communications at 802-287-4284 (e-mail: tharvey@gwriters.com). Visit our *Northern Woodlands Goes To School* website at www.northernwoodlands.com/goestoschool.html.

Noteworthy News

Teacher Training: Four workshops led by artist Nona Bell Estrin and her husband, Charles W. Johnson, the Vermont State Naturalist from 1978 until 2000, will be offered at Vermont Leadership Center: September 7, January 18, April 19, and July 26. Participants will learn to join art and science in a field journal as they "ramble, sketch, and write" and learn techniques for passing these skills on to their students. The first workshop will focus on migration. See "In Season at the Vermont Leadership Center" (page X) for more information. \$10 materials fee. 802-723-6651

Summer Reading: Three great books to read in the shade with a tall glass of lemonade: Check out book reviews in this *Northern Woodlands* issue for *Ghosts of Evolution*, by Connie Barstow, and *In Season: A Natural History of the New England Year*, by Nona Bell Estrin and Charles W. Johnson. Also, try *Our Land, Ourselves*, a wonderful little collection—small enough to slide into an ample pocket—of readings on the many themes of people and place by some of our country's finest writers. Edited by Peter Forbes et al. The Trust for Public Land: San Francisco. 1999.

PLT and Project WILD Summer Training Programs: All PLT and Project WILD state coordinators will be offering training programs this summer, so you can start the coming school year with a new repertoire of activities. Also, read about the Maine Teachers' Tours in this *Northern Woodlands* issue (co-hosted by Maine PLT) See PLT and Project WILD coordinator contact information at left on this page.



The Framework identifies fields of knowledge considered necessary in the public school curricula of Maine, New Hampshire, and Vermont.



Project WILD is a national conservation education program designed to prepare students to make decisions affecting people, wildlife, and their shared home, Earth. Project WILD is administered by your state's fish and wildlife department.



Project Learning Tree (PLT) is a program of the American Forest Foundation and the Council for Environmental Education. PLT provides a series of educational activities focused around forests and forest issues. Contact your state forester's office for more information on PLT activities.



Websites are increasingly critical as a research tool. The Teacher's Guide includes web addresses that we hope will help to increase your students' learning opportunities.



Suggested books and readings are also included in the Teacher's Guide to help teachers and students get the most benefit from each edition of the magazine. These references focus on enhancing the concepts featured in the activities.



Where applicable, the Teacher's Guide offers helpful information or resources to supplement activities.

Suggested Activities

Understanding Low-Grade Trees (field study)

The Lowdown on Low Grade, by Michael Mauri (page 30)
Where Have all the Markets Gone? by Rebecca Brown (page 34)

Mauri offers a wonderfully simple means of inventorying a woodland to assess its timber value and determine the extent of low-grade trees present. Using the article's "Tree Categories to Consider" chart, have your students assess the trees in a nearby woodland to see for themselves what foresters mean by low-grade trees.

Follow this up with a look at Brown's discussion of low-grade markets. Find out with your students how this issue affects your region and state. What low-grade markets exist in your state? Your students can practice the skill of using firsthand information by working in groups to first research the regional industries that utilize low-grade trees and then select one to learn about in depth. Have them develop interview questions that would help them learn about the industry and conduct interviews with people who work for or own the business. Encourage them to creatively display their findings, with captioned photographs,

samples, charts, and so on. The displays would make a great community-building exhibit for a local library, town hall, or bank.

Beeken/Parsons furniture makers, at Shelburne Farms in Vermont, create high-end, character-marked wood furniture from "low-grade" trees. Contact your state's wood manufacturing association for leads on producers of high-end wood products from low-end lumber.



To learn more about Beeken/Parsons woodworking, www.shelburnefarms.org/about/forestry.shtm

Empire State Forest Products Association
www.esfpa.org

Maine Wood Products Association
www.mainewood.org

New Hampshire Timberland Owners Association
www.nhtoa.org

Vermont Wood Manufacturers Association
www.vermontwood.com



#34 Who Works in this Forest



Appendix: Guidelines for Interviewing People



ME

Science and Technology J



NH

Social Studies 11, Science 1a, 2a, 3a



VT

4.6 Understanding Place, 6.19 Identity and Interdependence, 7.2 Investigation, 7.13 Organisms, Evolution, and Interdependence

Real Work with Reptiles and Amphibians (field study)

New Resource for Vermont Herpetologists (page 15)

Students jump at the chance to do real work—that which is not merely a learning exercise. Jim Andrews' *Atlas of the Reptiles and Amphibians of Vermont*, which contains information gathered by over 1,400 volunteers throughout the state of Vermont, offers just that opportunity. Many Vermont communities have little or no surveying done yet, and Andrews provides the means for adding your class's field findings to the statewide study. Even if your community has been surveyed, more information is always welcome.

For volunteer research opportunities outside of Vermont, you can call your state wildlife agency or consult the EPA websites listed below.



The Marsh-Billings-Rockefeller National Historical Park welcomes volunteers to help with its Amphibian and Reptile Inventory, conducted in conjunction with the Vermont Institute of Natural Science. To contact the Park, 802-457-3368. VINS, 802-457-2779.



The EPA offers two sites that list wetland volunteer monitoring programs in many states.
www.epa.gov/owow/wetlands/bawwg/projlist.html
www.epa.gov/owow/wetlands/bawwg/links.html#volmon



PLT

Adopt-a-Forest, Forest Ecology High School Module
 Cast of Thousands, Forest Ecology High School Module



Wildlife Research

CAREER

CONNECTION

The Gifts of a Forest,

by Henry S. Kernan (page 22)

Robert Frost wrote, "My object in living is to unite/My avocation and my vocation/ As my two eyes make one in sight." Both Kernan and his children seem to have accomplished Frost's object in living. In his vivid memoir, Kernan writes of his children, "The imprint and memory of their work [in the family's woods] are by now part of the forest and part of them; where they worked, camped, explored and played. One uses wood in cabinetry and building; one certifies the sustainable management of tropical forests, and one manages nature reserves for The Nature Conservancy. Both their sisters are professional landscape and botanical artists. Gifts of the forests have shaped their careers with deep and lasting memories of the woodlands where they played, worked, and learned."

Ask your students to ponder their avocations—the things they do that bring them the most satisfaction and happiness—and the vocations that are possible doing those things, and ask them to write an essay about how they see their avocations and vocations coalescing.



ME

Career Preparation A, English Language Arts E



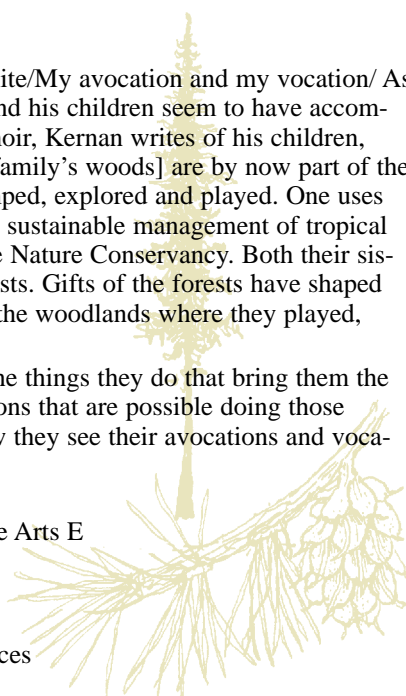
NH

English Language Arts 2



VT

1.12 Personal Essays, 3.15 Career Choices



Suggested Activities

ME

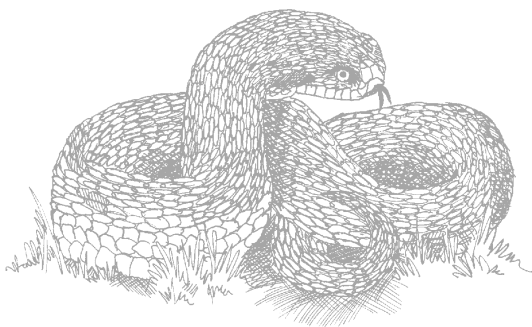
Civics and Government A, Science and Technology J

NH

Social Studies 4, Science 1a, 2a, 2b, 6d

VT

3.13 Roles and Responsibilities, 4.2 Democratic Processes, 6.9 Meaning of Citizenship, 7.1 Scientific Method, 7.2 Investigation



Northeastern Fire Ecology (current events)

Fire and Granite, excerpt by Tom Wessels (page 46)

Though the Northeast doesn't have the large-scale fires of the intermountain West, Wessels' excerpt shows that fire plays an important role in certain Northeastern natural communities. New Hampshire's state butterfly is the Karner Blue, endangered in part because it depends upon wild lupine which grows in clearings created by forest fire. Explore such issues in fire ecology through PLT's excellent activities listed below.

Have your students read Warner Shedd's "Return of the Forest, Return of the Trout?" (pg. 38) for further illustration of granite's effects on community ecology, specifically its effect on trout populations.

[The essay describes many fascinating adaptations that allow plants in these communities to survive and thrive in the face of periodic fires. You can also expand the idea of plant adaptations by encouraging students to consider the adaptations present in the plants on those granite domes that allow them to survive not just fire but also the rigors of high-altitude northern climates. How do plants survive in an environment with a 3-month growing season and winter nights that can approach -40°F? Have them pick a high-altitude plant, explore its adaptations for survival, and create a report or display of their findings.



An internet search of Karner Blue in New Hampshire will provide extensive information on the relationship between fire and butterfly habitat.



The Granite Landscape: A Natural History of America's Mountain Domes, from Acadia to Yosemite, by Tom Wessels. Countryman Press, 2001.

Wetland, Woodland, Wildland, by Elizabeth H. Thompson and Eric R. Sorenson. University Press Of New England: 2000. Excellent guide to Northeast natural communities.



Understanding Fire (*Forest Ecology* High School Module)

Fire Management (*Forest Ecology* High School Module)

Fire Ecologies



ME

English Language Arts A, D, E, H; Science and Technology B

NH

English Language Arts 1, 2, 5, 6; Science 3a, 3b

1.19 Research,

VT

4.6 Understanding Place, 7.13 Organisms, Evolution, and Interdependence, 1.5 Writing Dimensions, 1.8 Reports

Brook Trout and Water Quality (history)

Return of the Forest, Return of the Trout? by Warner Shedd (page 38)

Warner Shedd's article reveals the fascinating complexity of brook trout population ecology, which is intertwined with human land use history.

Have your students investigate your local river basin. What is its land use history? Was the area heavily logged? Were there many mills along the river, and of what sort? What kind of effluents might they have been emitting into the river? What is the fishing history of the river? What species of fish inhabit it now and how are they distributed? What are current factors that might restrict brook trout populations in your river?

Elders in your community are great resources for firsthand information about the river's history. Your state's fisheries department will have information about the river's ecological and water-quality status. Local anglers can give students firsthand information about fish species they've encountered. Local watershed groups and your community's historical society may be useful resources. As a class, brainstorm the resources available for learning about the

WILDLIFE

CONNECTION

Blanding's Turtles: Slow but Sure Informants (page 44)

This article is a good follow-up to the "Consider the Source" activity, as it gives students a hint of the rigorous work necessary to turn hypotheses into scientific discoveries. And it provides examples of the surprises that researchers encounter that may alter their hypotheses, such as the expansive habitat range of some of the turtles under study.

Learn about the turtles that inhabit your region, and find out what studies are happening in your state. Discuss with your students the importance of leaving turtles where you find them.

The Volunteer Monitor offers a website about monitoring turtles in wetlands, complete with descriptions of how to go about monitoring and a list of organizations involved with turtle research. <http://www.epa.gov/volunteer/spring98/pg20.html>



Adopt-a-Forest, Forest Ecology High School Module Cast of Thousands, Forest Ecology High School Module



Wildlife Research

ME

Science and Technology B, J, M; Civics and Government A

NH

Science 1a, 2a, 3a; Social Studies 4

VT

3.13 Roles and Responsibilities, 4.2 Democratic Processes, 6.9 Meaning of Citizenship, 7.1 Scientific Method, 7.2 Investigation, 7.13 Organisms, Evolution, and Interdependence

Suggested Activities

river. Then have each student or student team select a different resource to investigate. Encourage them to take photos and look for other visual aides (maps, drawings) After students report back, the class can develop a single display about the river.



The Recreation Boating and Fishing Foundation's site provides information on some good resources for teaching about fish, fishing, and aquatic resources, www.rbff-education.org/



In the mid- to late-19th century, D.G. Beers and associates produced the Beers Atlas for many American counties. These are excellent resources for historical land use information. Consult your local library.



We're in this Together



English Language Arts
A, B, D, G,
H; History B



Social Studies 17;
English Language Arts 1, 2, 3, 5, 6



1.13 Clarification and
Restatement,
1.19 Research,
4.6 Understanding Place,
6.3 Analyzing Knowledge,
6.4 Historical Connections,
6.6 Being a Historian,
6.8 Movements and Settlements,

and how would increased harvest affect those natural communities? What is ACQ wood, and is it safer than CCA wood? How were houses constructed in the days before pressure-treated wood, and what can we learn from those earlier methods? After researching these questions, students can generate their own recommendations for preferred alternatives. Encourage them to write an opinion piece for the local paper voicing their concerns and recommendations.



The internet is a key source of information on this recent topic—a search on “CCA wood” and “ACQ lumber” will yield much information.

The EPA maintains a web page explaining CCA-treated wood and offering dozens of links to articles, public meeting records, press releases, and question and answer sessions. <http://www.epa.gov/pesticides/citizens/1file.htm>.



Philosophical Differences



English Language Arts
A, D, E, G, H



English Language Arts 1, 2, 5



1.11 Persuasive Writing,
1.18 Information Technology,
1.19 Research, 1.21 Selection,
6.2 Uses of Evidence and Data,
6.3 Analyzing Knowledge

Consider the Source (research skills)

The Use and Misuse of Forest Science, by Rob Bryan (page 8)



This article raises the compelling notion that ideas and statistics that we consider “facts” may instead be subjective interpretations of scanty data. In gathering information for the research papers they write throughout their educational careers, students need to learn to discriminate among data sources to select those that might offer the most unbiased information.

Discuss with your students the importance of ensuring as best they can that their data sources are credible. Have them choose a forest-related topic and find five sources of information about that topic. Ask them to look critically at the information for clues as to its validity. Has it been peer-reviewed? Does it present reference citations? What are the credentials of the author/researcher?

The internet can be a terrific resource for student research. At the same time, it is a prime source for unsubstantiated claims and misinterpreted data. Encourage your students to use caution when gathering data from the internet, and to trace the information back to a reputable source.

ME English Language Arts A, D, H

NH English Language Arts 1, 5

VT 1.18 Information Technology,
1.19 Research, 1.21 Selection,
6.2 Uses of Evidence and Data,
6.3 Analyzing Knowledge

Alternatives to Pressure-Treated Lumber (current events)

Wood Treated with Arsenic to be Phased Out (page 15)

In just two years, traditional (CCA) pressure-treated wood will no longer be allowed in domestic building projects. Find out what that voluntary phase-out means in real terms. Your students can learn more about CCA wood from the internet, where they will find many research papers, news stories, and debates on the subject. A controversial topic such as this affords the opportunity to compare differing perspectives and their supporting arguments.

The article describes the current alternatives to pressure-treated lumber as cedar, redwood, recycled plastic, plastic, and ACQ lumber. What are the environmental effects of increasing reliance on these materials? Where do cedar and redwood come from

CALENDAR

Excerpts from *In Season: A Natural History of the New England Year*,

by Nona Bell Estrin and Charles W. Johnson (page 75)

Have students look at Estrin's drawings and read Johnson's excerpts and try such an exercise themselves. Assign each student a different day of the month to make their recordings, and ask them to spend at least a half hour outside on their day, observing natural events. Ask them to try both a sketch and written notes detailing what they observe. Come up with a standard paper size and you can compile the month's natural history into a journal, or make a big, artful wall calendar.

Check the “Noteworthy News” section of this guide for information about teacher training offered by Estrin and Johnson, teaching the art of field journaling.



*Keeping a Nature Journal:
Discover a Whole New Way of
Seeing the World Around
You*, by Clare Walker Leslie and
Charles E. Roth. Storey Books,
2000.



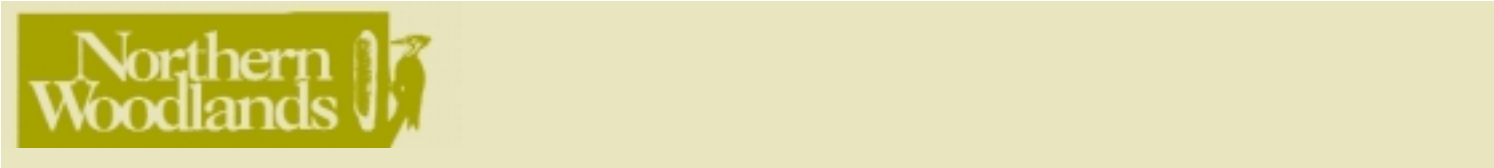
Wild Words...A Journal-Making
Activity

ME Visual and Performing Arts A,
Science and Technology J

NH Science 3a

VT 5.28 Artistic Proficiency, 5.29
Visual Arts

CONNECTION



Writing Exercise

Place in Mind, by Jim Collins (page 76)

In his essay, Collins writes, “I believe there’s a connection between the summers of our childhood and the places we feel most at home.” Think of your favorite summertime experiences. Choose one, and describe it with vivid sensory details (what you see, smell, hear, taste, touch) so that the reader, even if they never went to that place or did the things you describe, can put themselves in your shoes and sense your experience.

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Crossword Puzzle

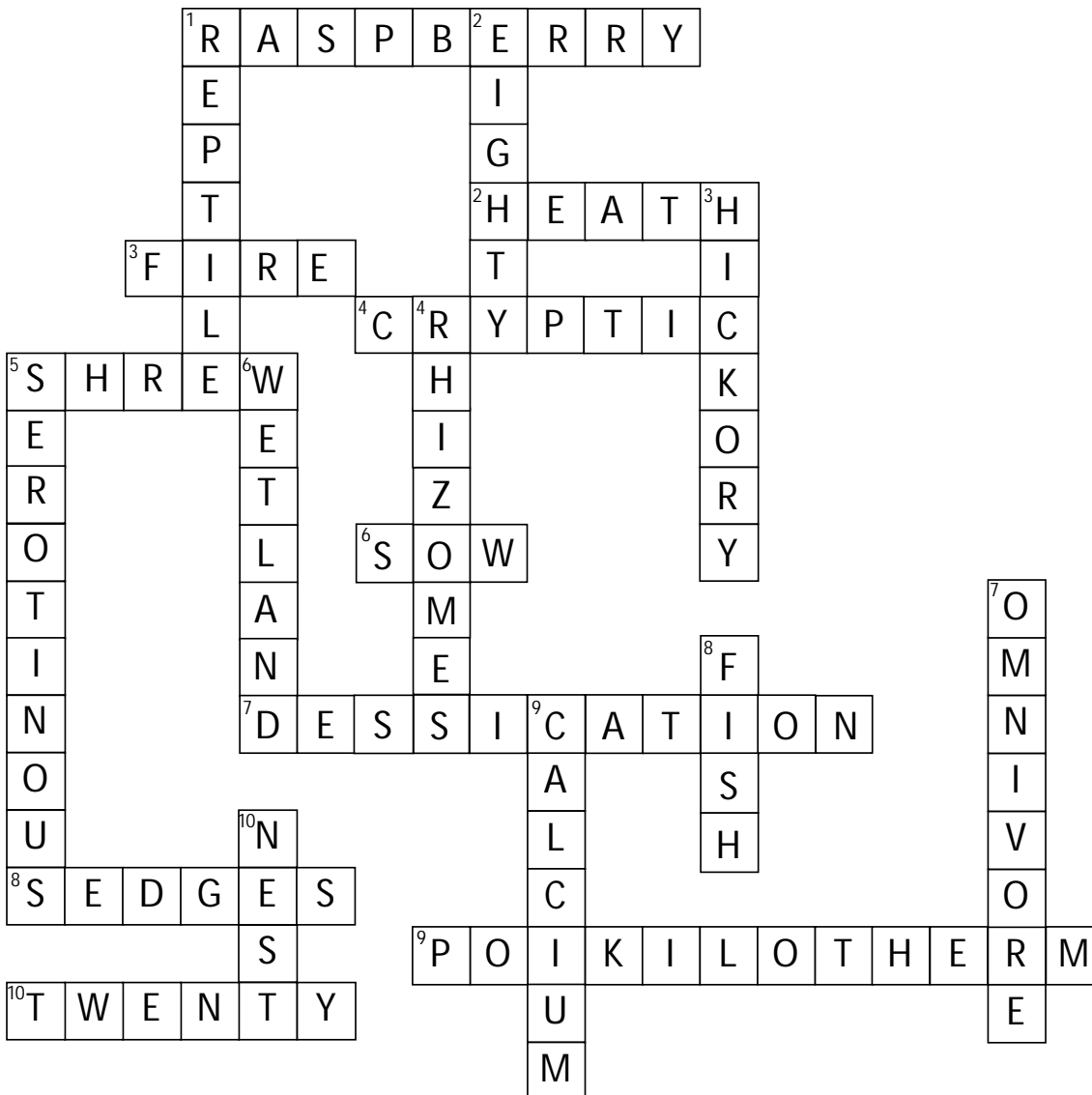
Bear Nests, by Susan C. Morse (page 21), Snail Shells Figure in the Calcium Game (page 14), Blanding's Turtles: Slow but Sure Informants (page 44), and Fire and Granite, by Tom Wessels (page 46).

Across

- Soft mast fruit that bears eat in July.
- Plant family often found in acidic, granite-based soils.
- Natural process that encourages heath growth.
- Protective coloration that allows an animal to blend in with its surroundings.
- Species of mammal that eats snails.
- A female bear.
- The process of drying out.
- Plants eaten by black bears in late spring and early summer.
- Term used to describe a cold-blooded animal.
- Number of hours a day a bear can spend eating in mid-summer.

Down

- Classification of animals that have scales covering their bodies, are cold-blooded, and have lungs for breathing.
- Number of years a Blanding's turtle can live.
- Nut that provides bears with the most food value per unit.
- Stems that grow laterally beneath the soil and sprout new above-ground plants nearby.
- _____ cones open only when heated by fire.
- Favored habitat of Blanding's Turtles.
- An animal that eats both plants and animals.
- One of the wetland foods eaten by Blanding's turtles.
- Acid rain dissolves this soil nutrient.
- Term given to the pile of broken branches high in a tree where black bears have gathered fruits and nuts.



Crossword Puzzle

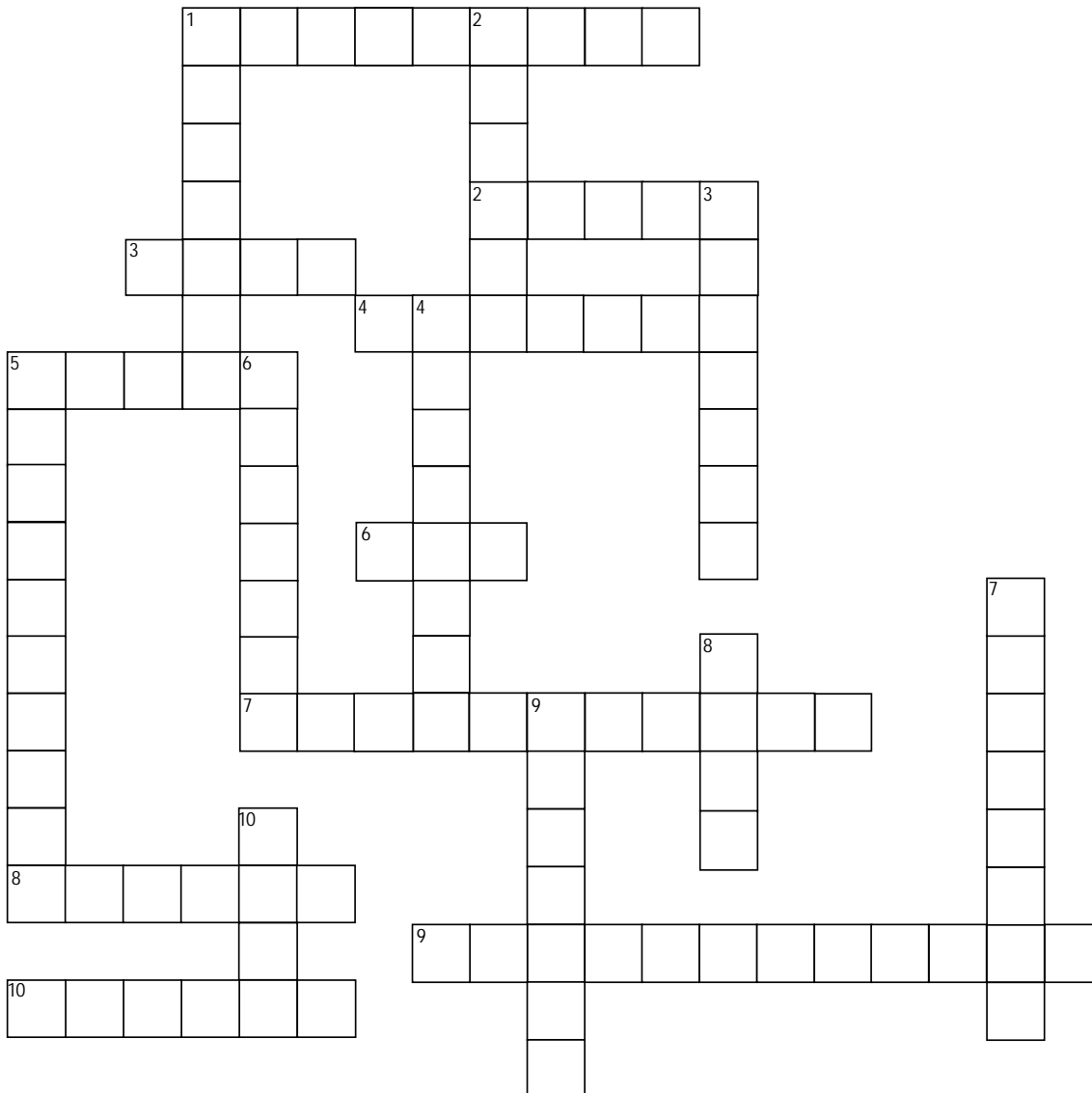
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Paternal Poetry

My Father Coming Through the Trees, by Howard Nelson (page 65)

Read Nelson's poem at least twice and jot down your responses to the following questions:

What do you know about the father from Nelson's brief images?

What don't you know about him?

How old do you think the narrator is in the poem?

What do you think his relationship with his father is like?

When (what time period) do you think this scene occurred?

Write a list of things you know about your father and another list of things you don't know but might like to. Use these lists to help you prepare some questions for your father. For example you might ask, What did you like to do best when you were a kid? What did you dream you'd be when you grew up? If you could do anything for a year, what would it be?

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Teacher's note: (for reverse side of activity sheet)

Many of your students probably know very little about their fathers. After generating their lists of what they know and don't know, they might be surprised how short their "know" list is. If their father has passed away or is unavailable, they can interview someone who knew/knows their father well. Have them tape the interview if possible. Then have your students write an essay or poem, or develop a photo collage or a "radio story" about their father.