

BIBLIOGRAPHY AND RESOURCE MATERIALS

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Curriculum Materials

Alabama's Water Resources: Poster and Student Activity Guide. Montgomery, AL: Legacy, Inc., August, 1993.

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Brownie Girl Scout Handbook. New York, NY: Girl Scouts of the United States of America, 1993.

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Friends: A Magazine for Young Readers From Georgia 4-H Clubs. Special Water Edition. Athens, GA: Georgia Cooperative Extension, January 1992.

Groundwater: A Vital Resource. Student Activities. Knoxville, TN: Tennessee Valley Authority.

Instructor's Guide to Water Education Activities. Harrisburg, PA: Commonwealth of Pennsylvania Department of Environmental Resources, 1986.

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My World, My Water and Me! Mercerville, NJ: Association of Environmental Authorities, New Jersey.

Nonpoint Source Water Pollution Problems And Solutions. Troy State University, AL: The Center for Environmental Research and Service, 1991.

Oklahoma Aqua Times. Stillwater, OK: Cooperative Extension Service. No. 747.

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Surface Water: The Teacher's Guide. Alexandria, VA: Water Pollution Control Federation, 1988.

Water Activities To Encourage Responsibility. Wisconsin Department of Natural Resources. Publ. WR324-93, March, 1992.

Water: The Liquid of Life. Springfield, IL: Illinois Environmental Protection Agency, 1991.

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Other Publications

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Composting: Nature's Way To Recycle. Cooperative Extension Service, Mississippi State University. Publication 1782.

Conserving Water At Home. Athens, GA: University of Georgia Cooperative Extension Service. Circular 819-1. April, 1991.

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The Energist: Getting to Know Water. National Energy Foundation. Salt Lake City, UT.

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Growing Ideas. National Gardening Association. Vol. 4, Number 2. April, 1993.

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Indoor Air Pollution Fact Sheet: Household Products. American Lung Association, 1990.
Inside the Gardens. Pine Mountain, GA: Callaway Gardens, Summer 1996.

Is Your Well Water Safe To Drink? Alabama Cooperative Extension Service, Agriculture & Natural Resources Timely Information Article, Auburn University, AL.

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Soil, Water and Land Use: II. Understanding Nitrogen Interaction. Gainesville, FL: Cooperative Extension Service, University of Florida, Institute of Food and Agricultural Sciences, September, 1995.

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Water Quality Report to Congress, June, 1994. Montgomery, AL: Alabama Department of Environmental Management.

What Is Water? Virginia Cooperative Extension Service. 390-051. December, 1987.

Williams D. Landscape Plant Selection For Reduced Fertilizer And Pesticide Use. Auburn University, AL: Alabama Cooperative Extension Service. Circular ANR-750.

Xeriscape Landscaping: Preventing Pollution and Using Resources Efficiently. U.S.EPA. EPA-840-B-93-001. April, 1993.

Internet Resources

www.gene.com/ae (Access Excellence/Genentech Activities Exchange)

www.usgs.gov/education (U.S. Geological Survey Learning Web)

www.asc.edu (AlaWeb General Information Page)

www.epa.gov/ (US Environmental Protection Agency Home Page)

<http://eelink.umich.edu/> (EE Link, Environmental Education on the Internet)

www.gatewest.net/green/all.html (Green & Growing Environmental Education Project--developed for high school level with focus on agriculture, food and sustainable development.

<http://pelican.gmpo.gov/gulfed/gulf-ed.html> (Gulf of Mexico education)

Audiovisual Programs

Educational Videos for Children About Our Precious Water Resources (US EPA, #430/09-91-016(B)).

EPA's Video Lending Library
(800) 624-8301

Discovering Alabama

A natural history/environmental series about natural features of Alabama. It is available from the Alabama Museum of Natural History, Box 870340, Tuscaloosa, AL 35487-0340, (205) 348-7550. Special teacher guides are currently being developed for each video.

The following media materials are available through the Alabama Cooperative Extension System and are free of charge to anyone in Alabama. The media library is located in Duncan Hall, Room 10A, Auburn University. Requests for any material should be made 2 weeks in advance. See order form included. Videos specifically targeted for youth are marked, others may be suitable for older students and/or for educators. If the media library does not have the video, please contact an Extension Specialist in either Water Quality or Environmental Education.

Acid Rain: The Invisible Threat. 20 minutes, color, 1992. Scott Resources.

Acid Rain discusses the phenomenon of acid rain by emphasizing 3 basic areas: (1) its causes--fossil fuels and gasoline engine emissions; (2) its effects on the environment--dying forests and fish due to the toxicity of water; and (3) clearing the air--cleaner burning of coal and control of auto emissions. Teacher's guide available. Grades 7-12.

Alabama's Wellhead Protection Program. 23 minutes, color, 1991. Alabama Department of Environmental Management and The Geological Survey of Alabama.

This video presents the program developed to protect wellheads in Alabama. The program attempts to preserve high quality groundwater. The step-by-step actions and procedures that municipalities may follow in developing a local wellhead protection program are covered.

Always Pure, Never Runs Dry. 17 minutes, color, 1981. National Television News.

This video describes the amount of water consumption for various uses, where and how we obtain our water, and proper management of our water supply. All ages.

Backyard Composting. 17:10 minutes, 1993, Alabama Cooperative Extension System, Dave Williams.

Features: Science behind composting process; composting procedures to practice; benefits of compost for yard and garden; and examples of home composting systems.

The Biology of Water (Lesson 1): Water--A Miraculous Substance. 20 minutes, color, 1991, Chariot Productions.

Lesson 1 describes the chemical properties of water and its importance to all life processes. It discusses its effects on cells and aquatic life, and the climatic effect of water. Teacher's guide available. Grades 7-12.

The Biology of Water (Lesson 2): The Ocean Realm. 20 minutes, color, 1991. Chariot Productions.

Lesson 2 examines saltwater ecology. It describes the ecosystem contained in the ocean and the cycle of food production and consumption. It illustrates examples of different sea organisms and their role in the food chain. Teacher's guide available. Grades 7-12.

The Biology of Water (Lesson 3): The River of Life. 17 minutes, color, 1991. Chariot Productions.

Lesson 3 describes the hydrologic cycle in which fresh water is derived from saltwater and stresses the importance of fresh water to life. It examines different sources of pollutants and their effects on the water supply, for example, industrial emissions and acid rain. Teacher's guide available. Grades 7-12.

The Biology of Water (Lesson 4): Mud and Salt. 17 minutes, color, 1991. Chariot Productions.

Lesson 4 examines the estuary: an ecosystem consisting of a mixture of fresh and saltwater. Illustrates real examples of different types of estuaries and shows their rich biological diversity. Also stresses their susceptibility to pollutants, for example, Chesapeake Bay. Teacher's guide available. Grades 7-12.

The Care And Feeding Of Your Septic Tank. 16:13 minutes, color, 1991. Full Spectrum Video.

This video discusses the design features for septic systems, including a sewage disposal system for suburbs and rural areas which do not have city sewer systems. It discusses the importance of soil evaluation for proper installation and the need to inspect and routinely pump septic tanks for prevention of groundwater contamination.

Careers In Water Quality. 16:14 minutes. Water Environment Federation.

High school students discuss careers and are introduced to the concept of water quality and pollution control and jobs that relate to water quality and the environment. Fields such as science, engineering, technical support, education, politics, etc. can all have an influence on providing good water quality.

Clean Water, Clear Choices. 15 minutes, color, 1991. National Association of Conservation Districts.

This video looks at nonpoint source pollution, which accounts for half of all water pollution. It explains how rainwater runoff carries pollutants to water sources and is a problem in both rural and urban areas. It outlines programs, under the auspices of the EPA, underway to help solve nonpoint source pollution.

Down the Drain. 1991. Children's Television Workshop. (30 minutes.) 30 minutes, color.

A 3-2-1 Contact presentation about water as a valuable resource and the need to conserve it. Highlights the special attributes of water and presents the information in a manner understandable to younger children.

Drinking Water: Quality On Tap. 27:24 minutes, color, 1991. Comet Communications with the League of Women Voter Education Fund.

This production defines quality drinking water as: water that is pure enough to sustain life and health with the fewest harmful impurities possible. It discusses sources of freshwater, potential contaminants of these sources, the treatment and delivery of water, and the importance of groups and individuals taking action to conserve and protect water supplies.

Endowment For The Planet. 12:20 minutes, 1990. Cornell University.

A discussion of the interaction of air, water and soil on our planet. This video was developed by The Center For The Environment at Cornell and attempts to work out environmental problems based on good scientific methods. Among the topics reviewed are: acid rain, alternatives to pesticides, solid waste disposal, artificial wetlands and runoff control and burning of fossil fuels.

Every Time It Rains (Kentucky Nonpoint Source Pollution). 15 minutes, color, 1990. Western Kentucky University.

This video looks at the water cycle and how water moves through watersheds. Focusing on the state of Kentucky, it discusses the many diverse features of watersheds and suggests best management practices for each of Kentucky's watersheds to help reduce possible pollutants.

Groundwater And Agricultural Chemicals: Understanding The Issues. 17:40 minutes, color, 1988. American Soybean Association And National Corn Growers Association.

Narrated by Hugh Downs and features farmers, researchers, and environmental experts discussing groundwater issues; how contaminants enter groundwater supplies; and simple, inexpensive steps you can take to assure a safe, uncontaminated water supply for the future.

H₂O--The Groundwater Video. 9:20 minutes, color, 1989. Water Pollution Control Federation.

Covers the importance of groundwater. Defines groundwater and aquifers. Discusses major sources of groundwater pollution and how to eliminate them. This and the following H₂O series are explained using a video game format with Dino Sorous, an animated dinosaur together with live-action students. This has been a very popular series with youth of these ages. Audience: Grades 5-9.

H₂O--Saving Water, The Conservation Video. 8 minutes, color, 1989. Water Pollution Control Federation.

Covers the importance of water conservation and how conservation relates to water cycling, pollution, and pollution prevention. Audience: Grades 5-9.

H₂O--The Surface-Water Video. 9 minutes, color, 1989. Water Pollution Control Federation.

Covers the water cycle, surface-water sources, different types of point and nonpoint sources of water pollution, who causes pollution, and what can be done to clean up polluted water and eliminate pollution. Audience: Grades 5-9.

H₂O--The Wastewater Treatment Video. 11:54 minutes, color, 1989. Water Pollution Control Federation.

Covers the water cycle, water movement, water pollution and how the wastewater treatment process works. Audience: Grades 5-9.

Is The Water Safe To Drink? (The Good News About Drinking Water). 30 minutes, color, 1993. American Water Works Association.

Narrated by Linda Benzel, this video covers the primary concerns with drinking water in the United States and Canada. Topics discussed include water purity and pollution, water uses and treatment needs, treatment by-products, corrosion products such as lead, risks associated with chemicals and other pollutants, chlorination and disinfectant alternatives, EPA and water utility roles in providing safe drinking water, distribution systems, and individual activities to prevent contamination of drinking water.

Land And Water 201. 18:57 minutes, color, 1989. Mississippi State University.

This video introduces Land and Water 201, a cooperative, multi-agency program formed in 1984 with the aim of assisting the people in the 201 counties of the Tennessee Valley region in appropriate soil and water conservation practices. The

seven states in the Tennessee valley, the EPA, the USDA, and the TVA work together to improve water quality, reduce soil erosion, and increase farm income. Interviews with farmers and park administrators in the area are presented along with practices implemented in conjunction with Land and Water 201, to help solve their particular problems.

Life's Hidden Treasure: Protecting Our Groundwater. 18:10 minutes, color, 1995. Department of Soil, Crop & Atmospheric Sciences, Cornell University & Cornell Cooperative Extension.

A discussion of groundwater: its definition, importance and part in the hydrologic cycle and how water in the hydrologic cycle reaches groundwater. The video uses the NE United States as an example, but important concepts are covered, including: wells, the water table, aquifers, recharge, springs, etc. and how point source and nonpoint source pollution affects groundwater. A good overall educational video about groundwater.

Low-Pressure Pipe Septic System. 10 minutes, color, 1993. University of Tennessee Extension Service.

This video addresses the need for wastewater treatment. It refers to city sewer systems, water contaminants, and the operation of municipal wastewater treatment plants, but most of the discussion is about single-household septic systems. It covers the conventional septic system and the alternative low-pressure pipe system. It also discusses design features, inspection, and maintenance requirements for the alternative system.

Nature's Way. 11:15 minutes, color, 1989. Water Pollution Control Federation.

Water pollution and how nature and wastewater treatment plants purify contaminated water. Audience: Grade 6 to adults.

Not A Drop To Drink. 7:51 minutes, color, 1988. The Fertilizer Institute.

A brief overview of surface and groundwater quality issues as related to nonpoint-source agricultural pollution.

Private Wells: Protecting Your Water Quality. 13 minutes, color, 1990. Environmental Management Services.

A Central Minnesota Water Quality Project. This video shows the importance of wells and groundwater for water consumption and what can happen when they become contaminated. It demonstrates different types of wells, proper placement and construction, and testing for water quality. Audience: Grade 8 to adults.

Professor Water: Fantastic Facts About H₂O. 26:00 minutes, 1995. American Water Works Association.

Professor Water is a silly figure who presents many facts about water; these include: the definition of water, the availability of water, the water cycle, a water treatment plant, and average use of water in the home. A fairly inane sidekick of Professor Water attempts to answer questions about water in a simulated quiz show format.

Audience: younger ages (may be too silly for junior high and above).

Radon: What It Is And What Your Can Do About It. 17:39 minutes, color, 1988. Maryland Extension Service.

Discusses the causes of radon gas, how to test for radon gas, and tips on how to eliminate the problem.

Running Water: From Rain To River To Ocean. 20 minutes, color, 1988. Scott Resources.

This video discusses the water cycle and the types of runoff: laminar flow, turbulent flow, jet-shooting flow, and the velocity of flow in these different types. It presents a geologic view of the various forces that shape and form our rivers. Teacher's guide available. Grades 6-12.

Running Water: Erosion, Deposition, and Transportation. 20 minutes, color, 1988. Scott Resources.

This video illustrates how running water can carry eroded material and the effect of this load, and the composition of the underlying bedrock, on geologic features. It discusses erosion, floodplains, meandering streams, the formation of oxbow lakes and deltas, and the contribution of glaciers towards present-day river formation. Teacher's guide available. Grades 6-12.

Soil: Who Needs It. 14 minutes, 1996. NMSU Board of Regents College of Agriculture and Home Economics.

Who needs soil? We all do! Join Gritty, Sticky, and Smoothy as they tell us why soil is so important, explain what soil erosion is, and help us understand what we can do to save our soil. Audience: Grades 1 to 5.

Tennessee Nonpoint Source Pollution. 9:20 minutes, color, 1993. The Tennessee Conservation League.

This video looks at Tennessee's nonpoint source pollution which occurs when rainwater runoff carries pollutants from a variety of sources and which poses a threat to the environment and water quality. The viewer is made aware of the activities that contribute pollutants to the state's waters and the best management practices to prevent undesirable results.

Water-A Treasure In Trouble. 14 minutes, color, 1987. Moody Institute of Science.

Water is essential to life, yet clean water is endangered by pollution. Scientists are finding ways to remove pollutants from water, so there is hope.

Water: Gift Of Life. 50 minutes, color, 1990. The Nature Company.

Narrated by Gregory Peck, this video portrays the qualities of water using beautiful scenes from nature and spectacular cinematography. Booklet with colorful photographs available. Audience: all ages.

Water--We Can't Live Without It. 79 color slides, cassette tape, 1984.

Explores the fascinating story of water and its significance in our lives and the natural world. Examines water and its many forms and uses, several fresh-water habitats, problems threatening water supply and quality and conservation of our water resources.

Water Quality and Nonpoint Source Pollution. 11 minutes, color, 1994. Alabama Cooperative Extension Service.

This video details the importance of water and its quality to individuals from all walks of life around the nation and, especially, to Alabama residents. Nonpoint source pollution is explained in great detail. Various sources of nonpoint pollution are discussed with past, present, and future implications and regulations to decrease further pollution. Limited use of animation improves the usefulness of this video for applications with younger audiences. Youth to adult audience.

Water Quality: The Challenge Is Crystal Clear. 10 minutes, color, 1990. Extension Service-USDA Water Quality Initiative Team.

This video explains the focus of the Extension Service in its aim to provide educational assistance for one of its national initiatives-water quality. Some of the projects underway in cooperation with the USDA and state cooperative extension programs are covered. The video explains why water is one of the nation's most valuable resources and how the Extension Service plays a major role in protecting this resource by providing education, technical assistance, research and database development.

Water Quality Protection For Homeowners. 10:06 minutes, 1996. Cornell University.

A look at the wellhead protection area and how activities around the home can affect the quality of well water supply. The video stresses that the key to insuring good well water quality is to prevent possible pollution sources, including: proper placement of the septic system, building locations and drainage pattern of the land, responsible use of pesticides, etc.

Waterhog Haven. 10 minutes, color, 1991. American Water Works Association.

This is a visual representation of the ways in which we waste water. Presented with amusing characters in a mime format. Audience: young children.

Watershed Hydrology With Peter Black. 9:20 minutes, color. Department of Soil, Crop & Atmospheric Sciences, Cornell University & Cornell Cooperative Extension.

This video defines the watershed and hydrology (the study of the movement of storage of water in the environment). It is a fairly technical film that discusses watershed management, the water budget, runoff and climate, weather, geology and soils--factors which affect the watershed and runoff. Audience: older youth and adults.

Watersheds and Nonpoint Source Pollution Control. 9:20 minutes, 1995.

A good visual description of a watershed and effects of point source and nonpoint source pollution. Although it focuses on the northeast part of the U.S., it discusses how the type of soil, bedrock and the water table impacts the watershed and examines surface water vs. groundwater. Audience: older youth and adults.

The Wealth In Wetlands. 23 minutes, color, 1991. National Association of Conservation Districts.

This video emphasizes the importance of wetlands and the need for their preservation. It includes a series of interviews with five different farmers and their recognition of the value of wetlands. It also illustrates methods to reclaim losses of previous wetland areas.

What Do You Know About H₂O? 22 minutes, color, 1989.

Narrated by Frank Field, this video discusses the amount of water available for use as fresh water. It is presented in a question and answer format and quizzes the viewer about our daily use of water. It stresses the hazards of pollution and the necessity for conservation. All ages.

When The River Runs Dry. 20 minutes, color, 1990. Freshwater Foundation.

This video examines the effects of drought on the Mississippi River, particularly at its source in the state of Minnesota. The video is presented in a simulated TV new-documentary format and stresses the importance of the Mississippi River as a hydrologic system in having wide-ranging effects in such areas as transportation, power, agriculture, etc. Teacher's guide available. Grades 7-12.

Your Drinking Water: Is It Safe? 40 minutes, color, 1989. Ohio State University and Ohio Cooperative Extension Service.

Directed mainly to owners of private wells, this informative video describes how water may become contaminated by bacteria, nitrates, and lead and how soil types affect groundwater. It discusses how to test for water quality how to properly collect a water sample, where to get it tested, and how to handle contamination problems.

Your Septic System: A Guide For Homeowners. 11 minutes, color, 1990. Northern Virginia Planning District Commission.

This video describes a septic system: the septic tank, the distribution box, and the drain field trenches. It discusses the need to routinely pump the system and lists ways to properly maintain a septic tank system.

Equipment and Supplies

The following equipment is available for loan through the Alabama Cooperative Extension System and is free of charge. Contact your local county Extension agent for arrangements. This equipment is available at the 4-H Youth Development Center in Columbiana, Alabama (205-669-4241) and/or at some of the Regional offices in ACES. The plexiglass models are custom built and are extremely fragile; therefore, educators need to be very careful when handling and transporting.

Enviroscape

This is a table top model of a watershed that can demonstrate results and control of NPS pollution.

Groundwater Model

A plexiglass model that demonstrates groundwater pollution and an aquifer. A lesson plan is available with this model.

Septic System and Drainfield Model

A plexiglass model of a septic tank and drainfield that is an excellent demonstration of how septic systems work. A lesson plan is available with this model.

Soil Testing Kit

Available at the 4-H Center in Columbiana, instructions for use included.

Storm Drain Stencils

Available at the 4-H Center in Columbiana. Good for use in urban areas for stenciling storm drains. Several stencils are available: Dump No Waste - Drains To Stream, Dump No Waste - Drains To Lake, Dump No Waste - Drains To River, Dump No Waste - Drains To Bay, Dump No Waste - Protect Your Ground Water.

Water Test Kit and Bio-Assess Game

Note: These items are not available through ACES; contact the Alabama Water Watch for information and training on water quality testing (334-844-4785).

State and Federal Agencies

Alabama Cooperative Extension System (contact county Extension agent)

The Alabama Department of Conservation and Natural Resources
64 North Union Street
Montgomery, AL 36130
(800) 245-2740

The Alabama Department of Environmental Management (ADEM)
1751 Cong. W.L. Dickinson Drive
Montgomery, AL 36130
(334) 271-7823

Alabama Department of Public Health
434 Monroe Street
Montgomery, AL 36130
(334) 613-5366

Geological Survey of Alabama
Post Office Box O
Tuscaloosa, AL 35486
(205) 349-2852

National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, NC 28801
(704) 259-0682

Tennessee Valley Authority
Water Quality Department Library
Haney Building, 2C
1101 Market Street
Chattanooga, TN 37402-2801
(615) 751-7338

U.S. Army Corps of Engineers
Mobile District
Post Office Box 2288
Mobile, AL 36628-0001
(334) 434-7777

U.S. Department of Agriculture
Natural Resources Conservation Service
Director of Public Affairs
Room 4247-S
South Building
Washington, DC 20013
(202) 205-0026

State Office:
P.O. Box 311
Auburn, AL 36830
(334) 821-8070

U.S. Environmental Protection Agency, Region 4
345 Courtland Street, NE
Atlanta, GA 30365
(404) 347-4727

U.S. Geological Survey
520 South 19th Avenue
Tuscaloosa, AL 35401
(205) 752-8104

Institutions and Companies

Alabama Power Company, Educational Services, P.O. Box 2641, Birmingham, AL. 35282-9984

The Water Course, Clanton, Alabama. This is a center for water and environmental education, a project of Alabama Power Company. It offers hands-on, fun exhibits that highlight Alabama's waterways, geography and environment. Open for field trips and visitors. (800) 280-4442. (www.alapower.com/water/home.html)

Bear Creek Education Center, Rt. 1, Box 124A, Hodges, AL 35571. (205) 935-3696.

Center for Environmental and Energy Education, Science Building Rm. 201, University of Alabama in Huntsville, Huntsville, AL. 35899. (800) 228-5897.

Marine Environmental Sciences Consortium, Dauphin Island Sea Lab, P.O. Box 369-370, Dauphin Island, AL 36528. (334) 861-2141.

Center for Environmental Research and Service, Troy State University, Troy, AL 36082. (800) 642-2377.

The Environmental/Energy Education Center, University of North Alabama, P.O. Box 5139, Florence, AL. 35632. (256) 760-4228.