ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672
7393 SENATE HEALTH EDUCATION & SOCIAL SERVICES

APPENDIX A

LIST OF
ENVIRONMENTAL EDUCATION
TASK FORCE MEMBERS

U.S. Environmental Protection Agency
EnvironmentAL Education Task Fo ce

Co-chairs:

Marylouise Uhlig, EPA
Philip Smith, National Governors' Association

Task Force Members:

Lew Crampton, Office of Communications and Public Affairs
Doug Cooper, Office of the Administrator
Kelly Sinclair, Office of Administration and Resources Management
Gerald Yamada, Office of General Counsel
Jerry Kotas, Office of Policy, Planning and Evaluation
Walt Kovalick, Office of Solid Waste and Emergency Response
Steve Page, Office of Air and Radiation
Jean Croft, Office of Research and Development
Mike Quigley, Office of Water
Renelle Rae, Office of Administration and Resources Management
Anna Virbick, Office of Inspector General
Mildred Trainor, Office of International Activities
Todd Koeze, Office of Congressional and Legislative Affairs
Ramona Trovato, Office of Regional Operations and State/Local Relations
Paul Keough, Region 1
James Marshall, Region 2
Stan Laskowski, Region 3
Vivian Jones, Region 4
Jon Grand, Region 5
Joe Winkle, Region 6
Rowena Michaels, Region 7
Nola Cooke, Region 8
Deanna Wieman, Region 9
Tom Wilson, Region 10

Core Group Members:

Jeuli Bartenstein, Office of Administration and Resources Management
Barbara Burke, Office of Pesticides and Toxic Substances
Kate Connors, Office of Cooperative Environmental Management
Cathy Cowley, Office of Pesticides and Toxic Substances
Michael O'Reilly, Office of Communications and Public Affairs
Heather Schoen, Office of Communications and Public Affairs

APPENDIX B

DETAILED TASKS BY MAJOR ACTIVITY AND AUDIENCE

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Audience	Major Activity	Detailed Tasks
1. K-12th Grade Students	• Stimulate demand for environmental education curricula and teaching material	• Establish membership in group responsible for implementing national testing program. Consider using grant mechanism to fund development of testing material that's appropriate to the three grade levels and then work to incorporate it in the tests. Consult with National Geographic regarding the strategy which they followed to chieve this goal. • Identify groups that are focusing on the teacher training aspect of the national education goals. Establish membership on the appropriate task forces, steering committees, etc., and then work to incorporate available teacher training materials (like Project WILD, National Geographic, etc.) into this evolving program. • Develop an awards/public awareness program re success stories.
	• Develop teaching material, and design a system to make it easily available to teachers	• Use grant to acquire, evaluate, and categorize the material that is currently available. Outputs should include: an inventory of material that's easily accessible by any teacher in country, and is meaningful to a teacher looking for teaching material for a specific grade level; a description of where the gaps are in currently available material (e.g., "there's nothing for K-2 grade levels"); and, where possible, a couple of reasonably comprehensive "packages" for a specific grade level. Focus should be on identifying which subjects are relevant to achieving "environmental literacy," at what grade levels that are now (or should be) taught, and whether "envir. ed" should be a new, stand-alone subject area vs. an enhancement of existing curricula in science, economics, civics, mathematics, computer science, etc. • Use this material to encourage state goals, develop new material for teaching, develop test material, etc.

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Audience	Major Activity	Detailed Tasks
1. K-12th Grade Students (continued)		• In developing tactics to produce and distribute material, emphasis should be on developing a simple, direct, inexpensive mechanism for teachers to find out what's available in the way of "turn-key" teaching packages. Distribution system should be equally simple (e.g., mail order catalogues and 800 lines), and the material should be inexpensive to acquire. • Design a grant-based mechanism to stimulate ongoing development of educational material.
	• Design and implement a support system for educators which makes maximum use of existing mechanisms	• Define the specific areas that this "support system" would be responsible for. Describe the specific services, capabilities, etc. that are necessary to accomplish each role. Analyze the services of existing networks against this list, and identify gaps, etc. • Develop recommendations regarding what structure needs to be put in place, to what extent it would work through existing programs, what role would be played by EPA's regions, etc. • Develop an implementation plan.
	• Enhance the visibility of environmental education as a separate subject	• Design an organizational structure to organize bi-annual forums. Should include responsibility for tracking outcomes of previous forums, and helping regions to conduct "off year" mini-forums. • Design awards program that addresses major barriers to institutionalizing env. ed. in K-12 curricula. Work to ensure that the size of the awards is large enough to get teachers ' attention. Structure process for identifying candidates, picking winners, publicizing results.

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Audience	Major Activity	Detailed Tasks
2. Colleges, Universities, and Schools of Education	• Stimulate demand for environmental education courses	• Focus on states like New York that are already close to establishing teacher certification requirements. Work with them to achieve this goal, and then use lessons learned to counsel/encourage other states. • Coordinate with NGA in their work to develop strategies for governors to follow to improve science/math education programs for teachers. • Use grant money to evaluate existing "in-service" teacher training programs and publicize ones that are effective. • Structure a comprehensive awards program that creates incentives for the higher education community to develop environmental education degree programs, teacher training programs, and environmental career path programs. • Define three or four environmental education/environmental management career paths where a strong job market already exists and develop materials to educate placement office, etc.
	• Provide assistance in developing curricula, degree requirements, and teaching material	• Use grant(s) to evaluate what barriors currently exist to developing and sharing course materials among college/university faculaties. Also focus on defining alternative mechanisms for how to foster collaboration within and among college/university faculties. • Use grant to evaluate what role existing support systems (e.g., Geographic Alliances, National Network for Environmental Education) can play in furthering development of college/graduate level curricula and teaching materials

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Target Audience	Major Activity	Detailed Tasks
3. Community Colleges and Technical Schools	• Stimulate demand for degree programs in environmental education	• Fund a study of current demand for environmental management professionals, where the demand exceeds the supply, where the growth in demand is likely to occur, etc. Use the results to target areas for demo projects with local community colleges/technical schools vis-a-vis starting degree programs to train environmental professionals. Demo projects should include support to the school's career placement staff. • Develop a process for monitoring the success of these programs in attracting students and producing qualified environmental management professionals who are in demand in the job market. • Use the results of this monitoring process to target support for ongoing degree programs, and to advise schools considering starting new ones.
	• Develop process to assemble, evaluate, and disseminate information on curricula and teaching material	• Design a process to collect and evaluate curricula and teaching materials which are in use in successful 2 year degree programs; and to distribute it to community/technical colleges that are interested in starting programs.
4. General Public	• Define strategy to motivate behavior change via more informed personnel and professional choices	• Build upon the initial survey prepared by the Clearinghouse team of the Environmental Education Task Force to identify and categorize the efforts of public, private and non-profit sector organizations who are active in this area. • Define a public awareness program and establish the necessary relationships with key groups.
	• Define process for reaching this audience	• Develop an internal process for working to incorporate specific behavior change messages in the speeches and public activities of senior Agency officials.
	• Develop a process to track progress and reward positive behavior	• Define procedures to monitor behavior and identify examples of progress (e.g., via regions). • Evaluate options for recognizing contributions via awards program.

U.S. Environmental Protection Agency
EnvironmentAL Education Task Force

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recreation. For these reasons and because coastal barriers are so vulnerable to damage from erosion and flood, they are dangerous places to live, expensive places to insure, and the wrong places to build.

The Coastal Barriers Resources System was created 7 years ago to ban Federal flood insurance, housing loans, highway grants, and other support for ecologically harmful development in certain coastal barriers. According to the Department of the Interior, the system has already saved the Federal Government more than $1 billion.

The bill before us today reflects 2 years of hearings, meetings, and site visits conducted by members and staff, using recommendations provided by the Department of the Interior as a starting point. The amendments made by the bill would add over 750,000 acres of undeveloped coastal barriers and associated wetlands to the system. Included in the system, for the first time, would be almost 30,000 acres along the shores of the Great Lakes; 65,000 acres in the Florida Keys; over 20,000 acres in Puerto Rico; and 3,700 acres in the Virgin Islands. Hundreds of thousands of acres of wetlands and secondary coastal barriers along the Atlantic and gulf coasts would be added to the system, as well.

It is important to emphasize that under the bill, citizens will not be prevented from developing currently undeveloped coastal barriers, but they will have to do so, not at the risk of the Federal taxpayer, but at their own risk and expense.

In closing, I would like to thank the chairman of the full committee, the gentleman from North Carolina [Mr. JONES]; the chairman of the Subcommittee on Oceanography and Great Lakes, the gentleman from Michigan [Mr. HERTEL]; and the ranking minority member of our committee, the gentleman from Michigan [Mr. DAVIS]; for their help in bringing this bill to the floor. I also congratulate the junior Senator from Rhode Island for his leadership in gaining approval for the bill in the other body.

Mr. Speaker, it is not often we come up with a program that protects the environment, protects people, and protects the Federal Treasury, but that's what the Coastal Barrier Resources System has been doing for the past 8 years, and that's what this bill will help us do twice as effectively in the future.

Mr. GOSS. Mr. Speaker, I yield myself such time as I may consume.

(Mr. GOSS asked and was given permission to revise and exend his remarks.)

Mr. GOSS. Mr. Speaker, I rise in support of H.R. 2840 and urge its adoption.

H.R. 2840 was passed by the House earlier this year. It is the product of extensive work by House and Senate committees, including hearings, site visits, and consultations with the affected public. The bill we are addressing today contains primarily the House language with the exception of small changes made by the Senate. The members of our committee have examined these changes and found them to be acceptable.

H.R. 2840 is one of those rare pieces of legislation that help protect the environment while saving the taxpayers money. I believe it should be supported by the Members of the House.

Mr. STUDDS. Mr. Speaker, I yield such time as he may consume to the gentleman from Texas [Mr. ORTIZ].

(Mr. ORTIZ asked and was given permission to revise and extend his remarks.)

Mr. ORTIZ. Mr. Speaker, I do support the bill. It is a good bill. I thank the chairman of the committee, the gentleman from Massachusetts [Mr. STUDDS].

Mr. DAVIS. Mr. Speaker, I rise in support of H.R. 2840, a bill that may well affect the lives of the 2,300 Great Lakes landowners who live in my district. The reason I know this is because I contacted every one of them to explain the Coastal Barrier Resources System and to ask for their help in our deliberations. Because of this, I would like to thank Chairmen HERTEL and STUDDS for their extraordinary cooperation in seeing that the extension of the Coastal Barrier Resources System to this new geographic area is done as fairly and accurately as possible. Chairman HERTEL should be especially commended for marshaling this bill through the House and seeing that our interests were protected when the Senate considered this bill.

The bill before us will include 33,000 acres of Great Lakes shoreline and habitat in the system, of which over 13,000 acres are in my district alone. In fact, my district will have more coastal barrier units—36—than any other in the country, and Michigan will have more new CBRA areas—46—than any other State in the Nation, save Virginia and New York.

The areas which were not included in the bill in many cases were misidentified by the Department of the Interior because of outdated maps, unclear aerial photography, and lack of site visits to verify their eligibility. However, the included areas represent the Great Lakes' most fragile coastal shores which are prone to erosion and flooding caused by severe winter storms and which serve as important fish and wildlife habitat.

Mr. Speaker, I urge my colleagues to support the bill as is, which may do much to protect Federal investments when the Great Lakes rise to record levels again, while preserving a delicate balance for those who live and work there. Much time and energy has been spent here, especially by Chairman HERTEL, and we should not leave this legislation unfinished.

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Mr. STUDDS. Mr. Speaker, I have no further requests for time. Let me just assure Members that all the usual and requisite commendations of Members on both sides of the aisle are included in the Extensions of Remarks.

Mr. GOSS. Mr. Speaker, I yield back the balance of my time.

Mr. STUDDS. Mr. Speaker, I yield back the balance of my time.

The SPEAKER pro tempore (Mr. MAZZOLI). The question is on the motion offered by the gentleman from Massachusetts [Mr. STUDDS] that the House suspend the rules and concur in the Senate amendments to the bill, H.R. 2840.

The question was taken and (two-thirds having voted in favor thereof) the rules were suspended and the Senate amendments were concurred in.

A motion to reconsider was laid on the table.

NATIONAL ENVIRONMENTAL EDUCATION ACT

Mr. JONTZ. Mr. Speaker, I ask unanimous consent to take from the Speaker's table the Senate bill (S. 3176) to promote environmental education, and for other purposes, and ask for its immediate consideration.

The Clerk read the title of the Senate bill.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Indiana?

Mr. GOODLING. Reserving the right to object, Mr. Speaker, I will not object, and I take this time only to allow the gentleman to explain his motion.

Mr. JONTZ. Mr. Speaker, will the gentleman yield?

Mr. GOODLING. I yield to the gentleman from Indiana.

Mr. JONTZ. Mr. Speaker, I would be happy to explain.

This is the National Environmental Education Act, S. 3176. This is a revised version of the legislation which passed this House on Friday, September 28.

S. 3176 would establish an Office of Environmental Education within the EPA to administer and coordinate the Federal Government's environmental education contributions.

The bill establishes an environmental education and training program for teacher training in the development and delivery of environmental education programs.

The bill also establishes an environmental educational grant program to support activities of local school systems, colleges, and public broadcasting organizations.

In addition, this legislation would establish college-level environmental internships in Federal agencies and would establish a National Environmental Education and Training Foundation.

The bill authorizes $12 million for each fiscal year 1992 and 1993, $13 million for fiscal year 1994, and $14 million for fiscal year 1995 and 1996 for the EPA and the Foundation for these activities.

Mr. Speaker, I want to take a moment first of all to thank my colleague on the Education and Labor

Committee, the gentleman from California [Mr. MILLER], who introduced the original House legislation; also Chairman HAWKINS, the ranking member; the gentleman from Pennsylvania [Mr. GOODLING], and on our Select Education Subcommittee, Chairman OWENS; the ranking member, the gentleman from Texas [Mr. BARTLETT], and also thanks to Chairman DINGELL of the Energy and Commerce Committee.

Mr. Speaker, I urge support of the Members for this motion.

Mr. GOODLING. Mr. Speaker, I withdraw my reservation of objection.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Indiana?

There was no objection.

The Clerk read the Senate bill, as follows:

S. 3176

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE AND TABLE OF CONTENTS.

(a) TITLE.—This Act may be cited as the "National Environmental Education Act".

(b) TABLE OF CONTENTS.—

SEC. 2. FINDINGS AND POLICY.

(a) FINDINGS.—The Congress finds that—

(1) Threats to human health and environmental quality are increasingly complex, involving a wide range of conventional and toxic contaminants in the air and water and on the land.

(2) There is growing evidence of international environmental problems, such as global warming, ocean pollution, and declines in species diversity, and that these problems pose serious threats to human health and the environment on a global scale.

(3) Environmental problems represent as significant a threat to the quality of life and the economic vitality of urban areas as they do the natural balance of rural areas.

(4) Effective response to complex environmental problems requires understanding of the natural and built environment, awareness of environmental problems and their origins (including those in urban areas), and the skills to solve these problems.

(5) Development of effective solutions to environmental problems and effective implementation of environmental programs requires a well educated and trained, professional work force.

(6) Current Federal efforts to inform and educate the public concerning the natural and built environment and environmental problems are not adequate.

(7) Existing Federal support for development and training of professionals in environmental fields is not sufficient.

(8) The Federal Government, acting through the Environmental Protection Agency, should work with local education institutions, State education agencies, not-for-profit educational and environmental organizations, noncommercial educational broadcasting entities, and private sector interests to support development of curricula, special projects, and other activities, to increase understanding of the natural and built environment and to improve awareness of environmental problems.

(9) The Federal Government, acting through the coordinated efforts of its agencies and with the leadership of the Environmental Protection Agency, should work with local education institutions, State education agencies, not-for-profit educational and environmental organizations, noncommercial educational broadcasting entities, and private sector interests to develop programs to provide increased emphasis and financial resources for the purpose of attracting students into environmental engineering and assisting them in pursuing the programs to complete the advanced technical education required to provide effective problem solving capabilities for complex environmental issues.

(10) Federal natural resource agencies such as the United States Forest Service have a wide range of environmental expertise and a long history of cooperation with educational institutions and technology transfer that can assist in furthering the purposes of the Act.

(b) POLICY.—It is the policy of the United States to establish and support a program of education on the environment, for students and personnel working with students, through activities in schools, institutions of higher education, and related educational activities, and to encourage postsecondary students to pursue careers related to the environment.

SEC. 3. DEFINITIONS.

For the purposes of this Act, the term—

(1) "Administrator" means the Administrator of the Environmental Protection Agency;

(2) "Agency" means the United States Environmental Protection Agency;

(3) "Federal agency" or "agency of the United States" means any department, agency or other instrumentality of the Federal Government, any independent agency or establishment of the Federal Government including any Government corporation;

(4) "Secretary" means the Secretary of the Department of Education;

(5) "local education agency" means any education agency as defined in section 198 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 3381) and shall include any tribal education agency;

(6) "not-for-profit" organization means an organization, association, or institution described in section 501(c)(3) of the Internal Revenue Code of 1986, which is exempt from taxation pursuant to the provisions of section 501(a) of such Code;

(7) "noncommercial education broadcasting entities" means any noncommercial educational broadcasting station (and/or its legal nonprofit affiliates) as defined and licensed by the Federal Communications Commission;

(8) "tribal education agency" means a school or community college which is controlled by an Indian tribe, band, or nation, including any Alaska Native village, which is recognized as eligible for special programs and services provided by the United States to Indians because of their status as Indians and which is not administered by the Bureau of Indian Affairs;

(9) "Federal natural resource management agencies" means the United States Forest Service, the Bureau of Land Management, the National Park Service, and the Fish and Wildlife Service;

(10) "environmental engineering" means the discipline within engineering and science concerned with the development and application of scientific and technical solutions to protecting the aquatic and atmospheric environment, including, but not limited to, all phases of water resources planning, water supply, water treatment, air pollution characterization and control, remediation of hazardous substances, environmental transport of contaminants in surface and ground water and atmosphere, and methods for assessment and control of pollution;

(11) "environmental education" and "environmental education and training" mean educational activities and training activities involving elementary, secondary, and postsecondary students, as such terms are defined in the State in which they reside, and environmental education personnel, but does not include technical training activities directed toward environmental management professionals or activities primarily directed toward the support of noneducational research and development;

(12) "Foundation" means the National Environmental Education and Training Foundation established pursuant to section 10 of this Act; and

(13) "Board of Directors" means the Board of Directors of the National Environmental Education and Training Foundation.

SEC. 4. OFFICE OF ENVIRONMENTAL EDUCATION.

(a) The Administrator shall establish an Office of Environmental Education within the Environmental Protection Agency.

(b) The Office of Environmental Education shall—

(1) develop and support programs and related efforts, in consultation and coordination with other Federal agencies, to improve understanding of the natural and built environment, and the relationships between humans and their environment, including the global aspects of environmental problems;

(2) support development and the widest possible dissemination of model curricula, educational materials, and training programs for elementary and secondary students and other interested groups, including senior Americans;

(3) develop and disseminate, in cooperation with other Federal agencies, not-for-profit educational and environmental organizations, State agencies, and noncommercial educational broadcasting entities, environmental education publications and audio/visual and other media materials;

(4) develop and support environmental education seminars, training programs, teleconferences, and workshops for environmental education professionals, as provided for in section 5 of this Act;

(5) manage Federal grant assistance provided to local education agencies, institutions of higher education, other not-for-profit organizations, and noncommercial education broadcasting entities, under section 6 of this Act;

(6) administer the environmental internship and fellowship programs provided for in section 7 of this Act;

(7) administer the environmental awards program provided for in section 8 of this Act;

(8) provide staff support to the Advisory Council and Task Force provided for in section 9 of this Act;

(9) assess, in coordination with other Federal agencies, the demand for professional skills and training needed to respond to cur-

rent and anticipated environmental problems and cooperate with appropriate institutions, organizations, and agencies to develop training programs, curricula, and continuing education programs for teachers, school administrators, and related professionals;

(10) assure the coordination of Federal statutes and programs administered by the Agency relating to environmental education, consistent with the provisions and purposes of those programs, and work to reduce duplications or inconsistencies within these programs;

(11) work with the Department of Education, the Federal Interagency Committee on Education, and with other Federal agencies, including Federal natural resource management agencies, to assure the effective coordination of programs related to environmental education, including environmental education programs relating to national parks, national forests, and wildlife refuges;

(12) provide information on environmental education and training programs to local education agencies, State education and natural resource agencies, and others; and

(13) otherwise provide for the implementation of this Act.

(c) The Office of Environmental Education shall—

(1) be directed by a Director who shall be a member of the Senior Executive Service;

(2) include a headquarters staff of not less than six and not more than ten full-time equivalent employees; and

(3) be supported by one full-time equivalent employee in each Agency regional office.

SEC. 5. ENVIRONMENTAL EDUCATION AND TRAINING PROGRAM.

(a) There is hereby established an Environmental Education and Training Program. The purpose of the program shall be to train educational professionals in the development and delivery of environmental education and training programs and studies.

(b) The functions and activities of the program shall include, at a minimum—

(1) classroom training in environmental education and studies including environmental sciences and theory, educational methods and practices, environmental career or occupational education, and topical environmental issues and problems;

(2) demonstration of the design and conduct of environmental field studies and assessments;

(3) development of environmental education programs and curriculum, including programs and curriculum to meet the needs of diverse ethnic and cultural groups;

(4) sponsorship and management of international exchanges of teachers and other educational professionals between the United States, Canada, and Mexico involved in environmental programs and issues;

(5) maintenance or support of a library of environmental education materials, information, literature, and technologies, with electronic as well as hard copy accessibility;

(6) evaluation and dissemination of environmental education materials, training methods, and related programs;

(7) sponsorship of conferences, seminars, and related forums for the advancement and development of environmental education and training curricula and materials, including international conferences, seminars, and forums;

(8) supporting effective partnerships and networks and the use of distant learning technologies; and

(9) such other activities as the Administrator determines to be consistent with the policies of this Act.

Special emphasis should be placed on developing environmental education programs, workshops, and training tools that are portable and can be broadly disseminated.

(c)(1) The Administrator shall make a grant on an annual basis to an institution of higher education or other institution which is a not-for-profit institution (or consortia of such institutions) to operate the environmental education and training program required by this section.

(2) Any institution of higher education or other institution (or consortia of such institutions) which is a not-for-profit organization and is interested in receiving a grant under this section may submit to the Administrator an application in such form and containing such information as the Administrator may require.

(3) The Administrator shall award grants under this section on the basis of—

(A) the capability to develop environmental education and training programs;

(B) the capability to deliver training to a range of participants and in a range of settings;

(C) the expertise of the staff in a range of appropriate disciplines;

(D) the relative economic effectiveness of the program in terms of the ratio of overhead costs to direct services;

(E) the capability to make effective use of existing national environmental education resources and programs;

(F) the results of any evaluation under paragraph (5) of this subsection; and

(G) such other factors as the Administrator deems appropriate.

(4) No funds made available to carry out this section shall be used for the acquisition of real property (including buildings) or the construction or substantial modification of any building.

(5) The Administrator shall establish procedures for a careful and detailed review and evaluation of the environmental education and training program to determine whether the quality of the program being operated by the grantee warrants continued support under this section.

(d)(1) Individuals eligible for participation in the program are teachers, faculty, administrators and related support staff associated with local education agencies, colleges, and universities, employees of State education, environmental protection, and natural resource departments, and employees of not-for-profit organizations involved in environmental education activities and issues.

(2) Individuals shall be selected for participation in the program based on applications which shall be in such form as the Administrator determines to be appropriate.

(3) In selecting individuals to participate in the program, the Administrator shall provide for a wide geographic representation and a mix of individuals, including minorities, working at primary, secondary, postsecondary levels, and with appropriate other agencies and departments.

(4) Individuals selected for participation in the program may be provided with a stipend to cover travel and accommodations from grant funds awarded pursuant to this section in such amounts as the Administrator determines to be appropriate.

SEC. 6. ENVIRONMENTAL EDUCATION GRANTS.

(a) The Administrator may enter into a cooperative agreement or contract, or provide financial assistance in the form of a grant, to support projects to design, demonstrate, or disseminate practices, methods, or techniques related to environmental education and training.

(b) Activities eligible for grant support pursuant to this section shall include, but not be limited to, environmental education and training programs for—

(1) design, demonstration, or dissemination of environmental curricula, including development of educational tools and materials;

(2) design and demonstration of field methods, practices, and techniques, including assessment of environmental and ecological conditions and analysis of environmental pollution problems;

(3) projects to understand and assess a specific environmental issue or a specific environmental problem;

(4) provision of training or related education for teachers, faculty, or related personnel in a specific geographic area or region; and

(5) design and demonstration of projects to foster international cooperation in addressing environmental issues and problems involving the United States and Canada or Mexico.

(c) In making grants pursuant to this section, the Administrator shall give priority to those proposed projects which will develop—

(1) a new or significantly improved environmental education practice, method, or technique;

(2) an environmental education practice, method, or technique which may have wide application;

(3) an environmental education practice, method, or technique which addresses a skill or scientific field identified as a priority in the report developed pursuant to section 9(d) of this Act; and

(4) an environmental education practice, method or technique which addresses an environmental issue which, in the judgment of the Administrator, is of a high priority.

(d) The program established by this section shall include solicitations for projects, selection of suitable projects from among those proposed, supervision of such projects, evaluation of the results of projects, and dissemination of information on the effectiveness and feasibility of the practices, methods, techniques and processes. Within one year of the date of enactment of this Act, the Administrator shall publish regulations to assure satisfactory implementation of each element of the program authorized by this section.

(e) Within 90 days after the date on which amounts are first appropriated for carrying out this Act, and each year thereafter, the Administrator shall publish a solicitation for environmental education grants. The solicitation notice shall prescribe the information to be included in the proposal and other information sufficient to permit the Administrator to assess the project.

(f) Any local education agency, college or university, State education agency or environmental agency, not-for-profit organization, or noncommercial educational broadcasting entity may submit an application to the Administrator in response to the solicitations required by subsection (e) of this section.

(g) Each project under this section shall be performed by the applicant, or by a person satisfactory to the applicant and the Administrator.

(h) Federal funds for any demonstration project under this section shall not exceed 75 percent of the total cost of such project. For the purposes of this section, the non-Federal share of project costs may be provided by inkind contributions and other noncash support. In cases where the Administrator determines that a proposed project merits support and cannot be undertaken without a higher rate of Federal support, the Administrator may approve grants under this section with a matching requirement other than that specified in this subsection, including full Federal funding.

(f) Grants under this section shall not exceed $250,000. In addition, 25 percent of all funds obligated under this section in a fiscal year shall be for grants of not more than $5,000.

SEC. 7. ENVIRONMENTAL INTERNSHIPS AND FELLOWSHIPS.

(a) The Administrator shall, in consultation with the Office of Personnel Management and other appropriate Federal agencies, provide for internships by postsecondary level students and fellowships for in-service teachers with agencies of the Federal Government.

(b) The purpose of internships and fellowships pursuant to this section shall be to provide college level students and in-service teachers with an opportunity to work with professional staff of Federal agencies involved in environmental issues and thereby gain an understanding and appreciation of such issues and the skills and abilities appropriate to such professions.

(c) The Administrator shall, to the extent practicable, support not less than 250 internships each year and not less than 50 fellowships each year.

(d) The internship and fellowship programs shall be managed by the Office of Environmental Education. Interns and fellows may serve in appropriate agencies of the Federal Government including, but not limited to, the Environmental Protection Agency, the Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, the Council on Environmental Quality, Federal natural resource management agencies, the Department of Agriculture, and the National Science Foundation.

(e) Interns shall be hired on a temporary, full-time basis for not to exceed 6 months and shall be compensated appropriately. Fellows shall be hired on a temporary full-time basis for not to exceed 12 months and shall be compensated appropriately. Federal agencies hiring interns shall provide the funds necessary to support salaries and related costs.

(f)(1) Individuals eligible for participation in the internship program are students enrolled at accredited colleges or universities who have successfully completed not less than four courses or the equivalent in environmental sciences or studies, as determined by the Administrator.

(2) Individuals eligible for participation in the fellowship program are in-service teachers who are currently employed by a local education agency and have not less than 2 years experience in teaching environmental education, environmental sciences, or related courses.

(g) Individuals shall be selected for internships and fellowships based on applications which shall be in such form as the Administrator considers appropriate.

(h) In selecting individuals for internships and fellowships, the Administrator shall provide for wide geographic, cultural, and minority representation.

SEC. 8. ENVIRONMENTAL EDUCATION AWARDS.

(a) The Administrator shall provide for a series of national awards recognizing outstanding contributions to environmental education.

(b) In addition to such other awards as the Administrator may provide for, national environmental awards shall include—

(1) The "Theodore Roosevelt Award" to be given in recognition of an outstanding career in environmental education, teaching, or administration;

(2) The "Henry David Thoreau Award" to be given in recognition of an outstanding contribution to literature on the natural environment and environmental pollution problems;

(3) The "Rachael Carson Award" to be given in recognition of an outstanding contribution in print, film, or broadcast media to public education and information on environmental issues or problems; and

(4) The "Gifford Pinchot Award" to be given in recognition of an outstanding contribution to education and training concerning forestry and natural resource management, including multiple use and sustained yield land management.

(c) Recipients of education awards provided for in subsection (b) shall be nominated by the Environmental Education Advisory Council provided for in section 9 of this Act.

(d) The Administrator may provide for the "President's Environmental Youth Awards" to be given to young people in grades kindergarten through twelfth for an outstanding project to promote local environmental awareness.

(e)(1) The Chairman of the Council on Environmental Quality, on behalf of the President, is authorized to develop and administer an awards program to recognize elementary and secondary education teachers and their local educational agencies who demonstrate excellence in advancing environmental education through innovative approaches. One teacher, and the local education agency employing such teacher, from each State, including the District of Columbia and the Commonwealth of Puerto Rico, are eligible to be selected for an award pursuant to this subsection.

(2) The Chairman is authorized to provide a cash award of up to $2,500 to each teacher selected to receive an award pursuant to this section, which shall be used to further the recipient's professional development in environmental education.

(3) The Chairman is also authorized to provide a cash award of up to $2,500 to the local education agency employing any teacher selected to receive an award pursuant to this section, which shall be used to fund environmental educational activities and programs. Such awards may not be used for construction costs, general expenses, salaries, bonuses, or other administrative expenses.

SEC. 9. ENVIRONMENTAL EDUCATION ADVISORY COUNCIL AND TASK FORCE.

(a) There is hereby established a National Environmental Education Advisory Council and a Federal Task Force on Environmental Education.

(b)(1) The Advisory Council shall advise, consult with, and make recommendations to, the Administrator on matters relating to activities, functions, and policies of the Agency under this Act. With respect to such matters, the Council shall be the exclusive advisory entity for the Administrator. The Council may exchange information with other Advisory Councils established by the Administrator. The Office of Environmental Education shall provide staff support to the Council.

(2) The Advisory Council shall consist of 11 members appointed by the Administrator after consultation with the Secretary. Two members shall be appointed to represent primary and secondary education (one of whom shall be a classroom teacher); two members shall be appointed to represent colleges and universities; two members shall be appointed to represent not-for-profit organizations involved in environmental education; two members shall be appointed to represent State departments of education and natural resources; two representatives shall be appointed to represent business and industry; and one representative shall be appointed to represent senior Americans. A representative of the Secretary shall serve as an ex officio member of the Advisory Council. The conflict of interest provision at section 208(a) of title 18, United States Code, shall not apply to members' participation in particular matters which affect the financial interests of employers which they represent pursuant to this subsection.

(3) The Administrator shall provide that members of the Council represent the various geographic regions of the country, has minority representation, and that the professional backgrounds of the members include scientific, policy, and other appropriate disciplines.

(4) Each member of the Advisory Council shall hold office for a term of 3 years, except that—

(A) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term; and

(B) the terms of the members first taking office shall expire as follows: four shall expire 3 years after the date of enactment of this Act, four shall expire 2 years after such date, and three shall expire 1 year after such date, as designated by the Administrator at the time of appointment.

(5) Members of the Advisory Council appointed under this section shall, while attending meetings of the Council or otherwise engaged in business of the Council, receive compensation and allowances at a rate to be fixed by the Administrator, but not exceeding the daily equivalent of the annual rate of basic pay in effect for grade GS-13 of the General Schedule for each day (including travel time) during which they are engaged in the actual performance of duties vested in the Council. While away from their homes or regular places of business in the performance of services for the Council, members of the Council shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703(b) of title 5 of the United States Code.

(6) Section 14(a) of the Federal Advisory Committee Act relating to termination, shall not apply to the Advisory Council.

(c)(1) The Federal Task Force on Environmental Education shall advise, consult with and make recommendations to the Administrator on matters relating to implementation of this Act and assure the coordination of such implementation activities with related activities of other Federal agencies.

(2) Membership of the Task Force shall include the—

(A) Department of Education,

(B) Department of the Interior,

(C) Department of Agriculture,

(D) the Environmental Protection Agency,

(E) National Oceanic and Atmospheric Administration,

(F) Council on Environmental Quality,

(G) Tennessee Valley Authority, and

(H) National Science Foundation.

(3) The Environmental Protection Agency shall chair the Task Force.

(4) The Administrator may ask other Federal agencies to participate in the meetings and activities of the Task Force where the Administrator finds it appropriate in carrying out the requirements of this Act.

(d)(1) The Advisory Council shall, after providing for public review and comment, submit to the Congress, within 24 months of enactment of this Act and biennially thereafter, a report which shall—

(A) describe and assess the extent and quality of environmental education in the Nation;

(B) provide a general description of the activities conducted pursuant to this Act

and related authorities over the previous 2-year period;

(C) summarize major obstacles to improving environmental education (including environmental education programs relating to national parks and wildlife refuges) and make recommendations for addressing such obstacles;

(D) identify personnel skills, education, and training needed to respond to current and anticipated environmental problems and make recommendations for actions to assure sufficient educational and training opportunities in these professions; and

(E) describe and assess the extent and quality of environmental education programs available to senior Americans and make recommendations thereon; describe the various Federal agency programs to further senior environmental education; and evaluate and make recommendations as to how such educational apparatuses could best be coordinated with non-profit senior organizations across the Nation, and environmental education institutions and organizations now in existence.

(2) The Federal Task Force on Environmental Education shall review and comment on a draft of the report to Congress.

SEC. 10. THE NATIONAL ENVIRONMENTAL EDUCATION AND TRAINING FOUNDATION.

(a) ESTABLISHMENT AND PURPOSES.—

(1) ESTABLISHMENT.—(A) There is hereby established the National Environmental Education and Training Foundation. The Foundation is established in order to extend the contribution of environmental education and training to meeting critical environmental protection needs, both in this country and internationally; to facilitate the cooperation, coordination, and contribution of public and private resources to create an environmentally advanced educational system; and to foster an open and effective partnership among Federal, State, and local government, business, industry, academic institutions, community based environmental groups, and international organizations.

(B) The Foundation is a charitable and nonprofit corporation whose income is exempt from tax, and donations to which are tax deductible to the same extent as those organizations listed pursuant to section 501(c) of the Internal Revenue Code of 1986. The Foundation is not an agency or establishment of the United States.

(2) PURPOSES.—The purposes of the Foundation are—

(A) subject to the limitation contained in the final sentence of subsection (d) herein, to encourage, accept, leverage, and administer private gifts for the benefit of, or in connection with, the environmental education and training activities and services of the United States Environmental Protection Agency;

(B) to conduct such other environmental education activities as will further the development of an environmentally conscious and responsible public, a well-trained and environmentally literate workforce, and an environmentally advanced educational system;

(C) to participate with foreign entities and individuals in the conduct and coordination of activities that will further opportunities for environmental education and training to address environmental issues and problems involving the United States and Canada or Mexico.

(3) PROGRAMS.—The Foundation will develop, support, and/or operate programs and projects to educate and train educational and environmental professionals, and to assist them in the development and delivery of environmental education and training programs and studies.

(b) BOARD OF DIRECTORS.—

(1) ESTABLISHMENT AND MEMBERSHIP.—(A) The Foundation shall have a governing Board of Directors (hereafter referred to in this section as "the Board"), which shall consist of 13 directors, each of whom shall be knowledgeable or experienced in the environment, education and/or training. The Board shall oversee the activities of the Foundation and shall assure that the activities of the Foundation are consistent with the environmental and education goals and policies of the Environmental Protection Agency and with the intents and purposes of this Act. The membership of the Board, to the extent practicable, shall represent diverse points of view relating to environmental education and training.

(B) The Administrator of the Environmental Protection Agency shall, pursuant to paragraph (2), appoint the Director of the Office of Environmental Education established pursuant to section 3 of this Act as an ex-officio member of the Board. Ex officio membership shall also be offered to other Federal agencies or departments with an interest and/or experience in environmental education and training.

(C) Appointment to the Board shall not constitute employment by, or the holding of an office of, the United States for the purposes of any Federal law.

(2) APPOINTMENT AND TERMS.—(A) Members of the Board shall be appointed by the Administrator of the Environmental Protection Agency.

(B) Within 90 days of the date of the enactment of this Act, and as appropriate thereafter, the Administrator shall publish in the Federal Register an announcement of appointments of Directors of the Board. At the same time, the Administrator shall transmit a copy of such announcement to the Education and Labor Committee and the Committee on Energy and Commerce of the House of Representatives and the Committee on Environment and Public Works of the United States Senate. Such appointments shall become final and effective 90 days after publication in the Federal Register.

(C) The directors shall be appointed for terms of 4 years, except that the Administrator, in making the initial appointments to the Board, shall appoint 5 directors to a term of 2 years, 4 directors to a term of 3 years, and 4 directors to a term of 4 years. The Administrator shall appoint an individual to serve as a director in the event of a vacancy on the Board within 60 days of said vacancy in the manner in which the original appointment was made. No individual may serve more than 2 consecutive terms as a director.

(3) CHAIR.—The Chair shall be elected by the Board from its members for a 2-year term.

(4) QUORUM.—A majority of the current membership of the Board shall constitute a quorum for the transaction of business.

(5) MEETINGS.—The Board shall meet at the call of the Chair at least twice a year. If a Director misses three consecutive regularly scheduled meetings, that individual may be removed from the Board and that vacancy filled in accordance with this subsection.

(6) REIMBURSEMENT OF EXPENSES.—Members of the Board shall serve without pay, but may be reimbursed for the actual and necessary traveling and subsistence expenses incurred by them in the performance of the duties of the Foundation.

(7) GENERAL POWERS.—(A) The Board may complete the organization of the Foundation by—

(i) appointing officers and employees;

(ii) adopting a constitution and bylaws consistent with the purposes of the Foundation and the provisions of this section; and

(iii) undertaking such other acts as may be necessary to carry out the provisions of this section.

(B) The following limitations apply with respect to the appointment of officers and employees of the Foundation:

(i) Officers and employees may not be appointed until the Foundation has sufficient funds to pay for their service. Officers and employees of the Foundation shall be appointed without regard to the provisions of title 5 of the United States Code, governing appointments in the competitive service, and may be paid without regard to the provisions of chapter 51 or subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, except that no individual so appointed may receive pay in excess of the annual rate of basic pay in effect for grade GS-18 of the General Schedule.

(ii) The first officer or employee appointed by the Board shall be the Executive Director of the Foundation who (I) shall serve, at the direction of the Board, as the Secretary of the Board and the Foundation's chief executive officer, and (II) shall be experienced in matters relating to environmental education and training.

(c) RIGHTS AND OBLIGATIONS OF THE FOUNDATION.—

(1) IN GENERAL.—The Foundation—

(A) shall have perpetual succession;

(B) may conduct business throughout the several States, territories, and possessions of the United States and abroad;

(C) shall have its principal offices in the District of Columbia or in the greater metropolitan area; and

(D) shall at all times maintain a designated agent authorized to accept service of process for the Foundation.

The service of notice to, or service of notice upon, the agent required under paragraph (4), or mailed to the business address of such agent, shall be deemed as service upon or notice to the Foundation.

(2) SEAL.—The Foundation shall have an official seal selected by the Board which shall be judicially noticed.

(3) POWERS.—To carry out its purposes under section 10(a) of this Act, the Foundation shall have, in addition to the powers otherwise given it under this section, the usual powers of a corporation acting as a trustee, including the power—

(A) to accept, receive, solicit, hold, administer, and use any gift, devise, or bequest, either absolutely or in trust, of real or personal property or any income therefrom or other interest therein;

(B) to acquire by purchase or exchange any real or personal property or interest therein;

(C) unless otherwise required by the instrument of transfer, to sell, donate, lease, invest, reinvest, retain, or otherwise dispose of any property or income therefrom;

(D) to sue, or to be sued, and complain or defend itself in any court of competent jurisdiction, except that the Directors of the Board shall not be personally liable, except for gross negligence;

(E) to enter into contracts or other arrangements with public agencies and private organizations and persons and to make such payments as may be necessary to carry out its functions; and

(F) to do any and all acts necessary and proper to carry out the purposes of the Foundation.

(d) CONDITIONS ON DONATIONS.—

(1) For the purposes of this section, a gift, devise, or bequest may be accepted by the

Foundation even though it is encumbered, restricted, or subject to beneficial interests of private persons if any current future interest therein is for the benefit of the Foundation.

(2) No donation, gift, devise, bequest, property (either real or personal), voluntary services, or any other thing of value may be accepted by the Foundation if it—

(A) is contingent upon the transmission by the Foundation of materials or information prepared by the donor or a third party in such a fashion as to convey a particular point of view favorable to the economic interests of the donor or its constituents or associates; or

(B) in the judgment of the Board carries with it an explicit or implied requirement on the part of the Foundation to do a specific act or make general representations which are to the benefit of the donor and which are not consistent with the environmental and education goals and policies of the Environmental Protection Agency and with the intents and purposes of this Act.

(3) No materials bearing "logos", letterhead or other means of identification associated with a donor or third party may be transmitted by the Foundation for use in environment education and training except as required pursuant to subsection (f).

(e) ADMINISTRATIVE SERVICES AND SUPPORT.—Subject to the requirements of this subsection, the Administrator may provide personnel, facilities, and other administrative services to the Foundation, including reimbursement of expenses under subsection (b)(6) of this section, not to exceed then current Federal Government per diem rates, for a period of up to 4 years from the date of enactment of this Act, and may accept reimbursement therefor, to be deposited in the Treasury to the credit of the appropriations then current and chargeable for the costs of providing such services. With respect to personnel, the Administrator may provide no more than 1 full-time employee to serve the Foundation in a policy capacity, and may provide clerical and other support staff at a level equivalent to 2 full-time equivalent employees to the Foundation, for a period not to exceed 2 years from the date of initial assignment of any personnel for this purpose.

(f) REPORT.—The Foundation shall, as soon as practicable after the end of each fiscal year, transmit to Congress a report of its proceedings and activities during the year, including a full and complete statement of its receipts, expenditures, and investments.

(g) VOLUNTEER STATUS.—The Administrator may accept, without regard to the civil service classification laws, rules, or regulations, the services of the Foundation, the Board, and the officers and employees of the Board, without compensation from the Environmental Protection Agency, as volunteers in the performance of the functions authorized herein, in the manner provided for under this section.

(h) AUDITS AND PETITION OF THE ATTORNEY GENERAL FOR EQUITABLE RELIEF.—For purposes of the Act entitled "An Act for audit of accounts of private corporations established under Federal law", approved August 30, 1964 (Public Law 88-504; 36 U.S.C. 1101-1103), the Foundation shall be treated as a private corporation established under Federal law.

(i) UNITED STATES RELEASE FROM LIABILITY.—The United States shall not be liable for any debts, defaults, acts, or omissions of the Foundation nor shall the full faith and credit of the United States extend to any obligation of the Foundation.

(j) AMENDMENT AND REPEAL.—The Congress expressly reserves the right to repeal or amend this section at any time.

SEC. 11. AUTHORIZATION.

(a) There is hereby authorized to be appropriated to the Environmental Protection Agency to carry out this Act not to exceed $12,000,000 for each fiscal year 1992 and 1993, not to exceed $13,000,000 for fiscal year 1994, and not to exceed $14,000,000 for each fiscal year 1995, and 1996.

(b) Of such sums appropriated in a fiscal year, 25 percent shall be available for the activities of the Office of Environmental Education, 25 percent shall be available for the operation of the environmental education and training program, 38 percent shall be available for environmental education grants, 10 percent shall be available for support of the National Environmental Education and Training Foundation, and 2 percent shall be available to support awards pursuant to section 8(e) of this Act.

(c) Funds appropriated pursuant to this section may be made available to the National Environmental Education and Training Foundation to—

(1) match partially or wholly the amount or value of contributions (whether in currency, services, or property) made to the Foundation by private persons and State and local governments; and

(2) provide administrative services under section 10(d) of this Act

provided that the Administrator determines that such funds will be used to carry out the statutory purposes of the Foundation in a manner consistent with the goals, objectives and programs of this Act.

The Senate bill was ordered to be read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

GENERAL LEAVE

Mr. JONTZ. Mr. Speaker, I ask unanimous consent that all Member may have 5 legislative days within which to revise and extend their remarks and include therein extraneous material on S. 3176, the Senate bill just passed.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Indiana?

There was no objection.

ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore The Chair will take 1-minute speeches.

THE SUMMIT AND THE MIDDLE EAST CRISIS

(Mr. GONZALEZ asked and was given permission to address the House for 1 minute, to revise and extend his remarks, and to include extraneous material.)

Mr. GONZALEZ. Mr. Speaker, I had anticipated addressing the House later, perhaps at the time that we would have completed all business. It pertains to a matter that is both sad, distressing, and disappointing for me to speak as I feel impelled I must.

When we adjourned on August 3 last, there were intimations that the President would take action with respect to the invasion of Kuwait.

As a matter of fact, no sooner were we adjourned, the President went to Camp David, decisions were made and announcements were made the following week that an expeditionary force would be considered and probably be sent.

The other thing was that the President held a conference and announced the Democrats who were participating in the so-called summit at Andrews Air Force Base, blaming them for the obstacilization that led to an inconclusive result. That bothered me considerably, because I had been very critical of the process of what I considered to be the equivalent of a super markup, in secret, and above all tragically labeled a summit, as if we had two foreign potentaries deliberating, instead of two of our most important branches of the Government, and in secret.

So I then wrote a letter to the Speaker and pled with him to open up the sessions of the so-called economic summit or budget summit. Naturally, the Speaker has not replied to the request, did not and has not since then.

In that letter, I pointed out that it was tantamount to a super markup session, and that we held our markups in open session and that when we did, we had results and that everyone would be privy to who said what, what positions were taken by what Member, and therefore these charges that were inflaming passions on a partisan basis in an election year would be diminished and probably avoided. I still feel that way.

The results, as I predicted, were that if leaders do not lead, if leaders do not communicate, the odds are great that they will lose their following, and this happened to both the President and the congressional leaders in that rather sad result in voting down that budget resolution. It was inevitable.

After all, we are peers in this body. If we elect our leaders, which is the prerogative of the majority, it is very much like the President. The President is not superior under our Constitution. He is a first among equals, as Madison so aptly put it, and it is the same thing with our leadership.

So I then became alarmed when the news was announced and the chairman of the Joint Chiefs, Gen. Colin Powell made speeches and denunciated the Iraqi leader. This to me was unheard of. This was something that, yes, the President we could see would be very critical of this rather unwholesome personage, but for the chief military leader to be out denouncing the ruler of another country, unpopular as he might be, seemed to me to be out of keeping with the position of the military.

□ 0330

Then the announcement of the calling up of the Reserves. It seems to me that clearly here it was the duty of

THE ECOKID CORPS

School-age crusaders can be a pain in the neck, but they may be the best hope for the cause of preservation

By PHILIP ELMER-DEWITT

Kimberly Carr, 10, of Montgomery, Vt., recycles her garbage and is designing a board game in which the goal is to save the elephants. Elizabeth Bayley, 17, is active in a Seattle-based youth group that organizes tree plantings, stencils storm drains with DUMP NO WASTE notices and monitors pollution in Puget Sound. Jeremiah Johnson, 10, from Brentwood, N.Y., puts his McDonald's detritus in recycling bins, tells his mother how long it takes each shopping bag to biodegrade and intervenes whenever his younger brother is about to commit an environmental outrage, like pulling the legs off a defenseless (and ecologically valuable) spider.

These determined do-gooders are just a few of the ecokids, the new generation of conservation-conscious, environmentally active schoolchildren. The Earth Day ardor of their parents may be cooling, but these pint-size crusaders have lost none of theirs. Bombarded with ecomessages in school, in the press, on TV and in pop-music lyrics, the youngsters have become convinced that they were put on the planet for the express purpose of saving it.

At Tecumseh Elementary School in Xenia, Ohio, children pour lunchroom scraps into the compost heap of their "land lab" behind the school

Pledging to do their part for the environment, thousands of youngsters celebrated Earth Day in New York City's Central Park last April

The trend is a natural, especially for the sons and daughters of thirty- and forty-something parents raised during the activist 1960s. "Environmentalism is youthful now in the way that feminism was in the late '60s," writes Rosalind Coward in the British magazine *New Statesman & Society*. "It is the dominant political concern among the young, the main place where perceived discontents are articulated."

That is true in other countries as well. Swedish school kids have bought and preserved 65,000 hectares (160,000 acres) of virgin rain forest in Costa Rica with money earned collecting old newspapers and recycling aluminum cans. Japanese students have mounted a campaign to eliminate disposable wooden chopsticks and replace them with reusable plastic models. Children in one Soviet town were able to persuade the sluggish local government to hasten construction of a roundabout that would allow traffic to bypass the center of town and thus reduce pollution. In Brazil the number of nongovernment environmental groups has swelled from 500 three years ago to nearly 4,000; they include many children.

But nowhere is the kiddie movement stronger than in the U.S. Youngsters are picketing supermarkets, boycotting restaurants and writing Congressmen, sometimes on recycled paper they have painstakingly mixed, pressed and dried themselves. The White House reports that it receives hundreds of environmental entreaties every day from citizens too young to make their views known in the ballot box.

Their efforts can be surprisingly effective. Barbara Lewis' sixth-grade class at Jackson Elementary School in Salt Lake City not only pressured the Environmental Protection Agency into clearing a 50,000-bbl. hazardous waste dump but helped push through a reluctant state legislature a bill to pay for such cleanups. "Parents believe you can't beat city hall, and find reasons not to get involved," says Andrew Altman, a spokesman for Greenpeace. "Kids don't have that kind of cynicism. They just get things done."

The younger generation's feelings about the environment have not escaped the notice of corporate America. Many companies, including fossil fuel–burning utilities and the manufacturers of nonbiodegradable plastics, have begun looking for ways to present a better face to their future clientele. *Recycle This*, a professional theater production touring U.S. high schools and featuring rock-'n'-roll and rap songs about landfills and solid waste, is sponsored by Dow Chemical, a major producer of polystyrene.

Activists eager to mobilize children do not hesitate to use show biz, though some might call it propaganda. Turner Broadcasting is producing a half-hour syndicated cartoon show in which a superhero named Captain Planet and a youth corps called the Planeteers valiantly fight villainous polluters like Dr. Blight. The back cover of one issue of *P3* (for Earth, the third planet from the sun), a glitzy new environmental magazine for kids, shows a Teenage Mutant Ninja Turtle shouting to readers, "Hey, dudes! Earth is a cowabunga planet! Let's keep it radical!"

The kids do not need much convincing. Like their parents, who remember the nuclear-blast drills of the 1950s and grew up fearing the Bomb, they have heard frightening stories of leaking waste drums, growing ozone holes and vanishing species. "I hope the earth is O.K. when I grow up," says young Kimberly Carr, speaking for many in her generation, "because I don't want to have to find another place to live." —*Reported by Janice M. Horowitz/New York, with other bureaus*

Santa begins down at an undetermined pedestrian who passes by, braving the cold. This particular Santa has been spreading advertising words for Coca-Cola at the intersection of Sixth Avenue and

be there today as the December skies clear and a chilly north wind picks up to 15 mph — dropping the wind chill to 30 below by this afternoon. But the weather is expected to warm up Monday.

this, but I get several requests a month asking for some variation of the word fornicator," she said with a laugh. "You know, they'll use 4NCATR or FRNKTR, or

plop as many as 200 applications on her desk at once.

Ever see tags with the prefixes TOY or CAL? They belong

See Plates, page A11

School reforms are making the grade

Alaska educators find new solutions to old problems

By NANCY PRICE
TIMES WRITER

There's a quiet revolution being waged in Alaska education in the state's largest cities and a tiny Eskimo village, from the North Slope to Southeast.

On the front lines are school teachers, university faculty and parents, armed with a variety of battle plans but sharing a common goal: to improve their local schools and give students a fighting chance at academic success.

Alaska has more than its share of what educators call "at-risk" students who, because of physical, mental or sexual abuse, parental neglect, drug or alcohol abuse and frequent transfers to new schools, are likelier to fail in school and drop out, thus crippling their chances for success later in life.

State officials estimate that 80 percent of Alaska's at-risk students are Natives whose battle against low self-esteem sometimes ends in alcohol or substance abuse or suicide.

But with the help of public and private universities, local schools with high numbers of at-risk students are being restructured with programs and curriculum that address their needs.

The schools' efforts are being boosted by a small federal grant making a big difference for hundreds of Alaska school children.

The state was awarded a 3-year, $200,000 annual grant from the U.S. Department of Education's Fund for the Improvement and Reform of Schools and Teaching.

Alaska's was one of 1,350 proposals submitted to the U.S. Education Department, of which only 15 were chosen for funding, said J. Kelly Tonsmeire, director of the Coalition for Alaskan At-Risk Youth and the Alaska Staff Development Network in Juneau and the proposal's architect.

"The focus is on school restructuring," Tonsmeire said.

See Schools, page A8

Times photo by ROB LAYMAN

Cale Witham, left, and Cody Davis, third-graders at Denali Elementary School in Fairbanks, examine the remnants of the Pedro Dome fire collected by the class on a science field trip this fall. The fifth-graders collected burned insects, leaves and charred aluminum cans. Denali is one Alaska school developing new teaching techniques to improve academic success. In today's story the Times profiles efforts at Denali, Point Hope, Sitka and two Anchorage schools to make education more relevant and help at-risk children.

ANCHORAGE TIMES DEC. 16, 1990

Schools

Continued from page A1

"We need dramatic alternatives to meet the needs of kids. Kids today have a lot of problems, compared to when you and I were going to school."

Training seminars and workshops have taken place throughout the state, providing teachers with nontraditional skills useful in educating at-risk students.

But the project is most visible at five schools — two in Anchorage, and one each in Fairbanks, Point Hope and Sitka, where science, extensive teacher training, visits by village elders and peer counseling are making a difference.

NEARLY 300 MILES north of Anchorage, the students at Fairbanks' Denali Elementary School are learning about the environment, Alaska's boreal forests, magnetism, snakes and acid rain.

Denali, nicknamed "The Discovery School," is the state's first science magnet elementary.

A 40-year-old, two-story cinderblock building in Fairbanks' downtown, Denali is the district's oldest continuously operating school. In the past, the multicultural student body — nearly half the students are minorities — had low standardized test scores and a demoralized faculty.

But now student performance is skyrocketing, teacher vacancies are few and far between, and many of the school's 450 students are talking about becoming scientists when they grow up.

When she was younger, Angela Ernst wanted to become an artist. But about two years ago, "all of a sudden I started thinking about whales and stuff," the fifth grader said. "Now I want to be a marine biologist. One night I started thinking up questions, like, do they sing the same songs, or different ones? Also I'd like to go to where they sell fishing (drift) nets and make them stop."

Third-grader Jaren Philleo "used to hate math," reports her mother, Barbara. "But in the car on the way to school she told me she likes to do math homework. Whether that has to do with the math-science emphasis I can't say, but she's definitely an artsy-letters type of person."

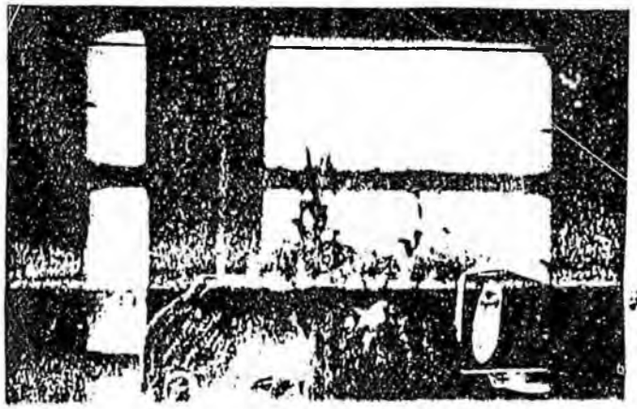
The idea of a science magnet school developed during a discussion about two years ago among a few teachers and parents, said principal David Hagstrom and Sandy Lanning, a physical education teacher.

"We asked, are we really doing enough inside school to tap how kids are?" Lanning said. "We said, yeah, we ought to do more exploring inside of school. Instead of being wedded to some boring science textbook, we should let them discover things for themselves."

Denali's transformation into a magnet school occurred with little capital expense, said Hagstrom, an associate professor of education at the University of Alaska Fairbanks who was granted a 3-year leave to become Denali's principal.

"We decided at the beginning we were talking about a mind set," he said. "Other schools get themselves all equipped and then teachers are slow to use the equipment. I've seen it with computers. We decided to go at it differently."

Point Hope elder Irene Gallhorn tells tales of going to reindeer camp when she was a little girl as fourth-grader Helen Attungana listens in disbelief.



Nearby woods serve as the school's outdoor laboratory, where students can study trees, leaves and the occasional wild animal.

The school also has a garden, suggested and supervised by parent Jan Hanscom, where students learn how plants grow. Parents constructed grow carts last year so plants can get an early start on Fairbanks short growing season.

What the school saved on equipment is going for manpower. The school hires substitutes on Fridays to fill in for regular classroom teachers when they meet with UAF professors to explore science and devise the curriculum.

Knowing that their teachers are also students has been an exciting discovery for Denali's youngsters, Lanning said.

Edith Dunshew's sixth-graders, she goes back to her class and they ask, 'Hey, what did you learn today?' " she said. "She tells them, 'Hey, I have an assignment due,' and they help her with the assignment."

Denali's teachers decided to concentrate on science in part because elementary teacher training usually focuses on language arts and social studies, said Bruce Tillitt, the school's curriculum specialist.

But the teachers knew they needed help and called on Doug Schamel, an instructor in biology and wildlife at UAF's College of Natural Sciences, and Nancy Murphy, an assistant professor of education with the Rural College.

"When they're learning about a topic and how to go about teaching it, they feel a couple of things," Schamel said. "It's the same things their students feel when they're introduced to a new topic — 'Aaaargh' — and then, 'wow, this is fun.' "

Schamel said imparting the process of science is one of his goals, because it will enable teachers to become "comfortable investigating something where they may not have much information. If they're brave enough, they can learn with their students."

The attitudes of the teachers toward their instructors has changed perceptibly over the past year and a half, Murphy said.

"When Doug came in, people were very honored, and acted like 'What can you do for us?' " she said. "It's evolved into, 'That's nice, but what do we really need? What can we tell the university that teachers need? And they're seeing Doug take their suggestions back."

The science instruction absorbed by teachers is being integrated into the entire curriculum, including reading and social studies.

"One of the reasons I was glad to come here is because science is a wonderful way to get children to start building language," said Felicia Leipzig, who is in her second year as Denali's reading specialist. "People are beginning to integrate more of their day. We've got to put it all together in an integrated way. I'm probably the biggest advocate of the garden — it's a wonderful experience."

Even the youngest students get a regular science diet. Kindergarten teacher Katie Brown explained how she used poems from a reading series to teach math concepts.

With the poem "Crackers and Crumbs," she gave the students plastic bags with crackers and had the students count and sort the crackers and then graph the results.

For "Nine Things I Like To Keep In My Pocket," students were given magnetic and nonmagnetic items and then predicted which would stick on different surfaces.

On a recent Friday, third-graders learned about the after effects on flora and fauna of last summer's Pedro Dome fire in a slide show presentation by fifth grade students Jim Adams and Mike Fink.

Afterward, they handled specimens such as tree sections and leaves that students collected on a visit to the burned forest.

"Ooh, I have a stinker bug," one student commented as he gazed into a specimen container.

"Use your magnifying glass," a nearby student urged.

Meanwhile, fifth-graders were turning their downstairs classroom into a jungle, complete with crepe paper palm trees, a waterfall of blue paper stuck to the blackboard, insects created from modeling clay, snakes constructed out of balloons and papier-mache and a purple flamingo.

Later the students wrote short essays about crash-landing on a desert planet surrounded by the sights and sounds of their "jungle."

Denali's reform is succeeding because parents, teachers, school staff and students consider themselves members of the "Denali family," all responsible for the school's success, Hagstrom said.

"This is allowing change to be occurring from the inside out," he said. "I've been irritated for years because someone from Washington or Juneau or the school district tells you what you have to do. This project encompasses a lot of local initiative in terms of folks doing the kinds of things they identify as important. That's when people get excited."

The school's scores on last spring's Iowa Tests of Basic Skills bear testimony to the school's renaissance.

"Generally, Denali started below the rest of the district and gained substantially more than the rest of the district," said Nick Stayrook, director of program planning and evaluation for the Fairbanks North Star Borough School District.

Gains were posted in each grade level in math and science. The biggest gain came in the fourth grade science scores, which jumped from the 60th to the 71st percentile.

"When you have a standardized test like the Iowa Basic to change five to 10 points, something significant is happening," Stayrook said.

The project has reaped other bonuses, said Tillitt, the school's curriculum specialist.

"One, there's a lot more parent involvement and input," he said. "Two, it's helped the faculty to pull together and focus our energies for the good of the kids. And three, it's had a positive impact on the students, not only in science and math but on school in general. They can see the connections between what we do in school and life outside school."

ANCHORAGE'S MOUNTAIN VIEW Elementary School, a 25-year-old school on the southern boundary of Elmendorf Air Force Base, and downtown Denali Elementary School, the city's oldest school, see transient students come and go on a too-regular basis.

Both schools faced an explosion in their student population this year, with 630 students at Mountain View and 470 at Denali.

"Some schools change year to year," said Denali's principal, Susan Moore. "In this school, it changes week to week."

"There's no continuity in education," said Marsha Van Abel, a language arts specialist at Mountain View. "They're (students) not at risk because they cannot do the work. But when they're here three months and there three months, there are gaps in their education."

Transiency puts students such as Mountain View's Robert Felthauser and Rose Watson at risk of failure. Both are students in Roger McCommon's sixth grade class, a mix of special education and gifted students. Felthauser, 13, said he has attended eight different elementary schools, while Watson, 11, has lost track of how many schools she

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Bruce Tillitt, the curriculum specialist at Denali Elementary School in Fairbanks, leads his class of teachers in a new science module.

Crawford Philleo, a kindergarten student at Denali Elementary in Fairbanks, listens to a read-along book during his free time in class. The 5-year-old was just awarded the school's terrific kid award.

determine the age of the wood.

Photos by Rob Layman — Story by Nancy Price

Sixth-grade student Jason Tiepelman at Tikigaq Elementary School, left, studies hard during a history lesson. Tiepelman, like most Tikigaq students, is learning Inupiat in the new bilingual program in this small Point Hope school. Above, Roger McCommon, a sixth-grade teacher at Mountain View Elementary School in Anchorage, helps student Monica House with a graph during a science lesson.

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has attended but knows she has attended "more than Robert."

They have benefited this year from the arrival of University of Alaska Anchorage and Alaska Pacific University students, all education majors, who in turn are benefiting from the opportunity to work with at-risk kids.

The presence of university students helps decrease Mountain View's and Denali's class sizes, a district-wide problem for the Anchorage School Board.

Having more teachers in the classroom "helps us keep in line," said Nick Kison, 12, one of McCommon's sixth graders. "When we're doing something, there's more to watch over us."

"Sometimes one teacher can't go all the way around the room," added his classmate, 11-year-old Aminah Abdul-Jilill.

Multiple teachers can be confusing occasionally, Watson reports, "when one teacher is talking and another starts to talk."

But students adapt pretty quickly, Felthauser said: "It's just another person in to start the work."

View's federal Chapter 1 math and home-based computer instructor, who works with disadvantaged students. "They know if they can ask questions in private, they're more apt to raise their hands."

"Some researchers say class size doesn't make much of a difference, but at work time, that's when it makes a difference," Van Abel said. "For a lot of children, it's important for them to know that someone really cares about me, to get one-on-one time, which they may not get during the rest of the day."

Because they are getting more attention, students are less apt to act up in class and more apt to learn, Williams said.

But for the university students, more teachers may not necessarily be better, said Kathy Smith, who is earning her teacher's certificate at UAA.

"I was the first, and as we get more and more practicum students it falls apart. You're just one of them," she said. "The rapport seems to diminish."

However, Smith added, she has observed her fellow students, each of whom uses a different style and methods to connect with the students, and "so maybe it's better to have more."

Kids at Mountain View face a tough existence. Murders, rape and shootings are common occurrences in the community, and kids bring the

But students' self-esteem and academic performance have been improving gradually, school officials say.

Scores from this fall's Iowa Tests of Basic Skills were available only for the schools' fourth and sixth grades. A comparison with last year's scores indicates a drop in reading and math scores at both schools.

But Moore and Mountain View's principal, Linda Black, said comparisons are meaningless because of the schools' high rate of student transiency.

"Matching them from last fall to this fall has not happened yet," Black said. "We expect to have that information by January."

Student academic improvement is showing in other areas. For example, Mountain View won the math derby the last two years in a row, whereas the school used to come in last, McCommon said.

Students are benefiting as well from a slowdown in teacher transfers, which used to occur too regularly at Mountain View.

"At-risk youth are typically from homes where there's a high turnover of parents," said Cable Starlings, an assistant professor of education at UAA. "Schools used to be a safe place. But teachers were turning over as fast as parental figures."

Turnover slows when teachers are properly prepared for teaching at-risk children, and so university students and first-year teachers are getting

Continuity for students, however, is provided by the village elders who come to Tikigaq to unfold facets of the Inupiat culture so students "would learn how the old days are," elder Irene Gallahorn said.

Money from the federal grant is used to pay the elders $25 for each nine-hour visit.

An elder's arrival in a classroom brings a dramatic transformation among otherwise rambunctious students.

When the 63-year-old Gallahorn entered the fourth grade classroom recently, the students became quiet and quickly pulled their chairs in a half-circle around her.

"What you guys want to hear about stories, what kind of stories?" she said.

"Old-time stories," came the response.

So Gallahorn told them about her life in a reindeer herding family, showing them a photograph of her father standing next to a reindeer.

"Every winter we have to move to our camp," she said. "We had mukluks — no boots, no tennis shoes — caribou skins, pants, parkys and mittens. We had a wood stove and made the fire — no electric. We were busy every day. We chopped wood and went hunting for rabbits and ptarmigan."

Because there were no gas lamps, "we would take caribou fat," Gallahorn said. "You have to chew it and put it in a cloth and light it. It was bright."

Credit for creating the elder visit program goes in part to Steve Grubis, who was Tikigaq's principal last year but subsequently returned to UAF's Rural College, where he is an associate professor of cross-cultural education.

But credit also goes to Connie Oomittuk, an Ohioan who met Point Hope Native Steve Oomittuk when both worked in Barrow. After they married, the Oomittuks returned to Point Hope to raise their family.

Connie Oomittuk, who is working toward her master's degree in curriculum development through UAF while serving as the elder visit coordinator at Tikigaq, taught at the school last year and was instrumental in developing projects that drew elders to school.

Under the elders' guidance, students worked on a variety of projects, including building an umiak — a bearded sealskin whaling boat — learning about butchering seals and making nahuaq, or seal skin that is bleached white.

Students say they like learning about their traditions from the elders.

"Some of the elders teach us about our lands, they tell us where to go and stuff, like the Kukpuk River," said Calvin Oktoilik, 15, a ninth-grader.

Interest among students in school is heightened, and that may be leading to higher standardized test scores.

The sixth and seventh grade classes, that had the most involvement with elders last years, had the biggest gains on last spring's Iowa Tests of Basic Skills.

The sixth-graders' average vocabulary scores climbed by almost 20 points over a year, from the 33rd to the 52nd percentile, while math computation scores climbed from the 50th to the 61st percentile.

Likewise, the seventh-graders' average scores skyrocketed, with scores in three categories at or near the 75th percentile. Vocabulary increased from the 68th to the 57th percentile, while math computations rose from the 57th to the 64th percentile.

However, principal Terry Fenne urges caution in interpreting the test score increases.

'We said, yeah, we ought to do more exploring inside of school. Instead of being wedded to some boring science textbook, we should let them discover things for themselves.'

— Sandy Lanning, teacher

Lucas Voelker, 8, a third-grader at Denali Elementary School in Fairbanks, uses a magnifying glass to count the rings on a charred piece of wood from the Pedro Dome fire. Counting the rings helps determine the age of the wood.

as mentors at Mountain View and Denali.

The schools are using some of the grant to hire substitutes who fill in for mentor teachers, allowing them to observe other teachers in action and engage in team teaching.

"It has changed my attitude toward teaching," said Katherine O'Mara, a kindergarten teacher at Denali. "There's no hierarchy but a group approach, how we can group ourselves and improve our skills.

"I find myself more prepared for everything that comes up because of the support around me. That's a benefit to the students."

Mentoring can encourage new teachers, who might otherwise become discouraged, to remain in the teaching profession, Tonsmeire said.

"Nationally, half leave in the first four to five years because their experience is so rocky," he said. "We're trying to set up a system to encourage them to be successful."

Veteran teachers like Denali's Mary Doppelfeld and Paula Hite get a professional boost knowing their experience is valued by younger teachers and university faculty.

"It's the first time we've been consultants," said Doppelfeld, a 25-year veteran who teaches second grade. "It's a new concept for us. We like to feel, when we've been in teaching as long as we have, that we can make a difference."

"It's become a two-way exchange of information," said Paula Hite, who teaches first-graders. "At least they're listening when we say there's a need for this kind of training."

And university education officials are definitely paying attention, Starlings said.

"We in higher education haven't given them the opportunity to be leaders in their field," he said. "It's almost as if you have to go off and get a doctorate. But you don't.

"There's no professional development ladder for classroom teachers. Most don't want to be administrators — they want to work with kids. This is a way for them to feel like experts in their field. To me, they are adjunct faculty members."

TEACHER TRANSIENCY IS a problem as well at Tikigaq School in Point Hope, an Eskimo village on the edge of the Chukchi Sea nearly 500 miles northwest of Anchorage.

Tikigaq, a sprawling kindergarten to 12th grade school which dominates the village's center, is plagued with a high annual turnover. This fall about three-fourths of the school's 21 teachers were newcomers, mostly experienced teachers hired from Outside.

The barren Arctic environment and Point Hope's remote location can be overwhelming for the teachers, but their continual arrival and departure is disruptive to students.

Continuity for students, however, is provided by the village elders who come to Tikigaq to unfold

Learning

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"It's a little dangerous to compare groups of kids," he said. "It's too small a sampling, and too many other factors can affect it."

But Tikigaq's scores run contrary to those of other North Slope Borough School District schools, which declined over the past four years, Fenne said.

"To say the elders were responsible for this, no," he said. "But to believe it didn't work, no. It gave them more peace, more concrete experiences. So when it came to more theoretical learning, they were more prepared."

Studies have shown that schools achieve the most gains in literacy where students are exposed to oral stories and open-ended discussions, because "you need a good oral background before you can understand the written word," Oomittuk said.

However, the program could be more effective if teachers could better integrate the elders' lessons into the curriculum, she said.

"The thrust of this is to let teachers know they have something else to offer, not just Western education," she said. "The ideal would be to have teachers incorporate it with the curriculum. But it takes a lot of planning and time teachers don't have."

In Greg Kingsley's fourth grade class, for example, students drew pictures of a traditional story told recently by elder Kirk Oviok Sr. about how a hunter loses his arrows on the ice, and when confronted by a polar bear, grows a set of tusks and scares the bear away.

In Dana Bartman's sixth grade class, two timelines were taped to the blackboard so students could compare Chinese and Point Hope civilizations side by side.

Although the elder visits have the enthusiastic support of the community, a snag has developed. Because the elders have waited nearly two months for their pay, some are reluctant to return to Tikigaq.

"Steve Grubis made such a big deal last year, saying 'We value what you have to teach. We'll pay you. It's as important as Western education,' " Oomittuk said. "Now they're not paying them. They feel like they're being taken advantage of again."

But the pay snafu should be cleared up in a week or two, Grubis said last week.

"We've had a real hassle with that," he said. "One of the problems with federal money is it has to go to Juneau first, and then to the university, so you're dealing with two large bureaucracies. Last year I was on-site and able to borrow funds until the federal funds were available."

Suspicion of educators remains for many in the North Slope village of 600. And with good reason.

In the past the school was run by outsiders who tried to stamp out all signs of Inupiat culture. Ella Kowunna, who at 17 years has the longest tenure among Tikigaq's teachers, recalls that when she was a youngster growing up in Point Hope, teachers would tape students' mouths shut for speaking their Native language.

Teacher Dorcus Rock remembers a time when she was in the seventh grade and gave an oral report on her summer vacation.

"The class was real quiet, and afterward the teacher, he gave me an F," she said. "I went home and wouldn't come out of the bathroom, so my uncle got mad and went to school and found out I did it all in Eskimo. I was bilingual and didn't know it — I didn't know if I was speaking in English or Eskimo."

Ironically, Rock is now the school's bilingual teacher, instructing students in Inupiaq, the same language their parents and grandparents were punished for speaking.

Overcoming the villagers' suspicion of school is difficult, but the elders' visits appear to be making a difference, Oomittuk said.

"I see this program, the whole goal, of turning the school back over to the community," she said. "For 100 years, the school was separate, a domineering force, and a lot of parents and grandparents in school had negative experiences. I'm almost hesitant to say this, but I think they're taking it out on the school now, for what the BIA (Bureau of Indian Affairs) did before.

"I wish they could forget the past, but it's a heavy thing to do to kids."

The students are learning from elders outside the classroom as well, Oomittuk said.

"Last year we had a three-week unit on seals, and we were preparing sealskin in the classroom. The smell of rotting sealskin in your classroom is a heavy thing to do, and we started to take on the smell.

"The girls in class cried — 'How could you do this to us?' — but when they went home on the bus one of the elders noticed the smell and just praised them, saying, 'You smell like a real Eskimo. You're going to be the ones who know how to do it. Never complain about the smell of animals, it insults the animals.'

"The next day at lunch, some students started giving them a hard time, and they turned and said, 'Don't you ever complain about the smell of an animal!' "

KEEPING STUDENTS IN school and encouraging Native students to consider a teaching career are among the goals of Mt. Edgecumbe High School, the state's boarding high school in Sitka, 450 miles southeast of Anchorage.

The federal grant is helping school officials achieve those goals, said Larrae Rocheleau, the school's superintendent.

Two Mt. Edgecumbe graduates have been hired as resident assistants "primarily as a counseling tool, but in minority settings," Rocheleau said. "They're excellent role models. And they've helped us with some substance abuse things. It seems we're on top of things quicker."

In exchange for serving as resident assistants, the graduates get free room and board and free tuition at the University of Alaska Southeast's Sitka campus.

The number of homesick students who decide to leave Mt. Edgecumbe has been cut from 15 to 5 this year, he said. "We think it's a direct result of that program."

In addition, Mt. Edgecumbe is preparing to start a future teacher program to encourage its Native students to become teachers, "especially secondary teachers," Rocheleau said. "Alaska has a gap of secondary teachers, especially Natives."

Currently 15 of Mt. Edgecumbe's 213 students are in the program.

The future teachers will be traveling to colleges and to observe teacher training programs in and out of Alaska, Rocheleau said.

The school also used part of its grant money last year to do its first survey of recent graduates, resulting in some interesting findings, he said.

"We found that 37 percent of the graduates were still enrolled in a post-secondary institution, of which 80 percent were Natives," Rocheleau said. "That's a pretty impressive statistic."

Superintendent aims to link cultures in school

Patsy Aamodt was a teacher in Point Hope when the North Slope Borough School District was formed in 1973.

In those days, teaching materials were in short supply. Most school buildings were cramped and falling apart. Administrators had to worry as much about running out of fuel as raising student test scores.

Patsy Aamodt

Seventeen years later, the district is up to national standards in terms of facilities and staffing. Its focus is now on academics. And Patsy Aamodt is beginning her first full year as the district's first Inupiaq superintendent.

Patsy still remembers some of the lessons she learned as a teacher in Point Hope. One of those lessons had to do with the importance of conducting the educational process in terms that kids understand.

Qausagniq spoke with Patsy about the challenge of education and its relationship to Inupiaq culture. Here are some of her comments.

* * *

"One of my priorities is to formally acknowledge that we are here on the North Slope. In trying to teach concepts, we have to start with the knowledge and the environment that is here. Kids learn best when they start with things that are familiar to them.

"For example, if a teacher is doing a unit on fish, he or she should start with pictures of the kinds of fish we catch around here. If they're doing a lesson on the water cycle, use photographs of our lakes and our ocean and our land to show how it works here.

"Some teachers have been doing this, and they've had great success with it.

"One teacher brought whaling captains into the classroom. She used them to teach her students about the reasons for things.

"The whaling captains told the kids why it's important to be quiet and follow directions when you're out on the ice. Otherwise you might lose a whale.

"They also explained that there needs to be a person in charge in order to be successful in the hunt.

"Afterwards the teacher appointed 'whaling captains' among her students to make sure that papers got passed out or to be line leaders.

"The children learned two things from this. They learned about the concepts of being quiet and following directions. They also learned that their parents' way of life is okay. It has to be okay, because the teacher used that way of life in her teaching.

"So we've been using this approach, but only in pockets. Now we're going to do it district-wide. We're formally telling teachers that they have lots of local resources.

"We have Inupiaq cultural learning banks at all the schools. Elsie Itta is our new Coordinator for Cultural Integration. She will work closely with teachers throughout the district to help them incorporate local materials in the curriculum. We're just taking what's around us into the classroom.

"I think my role as Superintendent is to see how it all connects. I have to make sure we're connecting to both worlds. This was not done in the past. That's why a lot of our parents have painful memories of schooling. We don't need to shut out the Inupiaq world to teach basics." Δ

Healing ourselves from fears

Old fears oppress us. They can hamper our growth. We learn nothing from them.

Yet many of us continue to be afraid, for reasons we have long since forgotten or never knew. Our bodies sometimes carry the weight of these old fears. A cringing of the shoulders or a knot in the gut may be part of the legacy.

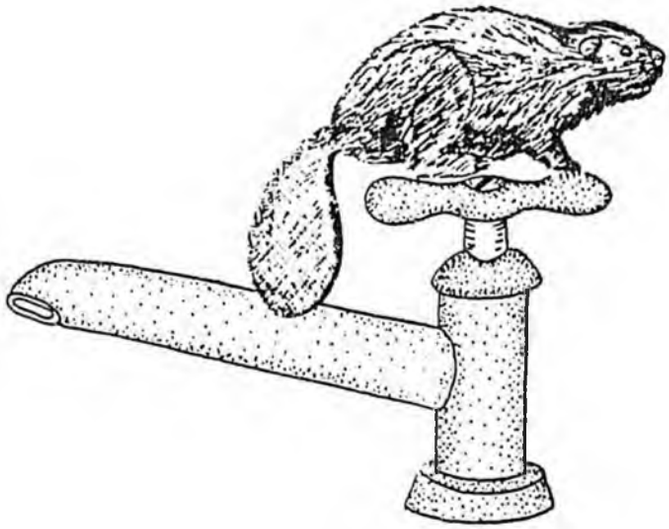
Our growth as free beings may depend on shedding these old fears. They are as real as viruses, and they make us ill in similar ways.

When we discard old fear, we have a sense of liberation. Whatever wound that old fear was protecting can be healed. We are ready to face life as it comes, not as we fear it might come.

Healing myself empowers me to shed the fears that limit my growth.

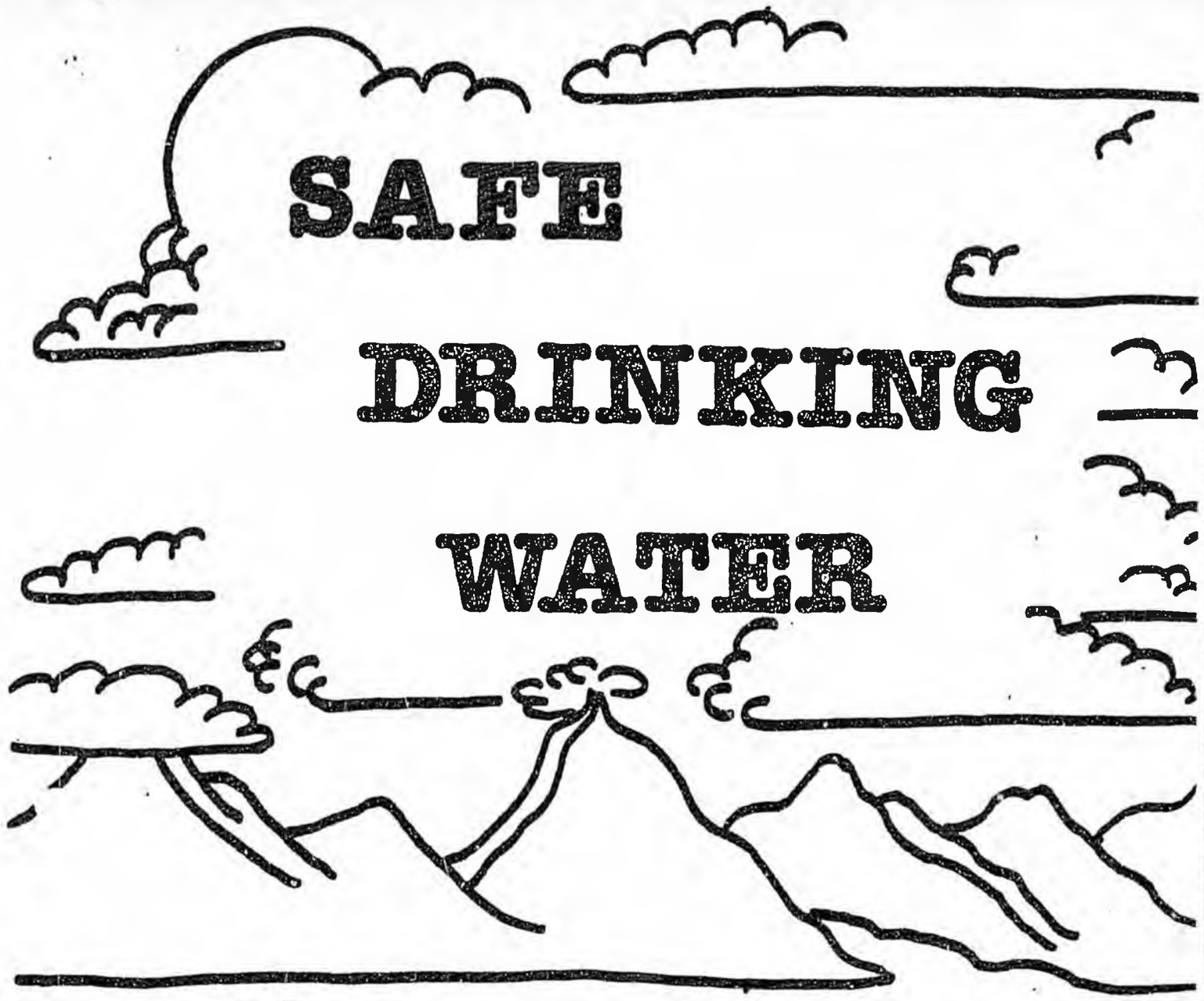
- A health tip from the NSB Health Educator

SAFE DRINKING WATER FOR ALASKA



Curriculum For Grades 1 - 6

SAFE DRINKING WATER



GRADES 1-3

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Safe Drinking Water

Introduction:

The next five lessons teach two concepts:

1. Water travels in complete cycles
2. Drinking water is susceptible to contamination.

The lessons emphasize an overall familiarity with the water cycle rather than memorizing specific stages of the cycle.

The first two lessons introduce the idea that water is a limited resource which is continually reused and explores the origin of drinking water including how that supply is dependent on the water cycle. These units establish a basic understanding of the importance of pure, unpolluted water. Vocabulary can be kept to a minimum. The teacher may wish to substitute basic synonyms for the stages of the water cycle -- clouds for evaporation and vapor, rain for precipitation, etc. The reading is for oral reading by the teacher and lends itself to a show-and-tell presentation using a water cycle transparency.

Lesson three ties the problems of water pollution in with the water cycle and drinking water concepts. Introduced as pollution-caused health problems, are micro-organisms. Lessons four and five introduce treatment methods for handling the water pollution problem. Chlorination is introduced in the classroom as a method to purify water, and a trip to the local water treatment facility provides a concrete reference for the concepts of water pollution and safe drinking water.

Flexibility is a prime goal in the use of these lessons. The lessons may be taught in any order depending on the needs of the students and the availability of resources.

Objective: Students will be able to color a picture depicting the water cycle and indicate in written or oral form how water is reusable.

Materials:

- Small pot
- Hot plate
- 8" x 10" or larger sheet of glass, metal (anything with a hard, non porous surface)
- 2 pot holders
- Crayons
- 1 student response sheet: "Color the Water Cycle" (pg. 12)
- 1 reading material, "The Water Cycle" (pp. 8-11)
- Glass of water
- Village water cycle poster

Introduction: This unit will establish that water is reusable. The term "water cycle" is generally used with children when referring to this concept. The reading material which accompanies this unit is designed to present that concept to young children. Depending on the age and experiences of the group you are working with, the information will have to be tailored to meet their needs.

Vocabulary Preparation:

cycle	vapor	surface
huddle	moist	condensation
moisture	evaporation	droplets

Instructional Activities:

1. Pre-heat a pot of water to near boiling on the hot plate.

(lead-off question)

2. Ask, what is a cyc[illegible] [illegible]ers will refer to motorcycle or bicycle, use the idea of a wheel going around and around to reinforce concepts of a cycle in nature). "Today, we're going to learn about the "water cycle".

3. Show a world map/globe. Ask students, "What does the blue on the map mean?"

4. Ask, "When rain falls on us, where does it come from?"

5. Ask, "Where do the clouds come from?"

6. Tell the students that they will see how rain is formed.

7. Place the pot of hot water on the hot plate until the water begins to boil.

8. With the pot holders, put the piece of nonporous material (glass or plastic makes viewing the condensation easier) over the pot to allow the steam to collect.

(follow-up questions)

9. As the droplets form, grow heavy, and fall, ask, "How many ways did we see the water? Was there a time when we could not see the water?"

10. Review and read material in "The Water Cycle", pg. 8-11 adapting to student level of understanding in reference to the demonstration.

11. "After seeing our experiment, can you tell which part is like the rain? Which part is like a river? Which part is like the sun?"

12. "If the "rainwater" was left in the cup for a long time, what would happen to it? Why?"

13. Ask, "Can you make new water?" (No, all the earth's water is part of a water cycle, reused in one form or other repeatedly).

14. Show a glass of drinking water and ask, "Where does your water come from?" Lead the students through a possible cycle of the water based on the demonstration.

15. Read and share pg.13.

16. Exhale close to the chalkboard so that moisture from your breath makes a dark, wet spot. Trace the spot with chalk and ask why the spot is darker than the rest of the chalkboard? Where did the moisture come from? (inside the lungs*) Fan the spot to make the molecules move faster and watch the spot disappear.

17. Introduce the word evaporation. Write it on the board and clap out the syllables as children say it. Discuss the root word vapor. Vapor is water that has been heated to form a gas we can't see.

    What are some ways you can make water evaporate or jump into the air? (heating, boiling).

(student response)

18. Hand out the "Color the Water Cycle", pg. 12, response sheets and crayons and ask the students to color the parts of the water cycle.

* Moist lung tissue lets gases of air dissolve to pass in and out of our bodies.

Additional Activities:

1. Using the village water cycle poster, tell a story about a drop of water -- where it has been, who has used it and for what, what shapes it has taken. This could be done orally, through a drawing sequence, or in written form.

2. Be a water detective. Play "I Spy" on drawing paper: show as many forms of water (rain, dew, cloud, ice), uses for water (drinking, washing, transportation, cooking), and sources of water (ground, stream, air, tap, well) as the student/detective can identify. This can be shown in list or drawing form.

3. (Grades K-1) Create a choreographed water cycle, using children and simple props to act out rivers, oceans, clouds, raindrops and the progression of these through the water cycle.

4. Follow a small stream to its source and see where it originates. Ask students to point out plants, insects, and perhaps larger animals which depend on the stream for living space, food, protection, reproduction. You might explain these needs according to the level of understanding of your group. Where does this water come from? Who might use it further along?

5. Write a short poem (haiku style or other) about rain, dewdrops, fog, snow.

6. Have student relate personal experiences with one of the forms of water i.e. A Day in the Snow, Lost in the Fog, A Boat Trip, Ice Fishing, etc.

7. Have the students write or tell why: "I like 'water' because...or 'fog' or 'snow' or 'ice' etc.

8. Have students bring in magazine photos illustrating the different stages of the water cycle. Make a bulletin board display of the photos.

9. "Peter's Magical Water Journey" Have high school students/guest speakers do narrative using pictures previously colored by the students.

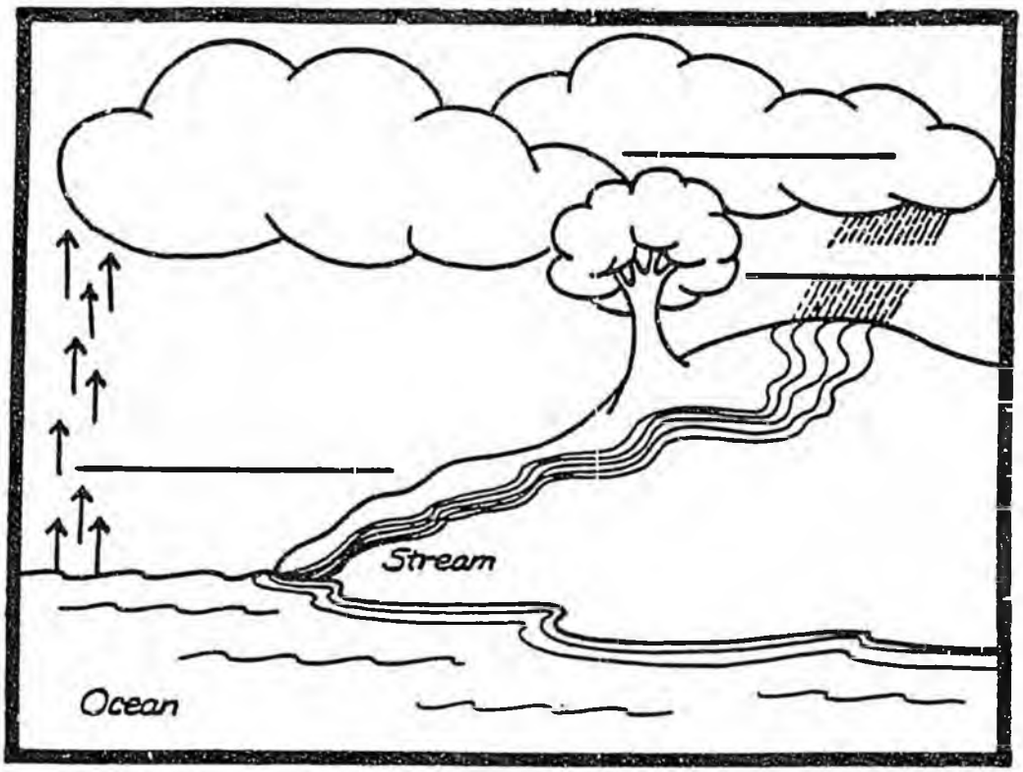
Suggested Speakers

Have you ever noticed on maps of the world all the water areas covering the earth - oceans, lakes, rivers and streams? Water covers most of the earth. It appears in many places in many forms in a regular cycle.

To understand this cycle, look at the earth and see how much of it is water. The sun shines on the rather flat water and heats it. As the water grows hotter, some is bumped off into the air. These tiny bits of water in the air become like a small, warm, moist cloud. (This process is known as evaporation.)

Water as a vapor cannot be seen. When we see steam rising from a pan of hot water on a stove, we have actually seen water changed before our eyes from a liquid to a vapor and then back to a liquid again in the form of tiny little droplets. But we haven't seen the vapor. For as soon as the vapor has risen from the boiling water into the cooler air, the bits of water slow down and begin to huddle close together. The cooler air changes the vapor back into tiny little droplets. (This is called condensation.) We can change the tiny little steam droplets to larger droplets by suddenly placing a cold metal pan in the path of the steam and holding it there for a while.

The vapor from the oceans (or from other water surfaces such as rivers, lakes etc.) is warmed by the sun. As warm air always rises, the vapor rises, higher and higher, until it begins to cool in the high cooler air. The vapor then starts to change back into tiny droplets of moisture much at it did in the case of the hot water pan on the stove. But the droplets of moisture rising from the ocean cover a great area and are carried around by wind and air.



As time goes on, a cloud is formed. As the cloud is carried into colder areas, the tiny little droplets, in turn, group together - sometimes in enormous amount to form a single raindrop. With rain, the oceans are filled and the cycle is completed.

A cloud is a mass of tiny droplets which are too light-weight to fall through the air. When, by grouping together, the droplets reach a size large and heavy enough to fall without evaporating again before they hit the earth, they may fall as raindrops. In very cold upper air, the vapor closes together and becomes ice crystals, which fall as snowflakes.

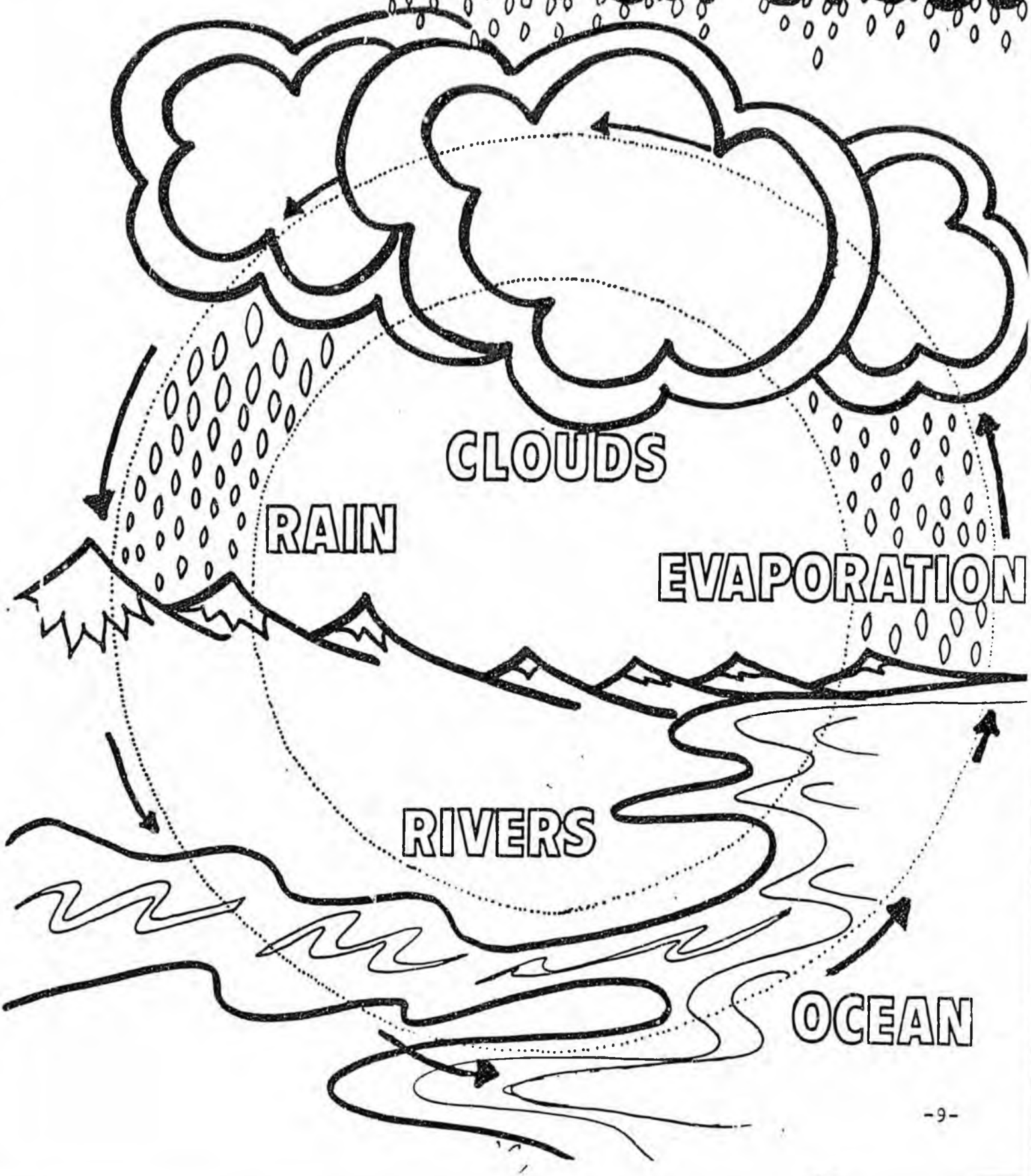
At sometime, raindrops leave their cloud and fall. In falling, they may take a shape as long and thin as a hot dog or as round and flat as a pancake. They may even be shaped like a dumbbell. Of course, not all the drops fall back into the ocean, for the clouds may have been carried many miles away by wind and air. Where the raindrops fall on the land, they may run together and flow down mountainsides as streams. The streams become rivers that carve deeper and deeper river beds on their way to sea.

The world's water stays on the move. Two weeks from now there will still be water in the sky, but hardly any of it will be the same water that's there now. The water that's there now will have rained down, and freshly evaporated water will have replaced it.

The amount of water in the world stays the same. Almost all the water in our present world is the same water that has always been here.

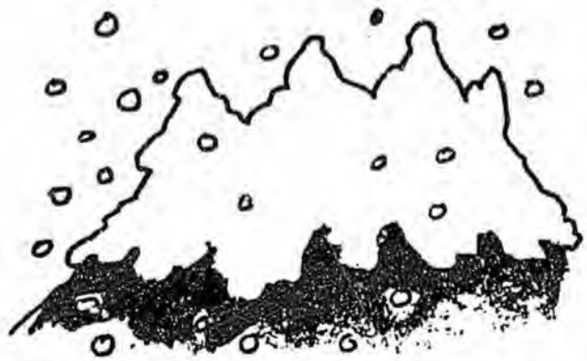
Who knows where the water in your next glass of water you drink will have been before? Some of it may have flowed through the deepest ocean or some may have been drunk by a dinosaur. Imagine drinking the same water a dinosaur did - a four billion-year-old glass of water. That's the magic of the water cycle.

COLOR the WATER CYCLE

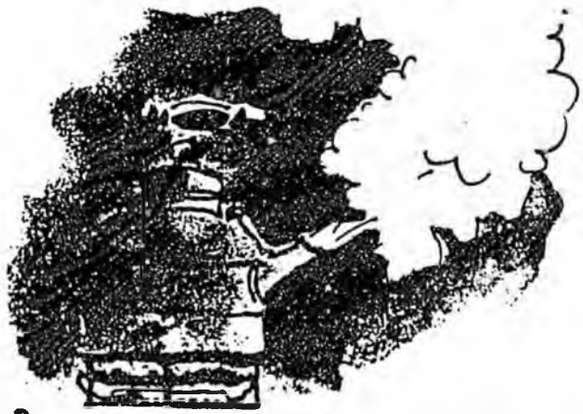


Water..

We see water in lakes and rivers, pools and ponds, puddles and oceans. We need water to cook, wash, drink and swim. We use pipes to bring water to our faucets..



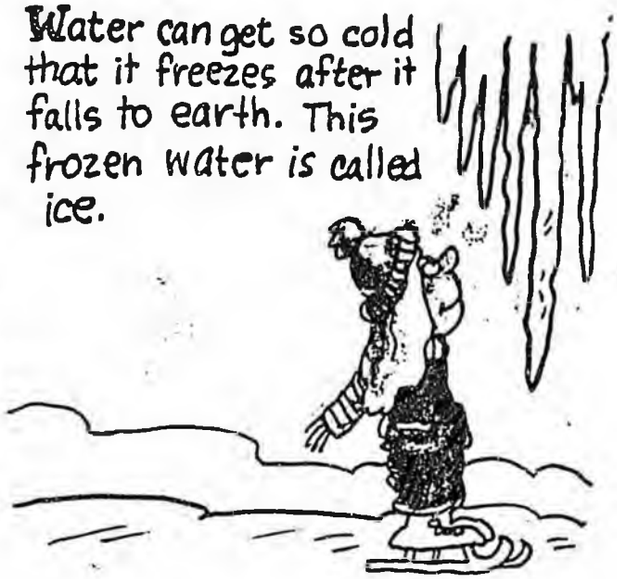
Sometimes water freezes in the sky and falls to earth in tiny flakes. Then we call it snow.



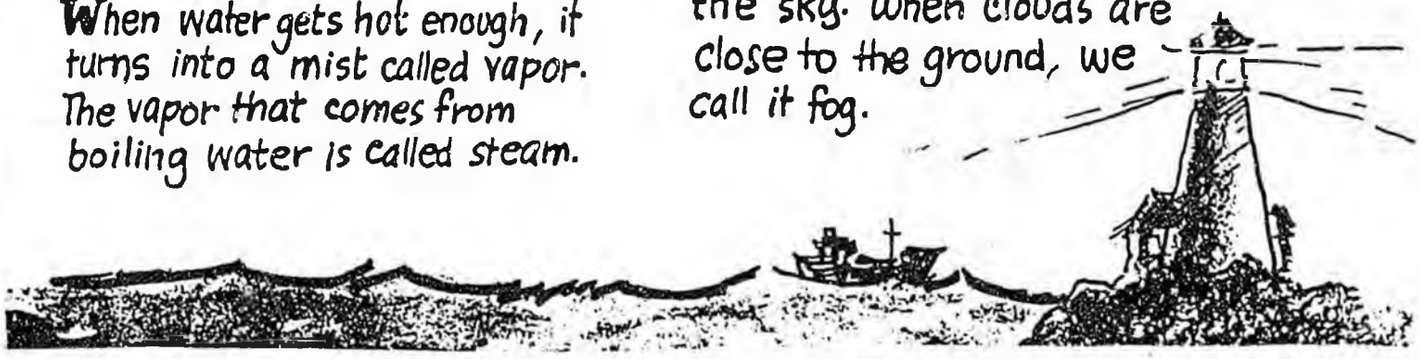
When water gets hot enough, it turns into a mist called vapor. The vapor that comes from boiling water is called steam.

Water falls from the sky as a liquid. We call it rain.

Water can get so cold that it freezes after it falls to earth. This frozen water is called ice.



Water vapor forms clouds in the sky. When clouds are close to the ground, we call it fog.



"Water Fun" State of California, Dept. of Water Resources,
P.O.Box 942836, Sacramento, CA 94236-0001

Lesson II **Drinking Water** (Grades 1-3)

Objective: Students will be able to answer questions in written or oral form following a media presentation on the subject of safe drinking water, to the satisfaction of the teacher.

Materials:

- 3 Transparency Masters (pp. 17-19)
- 2 Line drawings - #4, #5 (pp. 20-21).
- The following list of films and books are obtainable from the Alaska State Library system in Juneau or Anchorage. These suggested materials are designed for primary and lower elementary grade children. Each one presents a perspective on safe drinking water.
- Safe Drinking Water poster

Introduction: This lesson should extend the concept of water cycle to the water used for drinking. Students should understand that the water they consume has a specific origin which is referred to as a water supply and that supply is dependent on the water cycle.

Water systems in Alaska vary greatly from region to region. Become familiar with the water system in your community. Refer to the community water system(s) in the course of the lesson. This series of lessons will culminate with a suggested trip to the local water treatment facility and/or water supply. The students should be prepared to apply this new information to a "real life" situation in their community.

Instructional Activities:

1. Ask, "how can water get polluted? (trash, honey buckets or human waste, boat discharge, gas, animal waste, decaying fish, etc.).

2. Show transparencies IIA and IIB or hand out xerox copies illustrating unhealthy water source environments. Ask the students to identify the source of pollution in each picture. For IIA, ask how the rubbish might have gotten into this water supply. For IIB, ask in what ways boats can pollute water sources. Ask for a show of hands of those who would drink from the water source shown in each transparency.

3. Use drinking water poster to discuss various uses of water in a village. Explain to the group that they will now view a film showing how good water is important to people and must be from a clean, safe place. They should watch to learn where drinking water comes from and how it gets to their homes.

4. Screen the selected film. (If a film is not available, choose the appropriate line drawing pg. 7 to explain where water comes from. Emphasize that water is in a use cycle and must come from a point where it may have other users.)

5. Not all communities in Alaska are fortunate enough to have water piped into each home, nor do all communities have convenient sources of water. This shows why water pollution, even seemingly far from human populations, may eventually cause problems for safe drinking water. Picture on pg. 21 could be used to depict how water is distributed to individual houses through a system of underground pipes.

6. Discuss with the group the sources of water used in the community in which you live (river, stream, dam, well, ice cutting, purification). Emphasize that none of the water sources are any better or worse than another.

(student response)

7. Possible questions for discussion. Ask, "Do you know where your water comes from? What would happen if it did not rain this year? What would the water be like if someone dumped garbage in the water supply?"

8. Show transparency IIC or hand out xerox copies illustrating an unhealthy water source environment. Ask the students to identify the pollution which threatens the safeness of this water supply. (It is considered unhealthy because of the decaying fish and animal contamination.) Discuss how the problem illustrated was created and what can be done about it. (There is a need to purify the water in some way. Ask the students if they can think of ways to purify drinking water.)

Additional Activities:

1. Write a story about the life-giving qualities of water (begin with a title such as "Crashed in the Arctic").

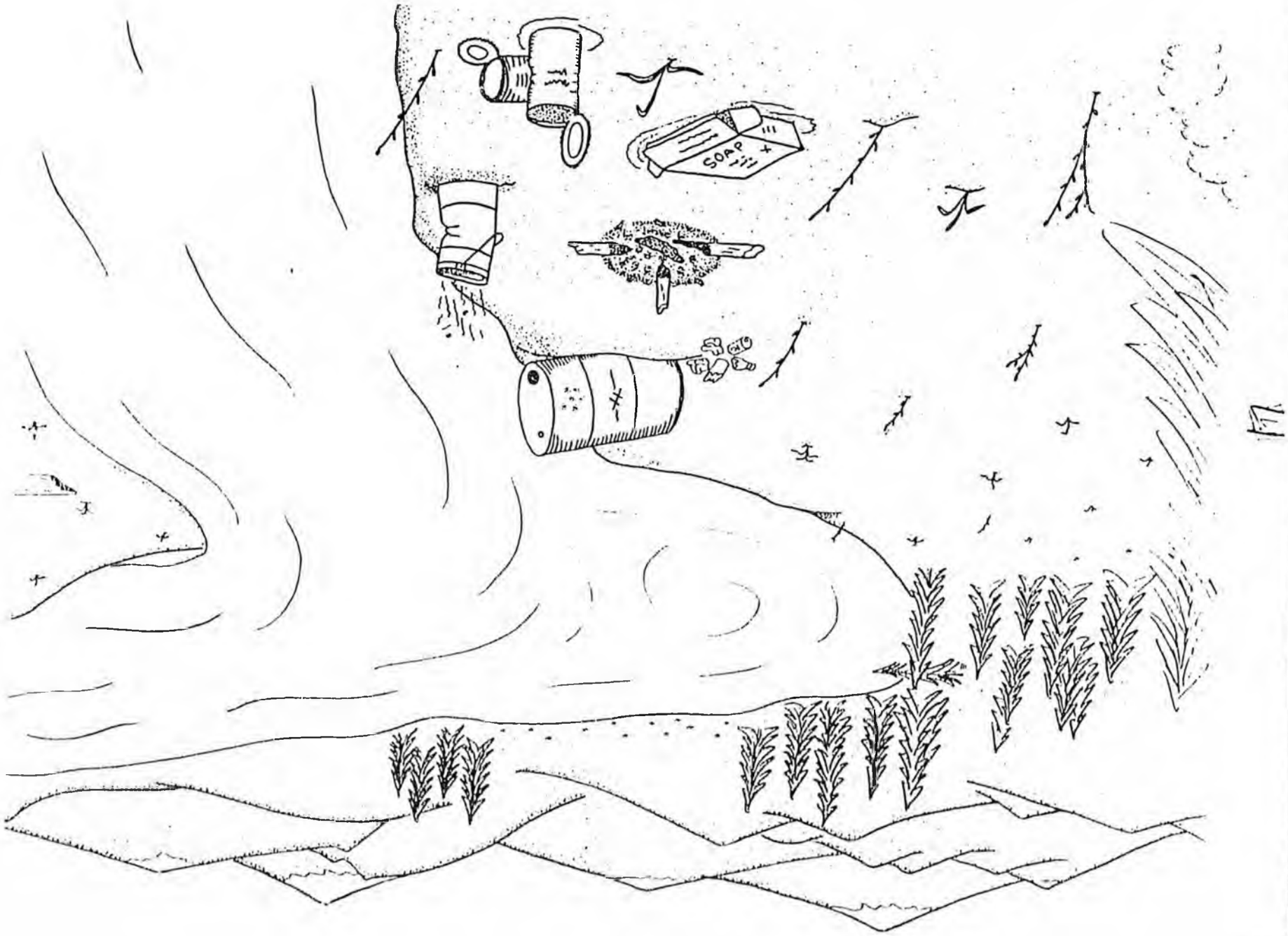
2. Make a drawing of an imaginative way to get water (Fish Power Water Pump). The drawing need not be practical or even possible. Discuss the schemes with emphasis on the difficulty of really making a safe, usable water supply.

3. Play "Howmuchisa". Have some standard size volume units available -- teaspoon, tablespoon, ounce, pint, liter, quart, gallon. Give students some odd-shaped containers of liquid to determine how much is actually contained in them by using the standard measurer. How much is in a glass of water, a can of pop, an ice cube, a snowball, etc.?

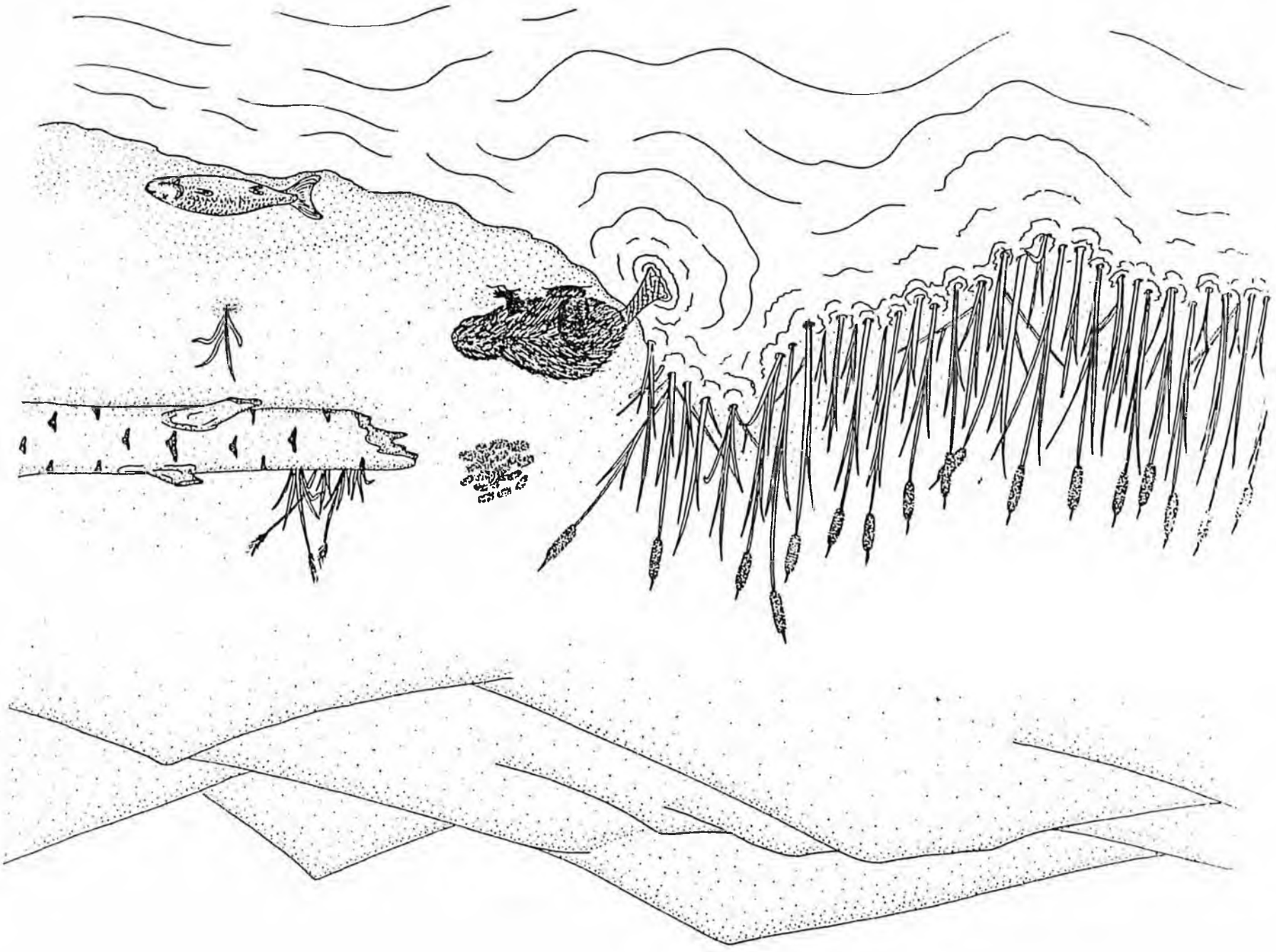
4. Write a song about drinking water.

5. Make posters on how you can help a river from getting polluted.

Suggested Speakers:


SOAP

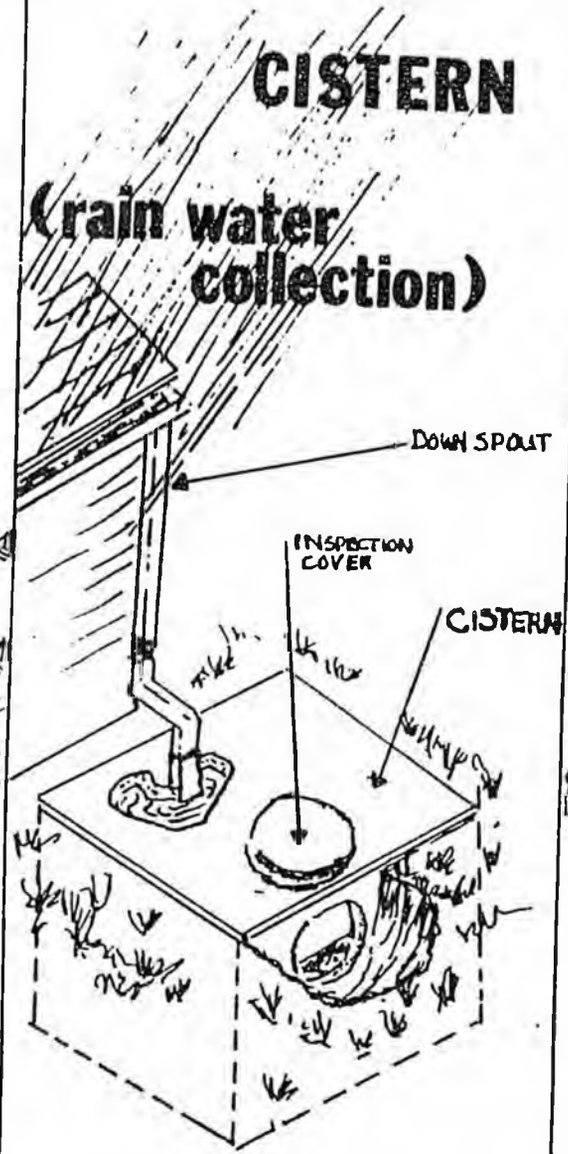
GAS



4

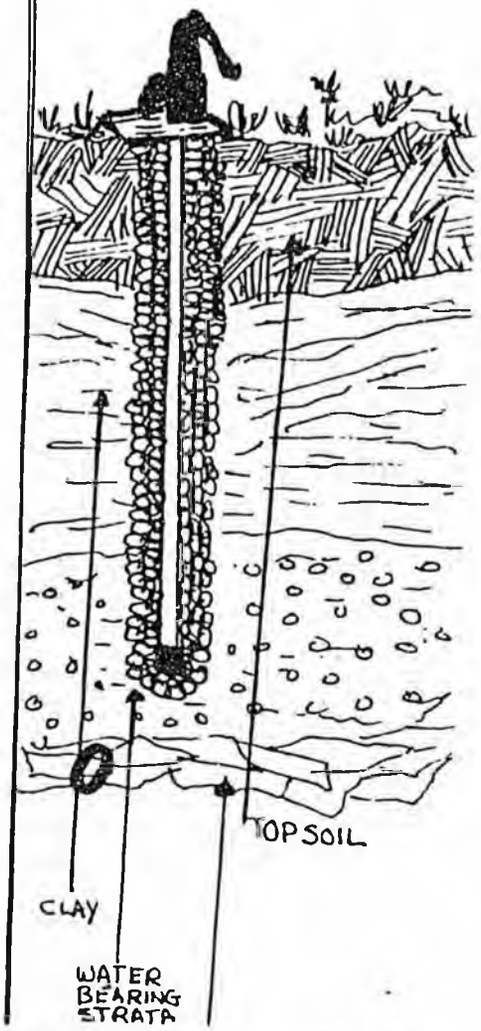
SPRING

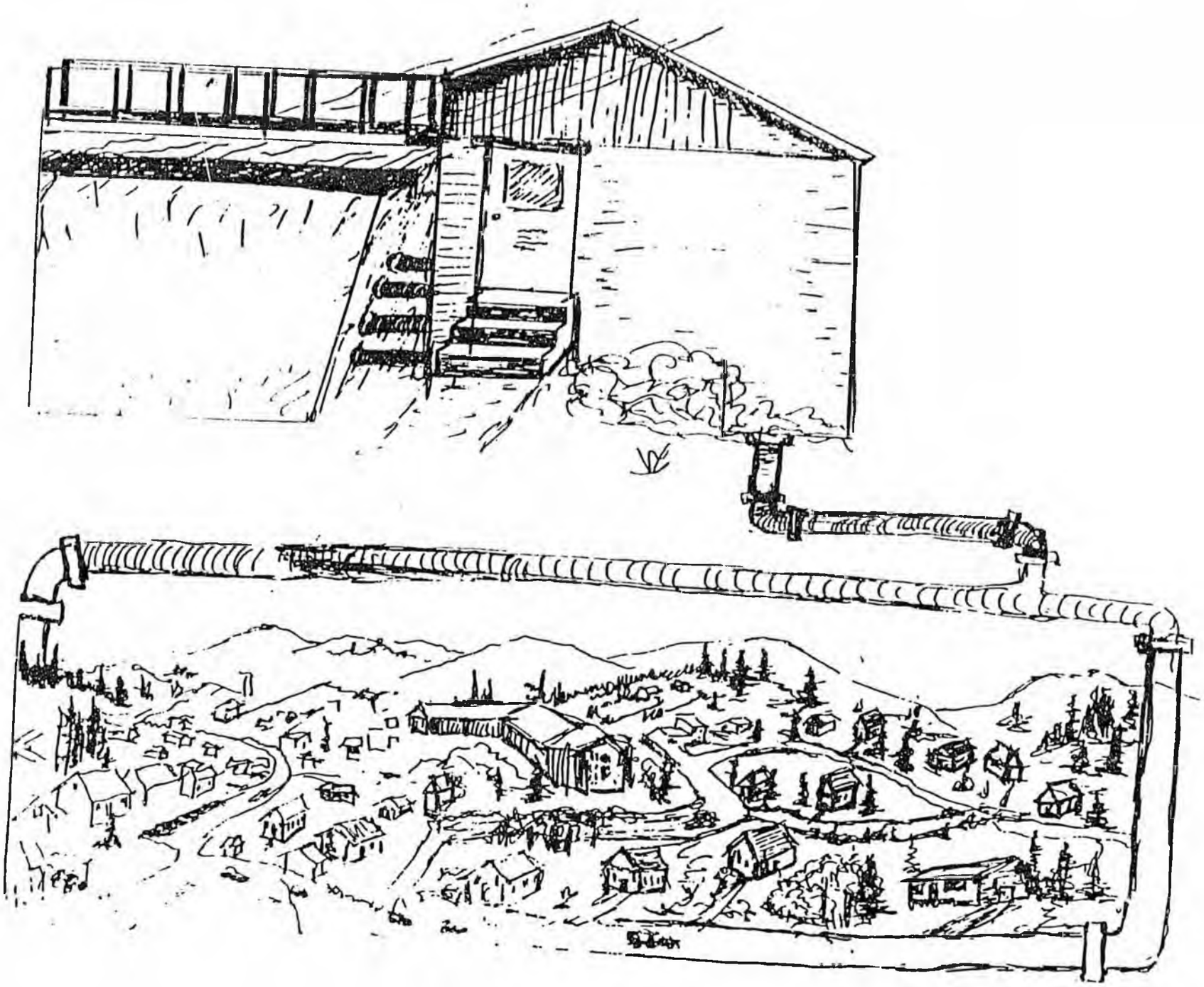
CISTERN (rain water collection)



POND or STREAM

WELL





Objective: Students will be able to explain in written or oral form, to the teacher's satisfaction, how small organisms can enter their bodies from polluted water sources.

Materials:

- Six small, peeled potatoes boiled until soft
- Four-six sterilized pint jars with lids (heat in oven @ 400° about one hour to sterilize)
- Quantity of contaminated (standing) water
- (Optional) other bacterial sources - handkerchief, unwashed hands, dirty dish scrapings.
- One student response sheet: "Do these plants and animals live in your glass of water?" (pg. 25)
- Four transparency masters: I, II, III, IV (pg. 26-29)

Introduction: This lesson provides a concrete reference to the student's growing concept of pollution. Three categories of micro-organisms are responsible for several health problems. Some of the diseases which these micro-organisms can created are typhoid, cholera, dysentery and diarrhea. The children are helped to understand and identify reasons why pollutants are dangerous and why water treatment facilities are needed.

Seeing is believing. An activity which enables children to observe bacteria can improve their understanding of these organisms and their environment. Activities involving the microscope can meet this need; however, these instruments are not often available to the elementary school teacher. A good alternative is the culturing of bacteria in colonies large enough to be seen without artificial aid.

Vocabulary Preparation:

micro-organisms: super small plants and animals that you cannot see. Includes algae, bacteria, protozoa.
microscope: an instrument we use to make micro-organisms look larger so you can see them.
germs: commonly used term to describe those micro-organisms that can make you sick.

Instructional Activities:

1. Discuss the concept of illness. Why do we get sick? Lead into the area of "germs" as disease agents. What are germs? (Any micro-organism that can make you sick.) Can we see them?

2. Tell the students that we can see germs two ways:
   a. With the help of a microscope which makes them appear larger.
   b. By making them grow in number - a crowd of germs can be seen.

3. Draw a very small dot on the blackboard. Say, "Pretend this is a micro-organism. It's very small and hard to see." Now, draw a dot approximately 1000 times larger than the micro-organism. "This is how the same micro-organism looks under a microscope." The microscope allows you to see these very small plants and animals."

4. The bacteria culture demonstration can be handled in one of two ways:
   a. Prepare the cultures several days in advance (minimum of three). Explain what you have done and have the students compare the resulting growth now and in a day or so.
   b. Prepare the cultures with the children and follow the growth for several days.

   In either case, one potato should be left uncontaminated for comparison. The others should be rubbed with several samples of contaminated water, standing water from outside, water used for hand washing (no soap), saliva, etc. Put lids on all jars, label and place in a warm location not in direct sunlight. You might allow one contaminated jar

to be exposed to sunlight (for use in Lesson 4). Do not let the children come into contact with the jar contents. Keep the lids in place throughout the experiment, and when it is completed dispose of the contents carefully.

5. Explain that if you take a drop of water from a pond and look at it, it doesn't look like much. It's tiny and doesn't have any color. But if you look at the same drop of water under a microscope you may see strange one-celled and multi-celled creatures we call micro-organisms. Tell the students that rivers and lakes that are crystal clear may be polluted. The water might have micro-organisms in it that may make us sick.

6. Discuss the possible results of this type of growth in people. Why do we not always become ill immediately after contact with germs? (they must grow in number, some people don't get sick as easy as others). Why do we not know immediately when we have run into a germ? (they are very small and cannot be seen).

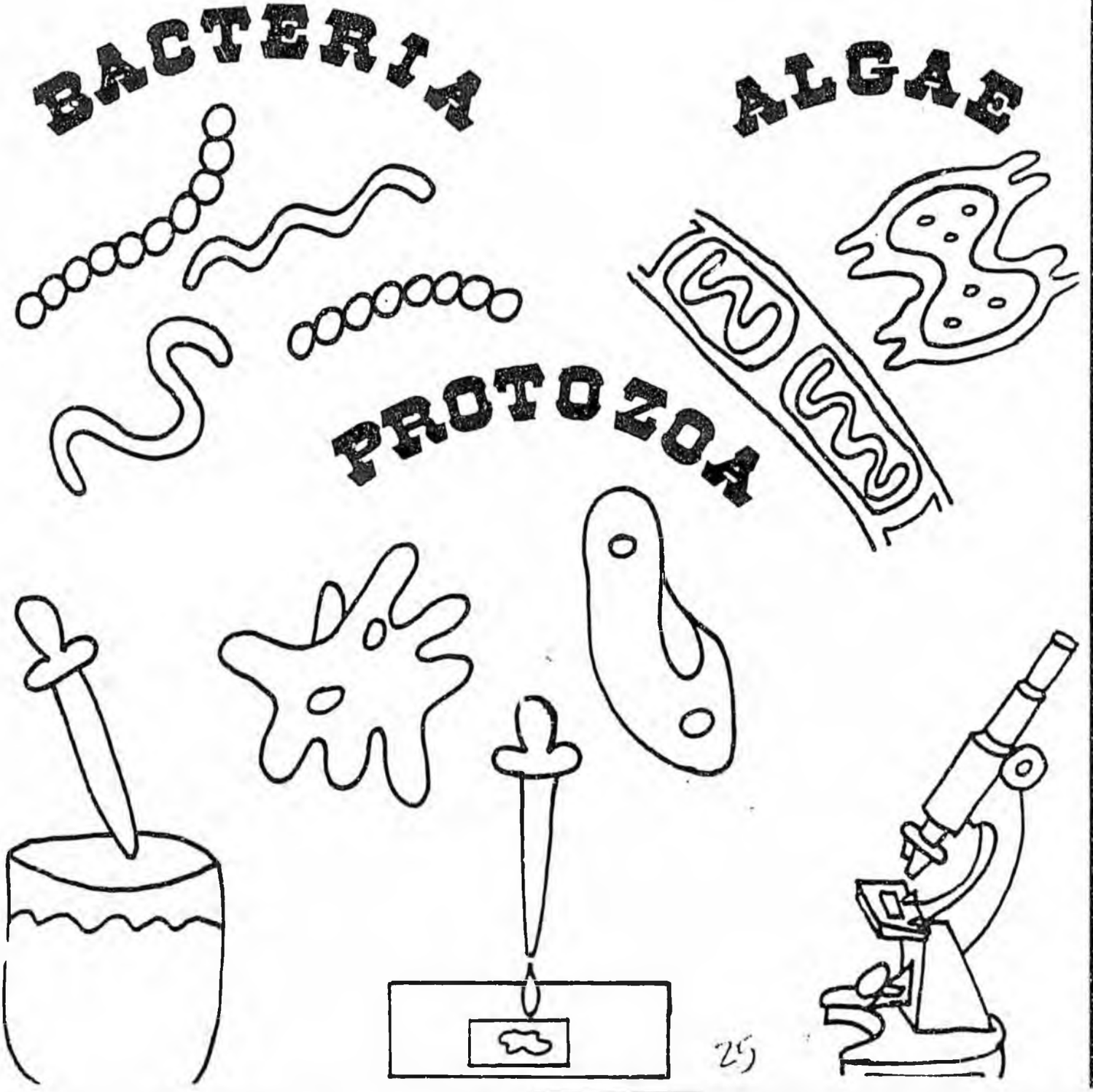
7. Ask the students if they would like to see some of the micro-organisms close up. Show transparencies produced from line drawings of micro-organisms or have them color xerox copies.

8. Hand out response sheets ("Do These Plants and Animals Live In Your glass of Water?") Ask students to color in the drawings of the tiny life forms.

Additional Activities: Draw "The Ugliest Germ". Name the micro-organism, tell where he is found and how to stay away from him.

Suggested Speakers: Activity 5: Health and/educator or Sanitarian. Have them talk about some illnesses you can get from water, the source of those germs, and any illnesses that may have happened in communities like theirs.

Do These Plants And Animals Live In Your Glass Of Water?



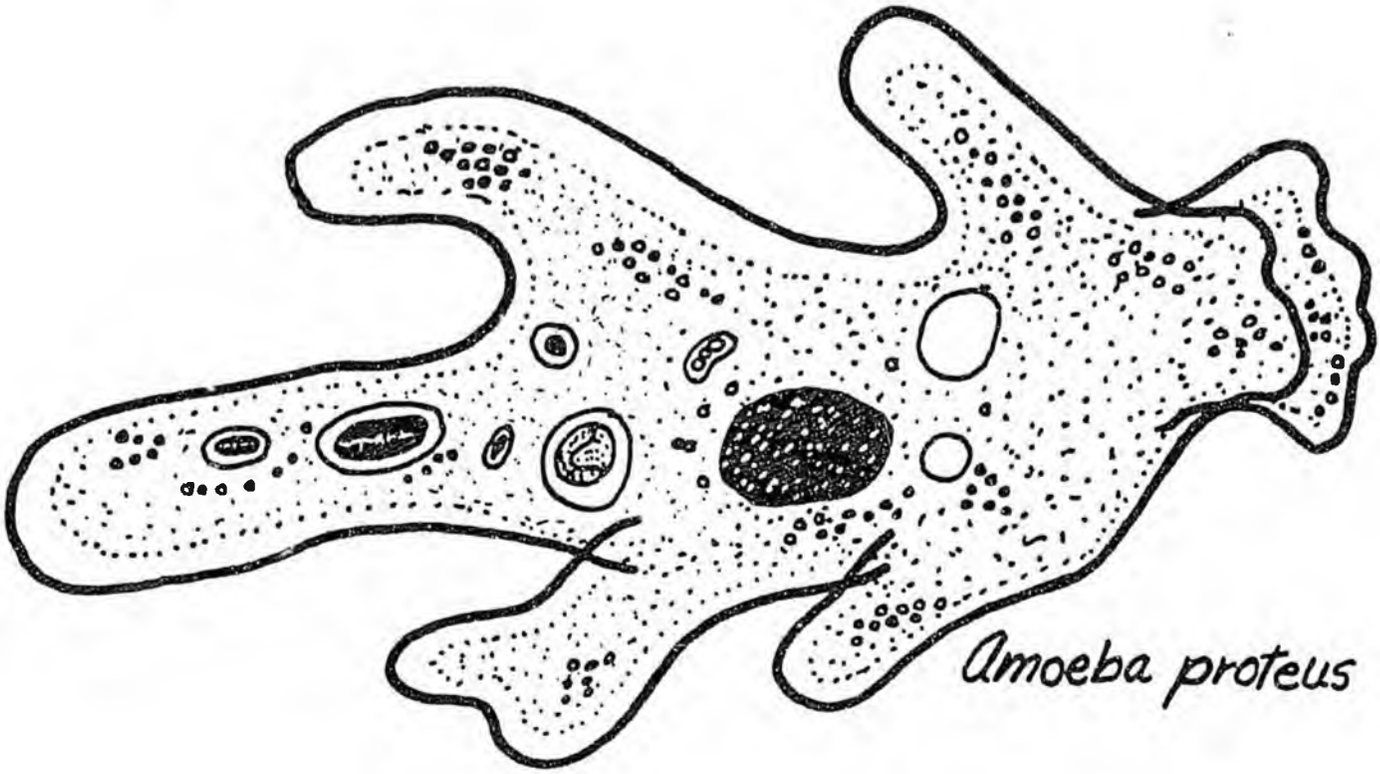
Protozoa *

Giardia lamblia

I

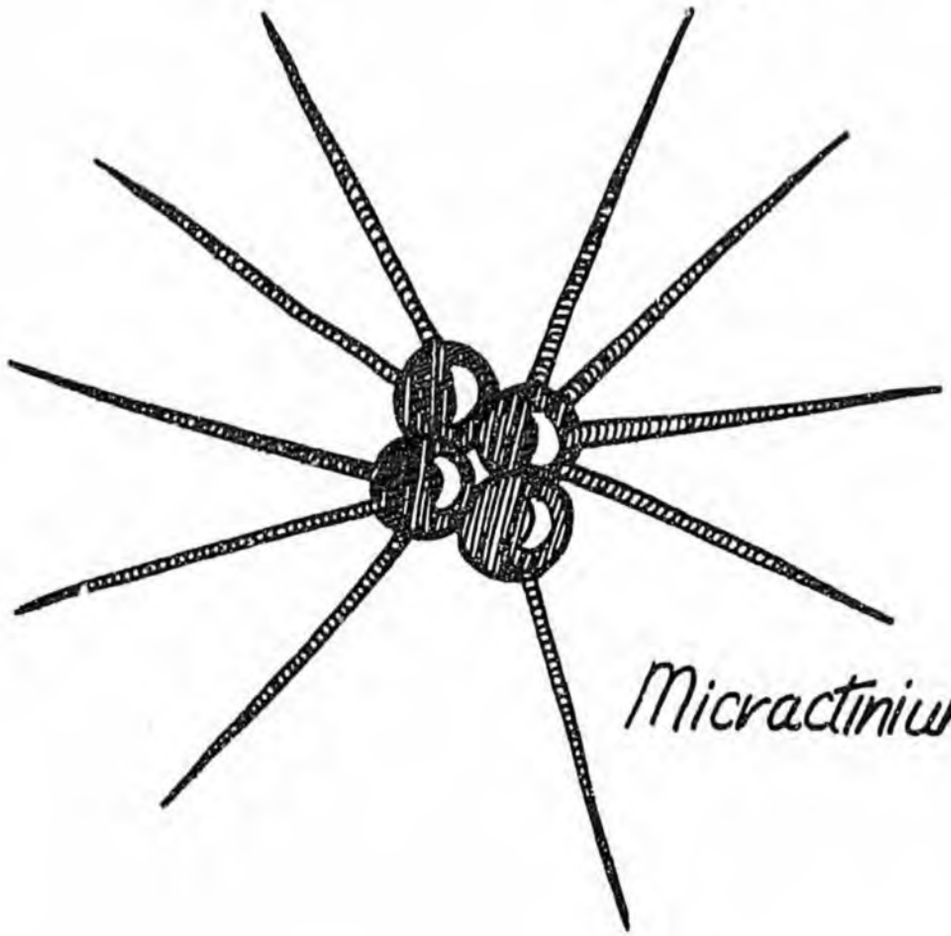
(* This drawing is 10,000 times larger than the actual protozoan).

Protozoa *

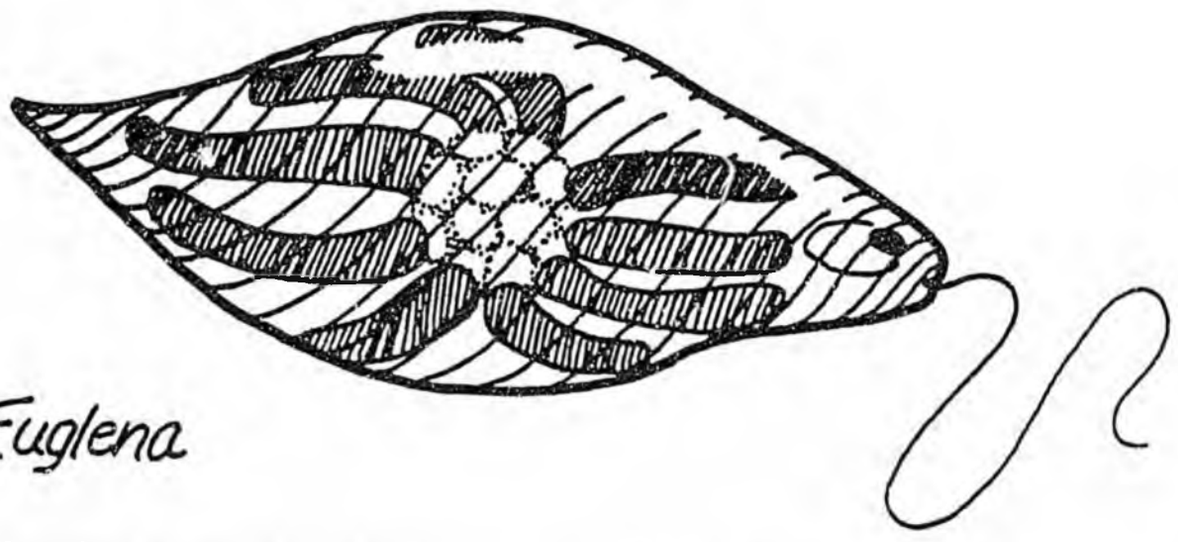


(* This drawing is 10,000 times larger than the actual protozoan).

Algae *



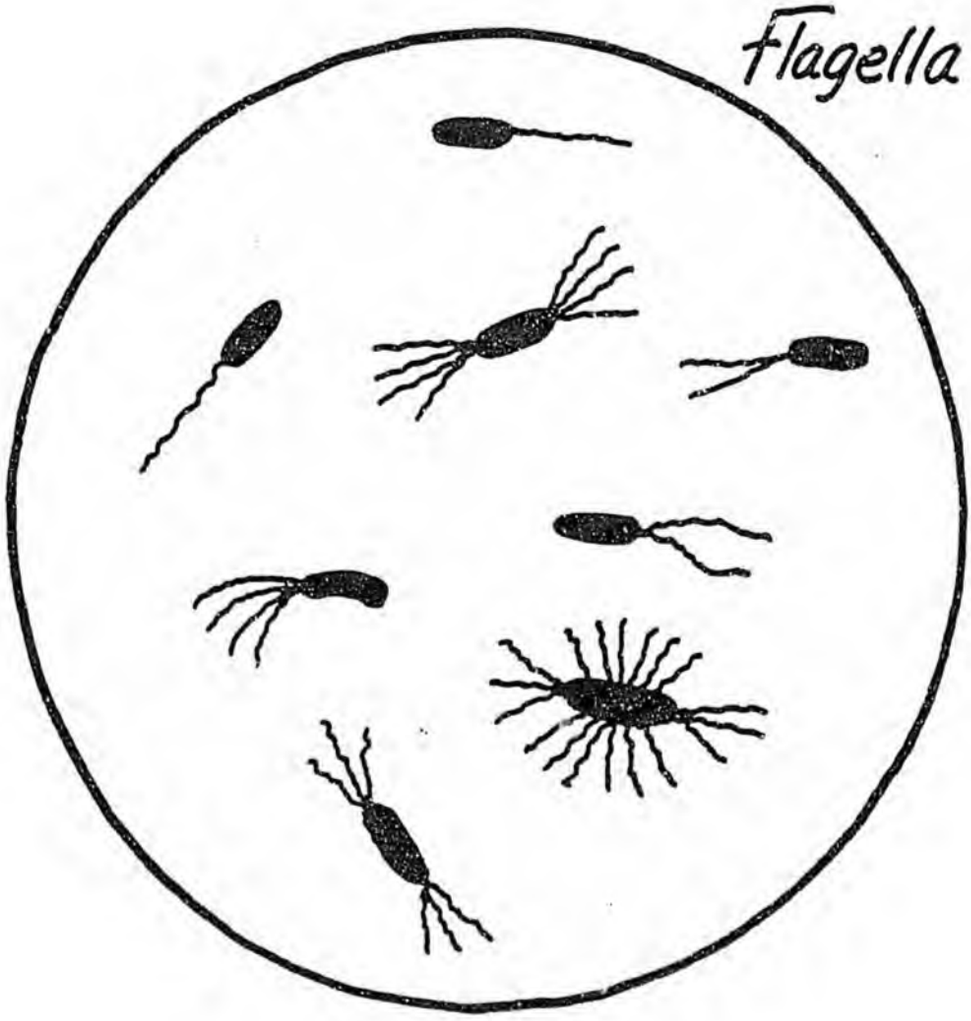
Micractinium



Euglena

(* This drawing is 1,000 times larger than the actual algae).

Bacteria *



(* This drawing is 10,000 times larger than the actual bacteria).

Lesson IV **Chlorination Experiment** (grades 1-3)

Objective: Students will be able to describe at least one way in which water can be made safe for drinking following a demonstration of how chlorination protects drinking water.

Materials:

- Warm water
- Two clean glasses
- Packet of dried yeast
- Sugar syrup (Karo, etc.)
- Laundry bleach (liquid-Chlorox, etc.) see note below*
- Stirring rod
- One student response sheet: "Find the Polluters-Color Them Brown" (pg.33)

Introduction: If the water supply which your community is using is being treated, then chlorine is probably being added in that treatment. Chlorine has been used to destroy disease-causing micro-organisms in town water supply systems since 1897. It works by oxidizing (burning up by combining with oxygen) the organic matter in the water. This makes the water safer and changes the color, taste and odor.

The experiment will show the effects of chlorine on micro-organisms. It will take approximately two hours to show clear results. The experiment can be started easily during a convenient point in the morning and then set aside for examination later in the day. This simple experiment will give the children a concrete reference for further learning about water treatment.

***IMPORTANT:** Do note allow the student to make an association between the chlorine used in the demonstration and chlorine bleach or its container. A possible result could be a child believing the bleach in itself is a good thing to drink - with disastrous consequences. Put the chlorine bleach in a vial marked with the poison (ECCH) symbols and warn the students that only when used in very small amounts can the chlorine kill germs without hurting people.

Vocabulary Preparation: chlorine: kills disease causing micro-organisms and makes water taste and smell better.

Instructional Activities:

(review) 1. Ask the children how they would suggest getting rid of the micro-organisms (super-small plants and animals) which they saw in the previous lesson. Why did the sample left in the sunlight in Lesson III not multiply as greatly as the others? (There will likely be some imaginative responses - burn them, poison them, use a ray gun, etc. - which will lead into the demonstration.)

(new activity) 2. Tell the class there is a way to kill the micro-organisms which we've seen in the last lesson. Why is it important to kill the micro-organisms in water? (Some micro-organisms i.e. "germs" might make you sick). Say that in this experiment we are going to grow an organism which <u>cannot</u> hurt us. Yeast is a different type of micro-organism and is not associated with illnesses from polluted water sources. (Make this distinction so that the students do <u>not</u> confuse the yeast which makes bread with organisms that cause illness).

3. If continuity of time is required prepare ahead: 1/2 teaspoon of dried yeast poured into 1/2 glass of warm water. Allow a half hour for the yeast to multiply. Separate the mixture into two clean glasses.

4. Show the students that the yeast is growing like the micro-organisms of the earlier demonstration -only much faster, before our eyes.

   To <u>one</u> glass, add five drops of the bleach. To <u>each</u> glass, add one teaspoon of syrup and stir gently. Mark one "chlorine treated". Set aside for later examination. (A period of at least an hour should be allowed for the chlorine to take effect.)

5. To begin the afternoon period, ask the students how a water supply becomes polluted. Make a list of pollution sources on the chalkboard. Help the student recognize any identifiable threats to their water source.

6. Pass out the student response sheet. Allow the

students to find the sources of pollution themselves and color them brown.

7. Show the class the results of the experiment. (The glass to which the chlorine was added should show no activity while the glass free of chlorine should show activity caused by the growing yeast.)

(student response)

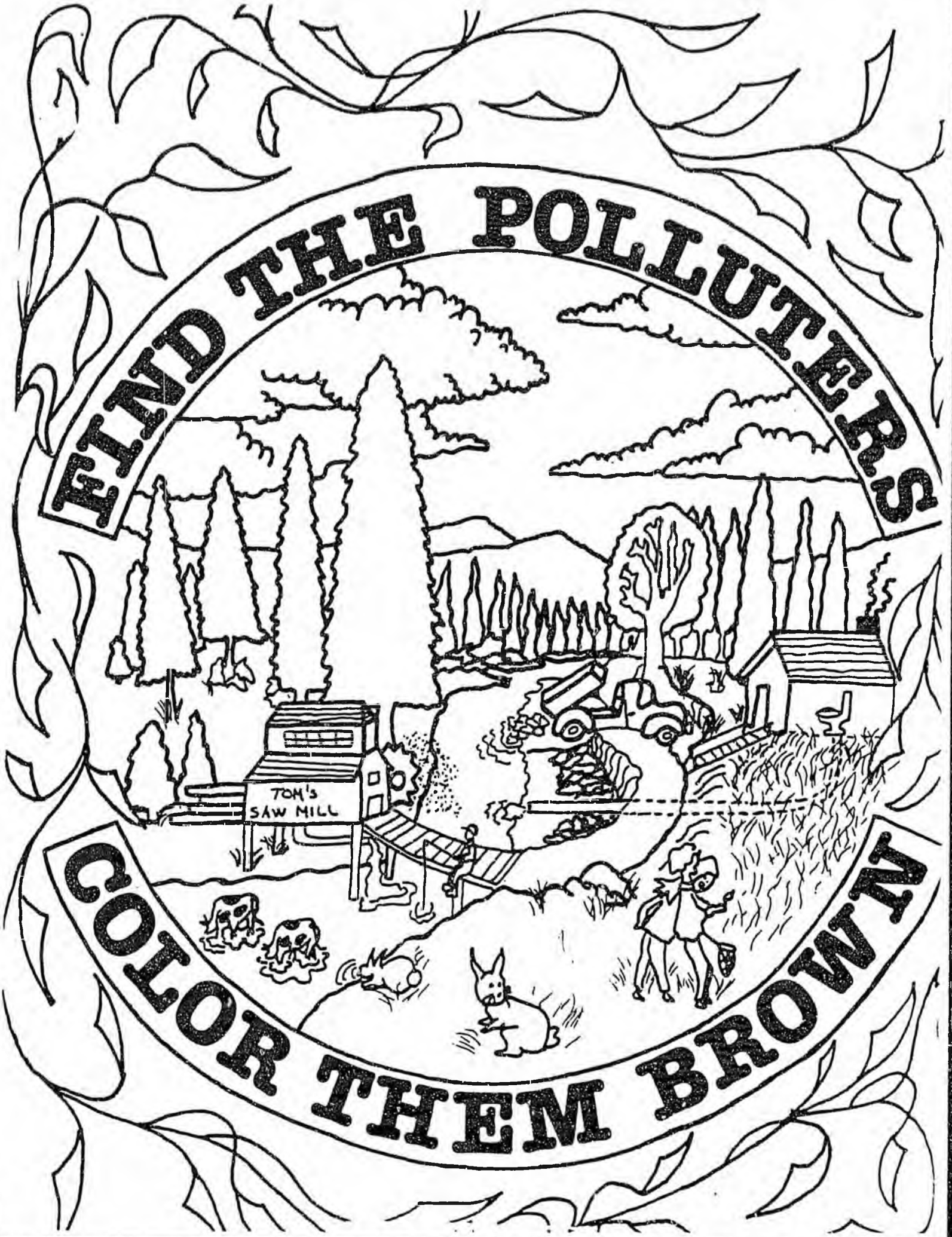
8. Ask the students to explain how the chorine affected the yeast growth. (It killed the yeast growth).

Chlorine is used to kill micro-organisms that are harmful in our drinking water. Chlorine also takes out some of the bad taste and smells water may have.

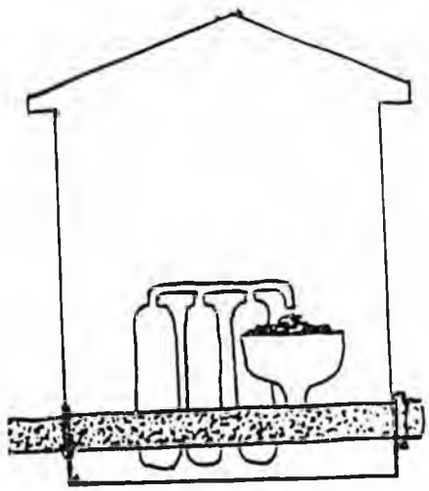
Additional Activities

1. Using the "Polluters" worksheet as a starting point have the class develop a list of pollution sources. Which can be prevented by people being more careful?

Suggested Speakers


FIND THE POLLUTERS
TOM'S SAW MILL
COLOR THEM BROWN

Objective: Students will demonstrate a basic understanding of water treatment by completing a worksheet based on a class visit to a water facility.



Materials:

- Poster of water distribution cross section
- Visiting arrangements to local water treatment facility.
- 1. Water distribution cross section (pg. _____) 2) "Water Treatment" worksheet (pg.38)
- Scissors, crayons
- Drinking Water poster

Vocabulary Preparation:

chlorine - kills disease causing micro-organisms "germs" and makes water taste and smell better.

fluoride - added to water to prevent tooth decay (cavities).

Introduction: This lesson provides a setting to create a concrete reference for all of the concepts of water pollution which have been introduced. The children should be prepared before you visit the water treatment facility by reviewing these concepts:

- water cycle (all water is reused)
- pollution sources
- micro-organisms (water-borne contaminants)
- treatment

The Village Water Cycle & Treatment posters can be used to provide a focus for that review.

A site visit to a conventional filtration/chlorination/fluoridation plant should be no problem in the larger communities.

Smaller communities may have a simple pumping station and storage facility without elaborate treatment. Point out that if the water is clean and unpolluted to begin with, the important thing is to keep it clean enroute to the users' homes. This is especially true of villages which distribute water by tank truck or block ice.
In some villages, the school water system itself will be the best example of good water treatment.

A look at the school's waster water treatment system (gray/black water, bio-pure, or whatever) will reinforce the concept of the water cycle and the need for care and/or treatment of potable water.

Prior to the actual visit, talk to the plant operator to determine what the children will see and what the guide will emphasize on the tour. Follow water from the source through the treatment plant to water that is safe to drink. Ensure that the presentation will be within the groups's level of understanding and attention span, and consistent with the lesson objective.

Instructional Activities:

1. Using the Village Water Cycle poster, review the concepts of water cycle, pollution and micro-organisms. The class may demonstrate an understanding of how these concept affect their lives through the water which they drink.

   Fluoride may also be used in drinking water to prevent tooth decay (cavities). Fluoride also helps keep your teeth health and strong.

2. Use water distribution cross section poster to explain local water treatment facility. (pg. ____)

   Water that you drink from the water plant is treated to make it clear and healthy. These are the steps water goes through before you drink it.

   1. Water comes from a well that was drilled on an island in the Noatak River.

   2. River water is filtered through the gravel in the river.

   3. The pump inside the well pushes the Noatak river water through a pipe to the pumphouse.

   4. In the pumphouse, chlorine and fluoride are added to the water.

   5. Water is then stored in the water tank.

   6. Water from the tank fills your water bucket when you turn the valve.

The water treatment plant operator has a very important job. He sees that the water you drink is healthy by adding chlorine to kill "germs", and fluoride to keep your teeth from getting cavities. When you visit the water treatment plant let the operator know that you appreciate his work.

3. Take a field trip to observe a water treatment facility.

4. Hand out water distribution cross section. Color all water and/or follow the flow of water with finger from the river to the well, plant and user.

   Ask: "What would happen if we don't have clean water? Why do we add chlorine to the water? Why do we add fluoride to the water?"

Additional Activities

1. Play "The Clean Machine". The class creates a skit based on a town with dirty water where the people help make it clean. Each child contributes a cleanup or preventive act to add to the story line - each doing something to clean up the water.

2. A "Thank You" note(s) or drawing(s) to the water plant person.

3. Write a story about a drop of water traveling from the source (well, river, etc.) through the treatment plant and into your home.

4. Pass out the "Water Treatment" worksheets and discuss what a water treatment facility does to make the water safe for drinking. Mention that it is in the treatment plant that the water is made safer by adding heat and chlorine and/or fluoride, or by being filtered.

   Ask the students to cut out the micro-organisms and glue them onto the worksheet in a spot appropriate to show their effect on water (before the "chlorine" stage), then color the picture. Display the pictures on a wall.

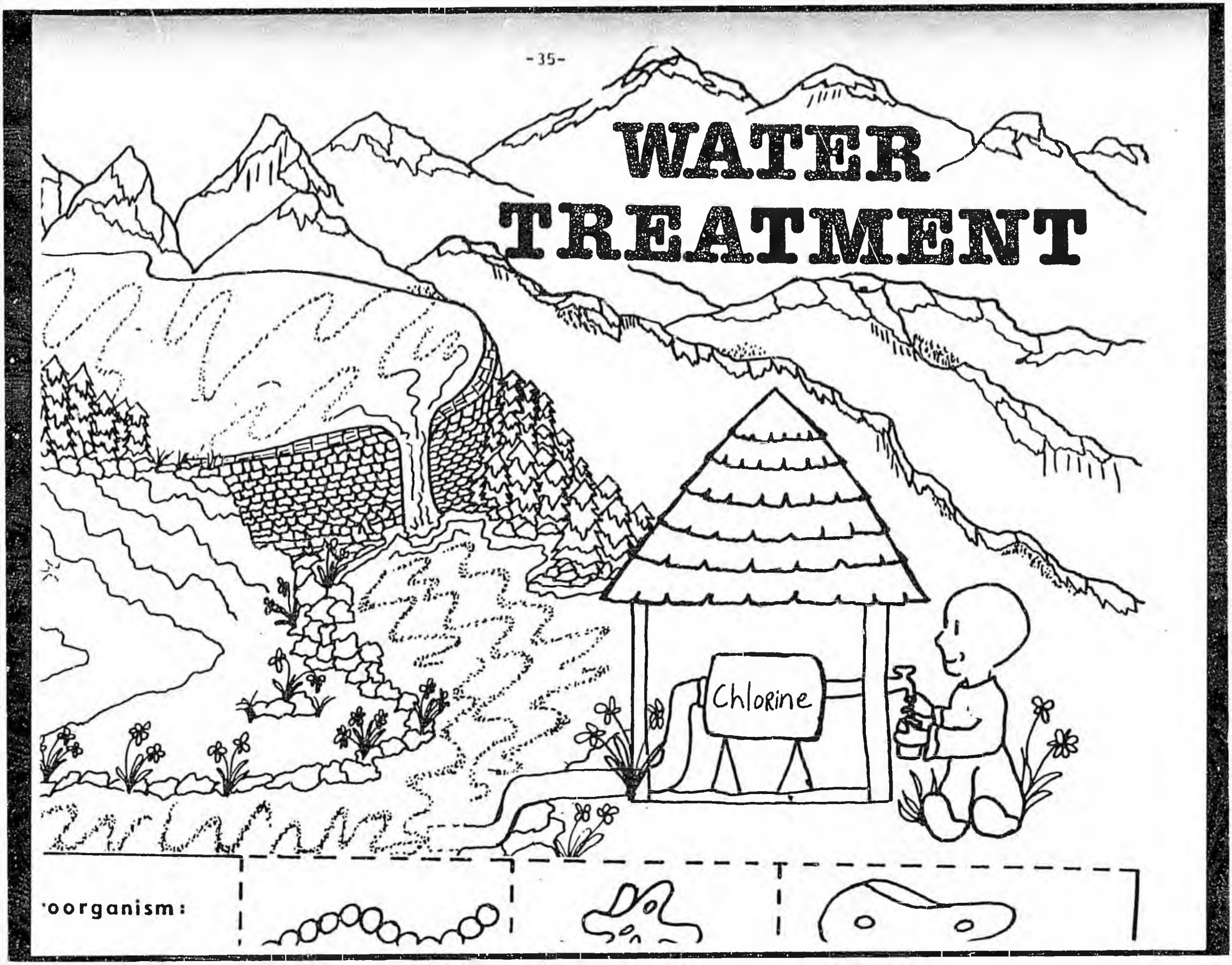
Suggested Speakers

Plant operator to show flow of water and explain treatment.

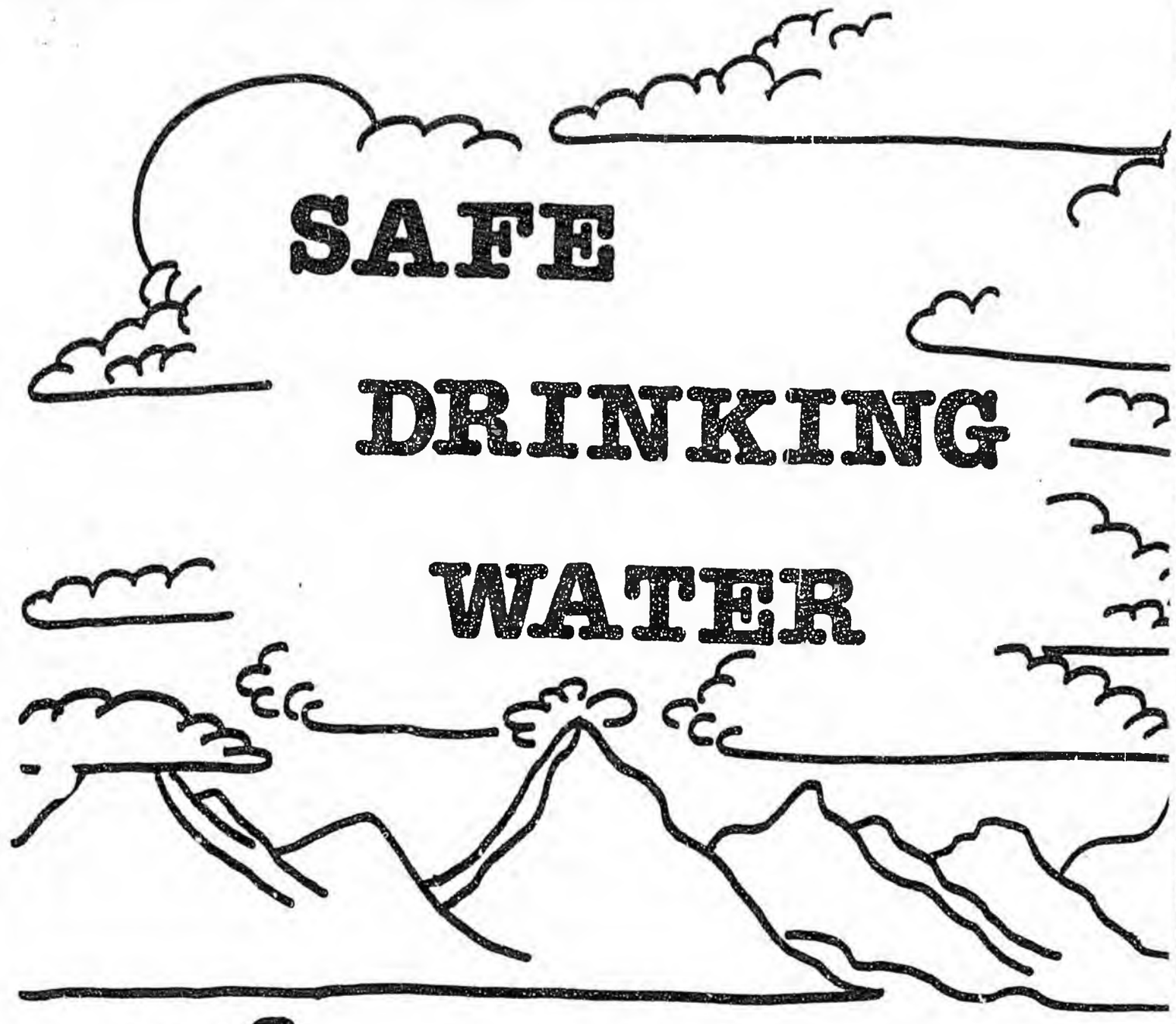
Culminating Activity

1. Have students make posters on the theme "Where My Drinking Water Comes From" or "Safe Drinking Water, Its Many Uses in the Village".

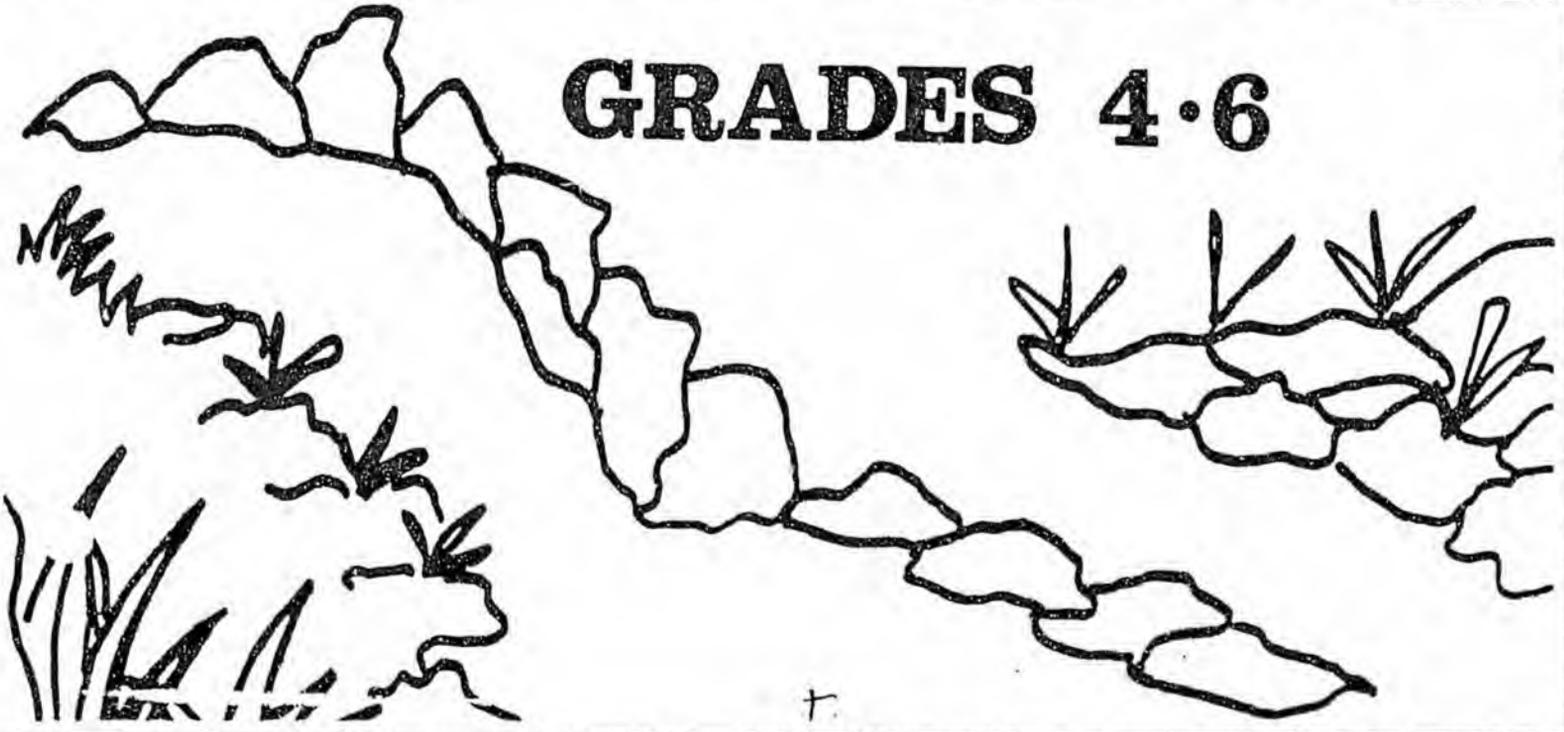
2. Following a visit to the water treatment plant award students with their Junior Plant Operator certificate.


WATER
TREATMENT
Chlorine
•oorganism:

SAFE DRINKING WATER



GRADES 4-6



Safe Drinking Water

Introduction:

The following set of five instructional units has been developed to teach upper elementary aged children about the possible health hazards of drinking water from polluted sources. Students of this age very likely have heard the term pollution and may even have developed a concept of water pollution. These lessons are intended to provide both a background in the relationship of pollutants to health and a concern for the quality of drinking water.

The first unit uses a review of the Water Cycle to establish the idea that water is a limited resource which is continually recycled. Explored is the origin of drinking water, including how that supply is dependent on the water cycle. The second unit follows up with a mediated introduction to water. Provided is an overview, to help the students understand the major aspects of water pollution and its effect on human life. In the third unit microorganisms are introduced as a real source of pollution caused health problems in Alaska. Unprotected and untreated surface water, vulnerable to unpredictable contamination by man or animals, is recognized as a major part of the problem. Unit four demonstrates chlorination as a water purifier by showing the effect of chlorine on microorganisms. The fifth unit, a reinforcement activity, is a field trip to the local water treatment facility to provide a concrete reference for the concepts of water pollution and safe drinking water.

Flexibility was a prime concern in the development of these lessons. Each teacher, keeping in mind the special needs of his/her class and the particular resources of the area, should feel free to adapt the materials and/or sequence of these lessons.

Lesson I **The Water Cycle** (grades 4-6)

Objective: Students will view a demonstration of the water cycle and demonstrate their understanding of the concept by answering a series of questions.

Materials:

- Small pot
- Hot plate
- 8" x 10" or larger sheet of glass, metal (a hard non-porous surface, glass or acrylic make viewing easier)
- 2 pot holders
- 1 student reading material, "The Water Cycle" (pp. _____)
- 1 student response sheet, "Water Cycle Questions" (pg. A-118)
- Nature's Water Cycle (pg. ___).

Introduction: Assess the class as to their understanding of the water cycle and its components - evaporation, condensation, precipitation. Many may understand that water is a limited resource which we must care for by conservation measures. If so, the demonstration might provide a good review. The students, as reinforcement, might be given a writing assignment using the above key words. The intent of this unit is to establish where water comes from as well as where we stand in the cycle as users.

Vocabulary Preparation:

molecules	vapor	condensation
evaporation	atmosphere	

Instructional Activities:

1. Ask the class these survey and motivation questions to assess what they already know and to generate interest in the lesson:

   A. Where does water come from?
   B. How can we make more water?
   C. Where does the water you use at home come from?

2. Tell the students you are about to make it rain to demonstrate that rain in one part of a cycle of water use. While preparing the demonstration you might ask what a cycle is (answers will refer to motorcycle of bicycle - use the idea of a wheel going round and round to reinforce concepts of a cycle in nature).

3. Pre-heat a pot of water to near boiling on the hot plate. (demonstration goes faster if you begin with hot water).

4. Have a student hold the flat piece of non-porous material over the pot to allow the water vapor to condense and collect. As the droplets form, grow heavy, and fall, ask whether new water has been made.

5. Using this visual model, discuss the water cycle. Emphasize that we, as water users, are part of this cycle. Ask: Which part is like the rain? Which part is like a river? Which part is like the sun?

6. Preview "The Water Cycle" reading by asking how small is the smallest piece of something - water, air. Lead into the concept of the molecule as the smallest unit of a substance. Emphasize that a molecule is very small indeed - too small to be seen by even a microscope.

7. Pass out "The Water Cycle" handouts (pg. 6-10). This may be employed in a variety of ways, including:
   A. as an individual or group reading;
   B. as a guided reading using "Water Cycle Questions" as a guide sheet;
   C. as an information sheet for the teacher to use in preparation for class lecture/demonstration.

8. Hand out "Water Cycle Questions" for a review. (pg. 14-3)

Additional Activities:

1. Tell a story about a drop of water -- where it has been, who has used it and for what, what shapes it has taken. This could be done orally, through a drawing sequence, or in written form.

2. Follow a small steam to its source and see where it originates. Ask students to point out plants, insects and perhaps larger animals which depend on the stream for living space, food, protection, reproduction. Where does this water come from? Who might use it further along?

3. Write a short poem (haiku style or other) about rain, dew drops, fog, snow, hail.

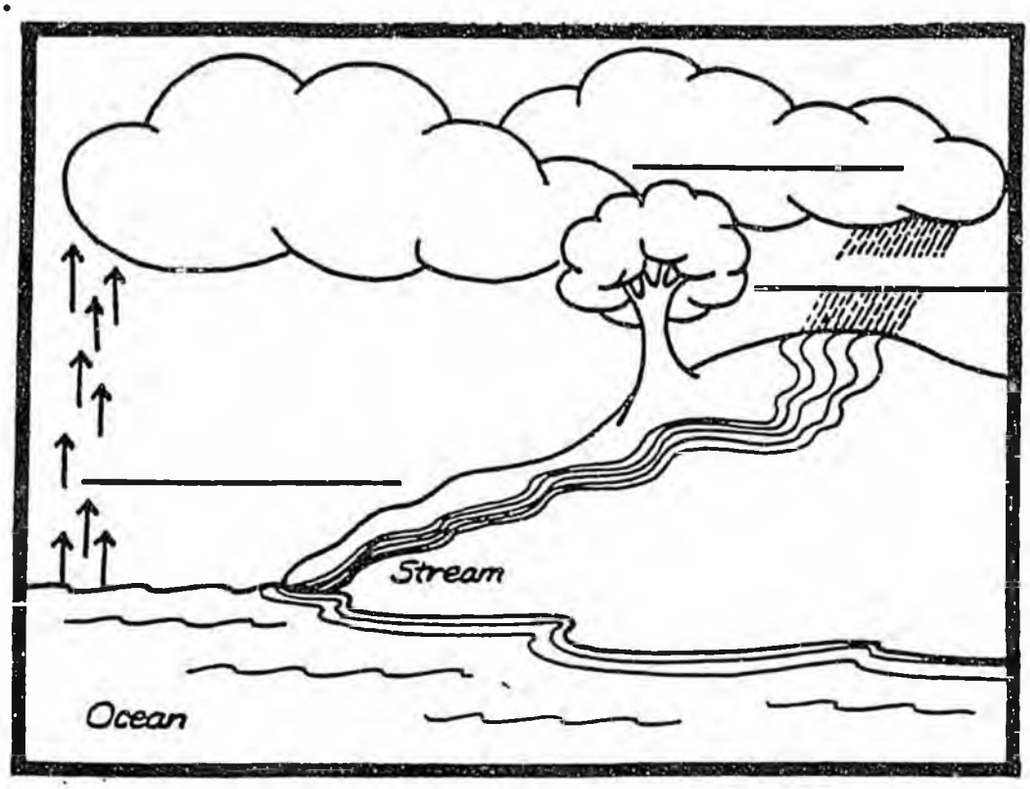
Suggested Speakers

Have you ever noticed on maps of the world all the water areas covering the earth - oceans, lakes, rivers and streams? Water covers most of the earth. It appears in many places in many forms in a regular cycle.

To understand this cycle, let us imagine the oceans rolling in their great basins between the continents. The sun shines on the rather flat water surface and heats it. As the water grows hotter, some is bumped off into the air. These tiny bits of water in the air become like a small, warm, moist cloud. (This process is known as evaporation.)

Water as a vapor cannot be seen. When we see steam rising from a pan of hot water on a stove, we have actually seen water changed before our eyes from a liquid to a vapor and then back to a liquid again in the form of tiny little droplets. But we haven't seen the vapor. For as soon as the vapor has risen from the boiling water into the cooler air, the bits of water slow down and begin to huddle close together. The cooler air changes the vapor back into tiny little droplets. (This is called condensation.) We can change the tiny little steam droplets to larger droplets by suddenly placing a cold metal pan in the path of the steam and holding it there for a while.

The vapor from the oceans (or from other water surfaces such as rivers, lakes etc.) is warmed by the sun. As warm air always rises, the vapor rises, higher and higher, until it begins to cool in the high cooler air. The vapor then starts to change back into tiny droplets of moisture much at it did in the case of the hot water pan on the stove. But the droplets of moisture rising from the ocean cover a great area and are carried around by wind and air currents.



Eventually, a cloud is formed. As the cloud is carried into colder areas, the tiny little droplets, in turn, group together - sometimes in enormous amount to form a single raindrop. With rain, the oceans are filled and the cycle is completed.

A cloud is a mass of tiny droplets which are too light-weight to fall through the air currents. When, by grouping together, the droplets reach a size large and heavy enough to fall without evaporating again before they hit the earth, they may fall as raindrops. In very cold upper air, the vapor closes together and becomes ice crystals, which fall as snowflakes.

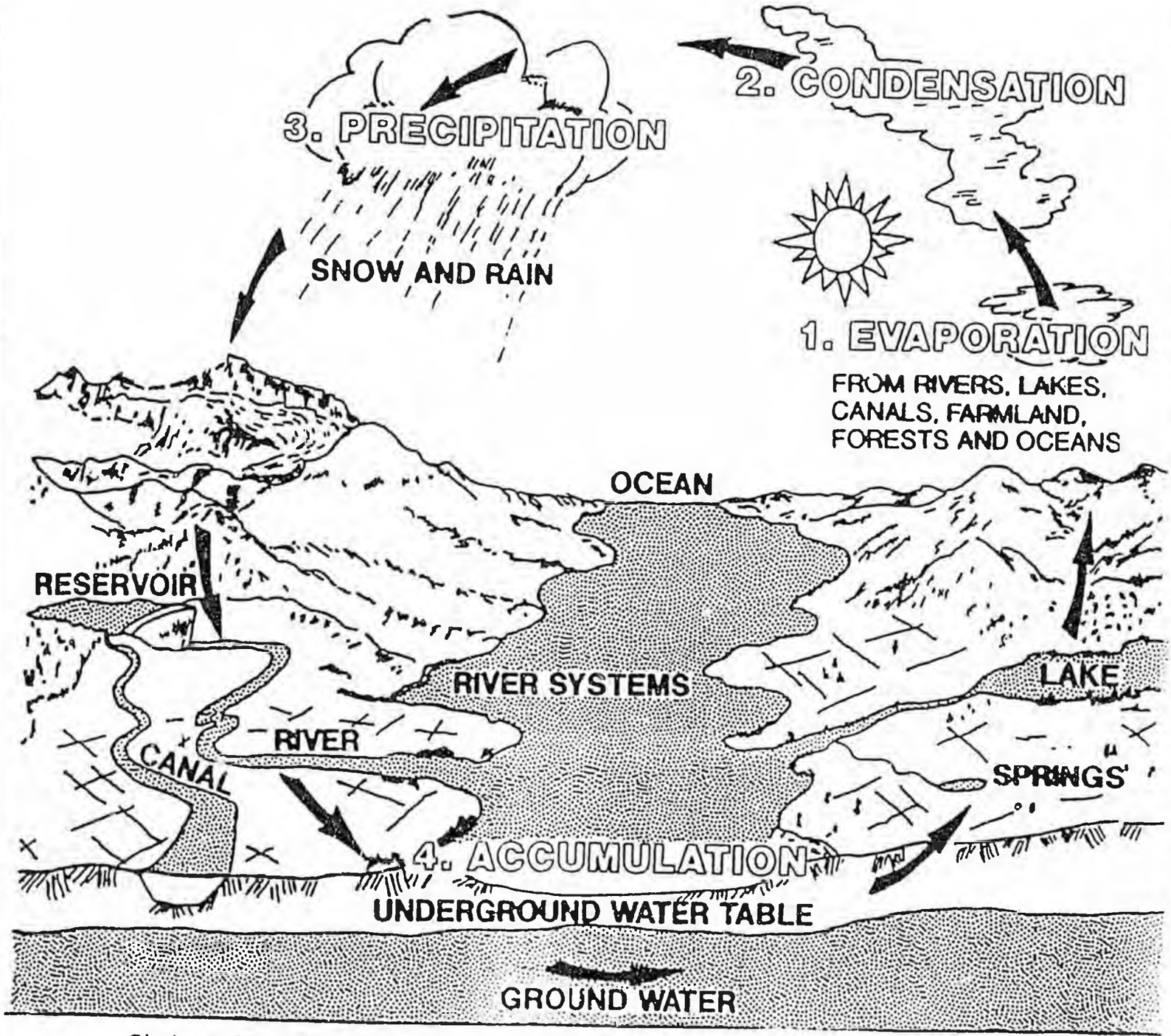
In any event, raindrops leave their cloud and fall. In falling, they may take a shape as long and thin as a hot dog or as round and flat as a pancake. They may even be shaped like a dumbbell. Of course, not all the drops fall back into the ocean, for the clouds may have been carried many miles away by wind and air currents. Where the raindrops fall on the land, they may run together and flow down mountainsides as streams. The streams become rivers that carve deeper and deeper river beds on their way to sea.

The world's water stays on the move. Two weeks from now there will still be water in the sky, but hardly any of it will be the same water that's there now. The water that's there now will have rained down, and freshly evaporated water will have replaced it.

The amount of water in the world stays the same. Almost all the water in our present world is the same water that has always been here.

Who knows where the water in your next glass of water you drink will have been before? Some of it may have flowed through the deepest ocean or some may have been drunk by a dinosaur. Imagine drinking the same water a dinosaur did - a four billion-year-old glass of water. That's the magic of the water cycle.

NATURE'S WATER CYCLE



State of California, Dept. of Water Resources, P.O. Box 942836, Sacramento, CA 94236-0001

Water Cycle Questions

Answer the following questions by filling in the missing word or words.

1. Almost _____ of the earth's surface is water.

2. The process of _____ takes place when water changes to vapor.

3. _____ happens when the vapor turns back into droplets of water.

4. The vapor rising from the ocean is moved around by _____ and _____ currents.

5. When a cloud is carried into colder areas _____ will begin to form.

6. A cloud is a mass of tiny _____ of water which we call vapor.

7. In very cold upper air, vapor sometimes moves extremely close together and becomes _____.

Answer Sheet - Water Cycle Questions

1. all
2. evaporation
3. condensation
4. wind/air
5. raindrops
6. droplets
7. ice crystals

Objective: Students will write a one sentence definition of pollution which includes the components: 1) matter 2) added to nature (environment) 3) unwanted by someone.

Materials:
- two glasses
- water
- small amount of dipstick oil
- floor sweepings
- film (see listing) on water pollution
- 1 student response sheet: "What is Water Pollution?" (pg. 14)

Introduction: Although your students may have some experience with the term pollution, this media presentation may be the first formal presentation on the subject of water pollution. The lesson provides an overview of the subject. The student should be helped to understand the major aspects of water pollution and its effect on human life.

Films are available for loan from the Alaska State Library are suggested for viewing. Each film presents a different perspective on the same problem and emphasizes different forms of pollution. If these films are unavailable for loan when you need them, there is an alternative way of presenting this lesson. In the grades 1-3 section of these curriculum materials, lesson II, you will find visuals and discussion questions which will help develop a definition of pollution. The visuals may be reproduced for either individual handouts or for use on an overhead projector.

The emphasis of the following three lessons is on organic pollutants - micro-organisms such as algae, bacteria, and protozoa. The focus on microscopic organisms will help raise interest in the relationship of water pollution to human health.

Vocabulary Preparation: pollution

Instructional Activities:

1. Hold up a glass of clean water and a glass of water which has had a few drops of oil and floor sweepings added. Which would they like to drink? Which is probably bad for your health? Tell the students that this is the

subject of the next few units. They will learn more about how polluted water is bad for their health and how people make water safe for drinking.

2. Write "pollution" on the board and ask what the word is. What does it mean? Ask, how can water get polluted? (List student responses on the board.)(trash, honey buckets - human waste, boat discharge, gas, animal waste, decaying fish, etc.) Tell the class that they will return to the question after viewing a film about pollution.

   Because the water cycle began billions of years ago it is important for us to protect our water resources from pollution. The water we have now is all we're ever going to have.

3. Screen the film selected from the State Library list. If a film is unavailable, or if more reinforcement is needed, use the transparencies contained in the unit for grades 1-3 for an introduction.

4. Hand out "What is Water Pollution?" worksheet and allow time for the students to write and/or draw in their answers.

5. Using student response, compile a class definition of water pollution.

   Suggested definition: Anything added to nature in big enough amounts to be unwanted by someone.

Additional Activities:

- Make posters on how you can help a river from getting polluted.
- Use the word water to start ideas about water. i.e.

  We need it
  Always
  To drink and
  Eat our food, our water source is the
  River

Suggested Speakers:

Village Safe Water

WHAT IS WATER POLLUTION?

From the information on water pollution which you have seen, complete the questions below by writing your answer in each box. If you have your own ideas, write them in also.

1. How does water become polluted?

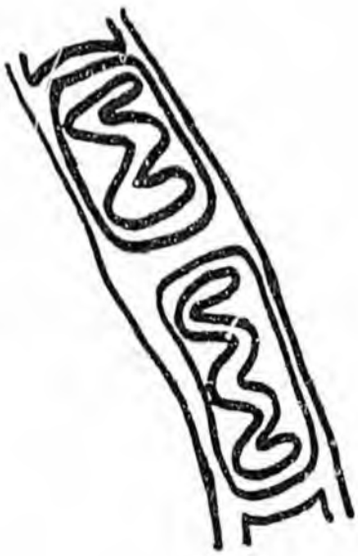
2. How can you get sick from pollution?

3. What are some of the bad things in water that might hurt you?

4. How is water made safe?

5. Write your definition of pollution.

Objective: Students will be able to, after viewing and sketching samples of water-borne micro-organisms, produce a rough sketch of an organism and write the name of the organisms, to the teacher's satisfaction.



Materials:

- Microscope(s)
- Slides of protozoa, algae and bacteria
- One overhead transparency: "The Cycle of a Disease-Causing Micro-organism" (pg. 17).
- One student reading material: "Water-Borne Diseases" (pg. 18).
- Two student response sheets: "Disease Report" (pg. 20) "Slide Response Sheet" (pg. 21).

Introduction: The threat of an epidemic outbreak of water-borne disease is real in Alaska. Documented cases of outbreaks from Barrow to Ketchikan are available from the Alaska Department of Environmental Conservation. The list of infectious diseases carried by Alaskan surface waters includes typhoid, dysentery, hepatitis, giardiasis and others. Unprotected and untreated surface waters are always vulnerable to unpredictable contamination by man, animals or carrion-eating birds.

This lesson teaches about water-borne diseases and micro-organisms to support the need for safe drinking water.

Before class, collect the slides and arrange the microscopes into viewing stations. Allow space for students to draw pictures of the specimens. Space the stations for easy movement between them.

Vocabulary Preparation:

bacteria	protozoa	algae
microscope	micro-organisms	disease
parasite	larva	

Instructional Activities:

1. Before the viewing activity, tell the class that they will see three kinds of tiny life forms which, when taken into the body, can cause serious illness. Many people get sick each year in Alaska because of unsafe drinking water. Sickness may be caused by micro-organisms of many kinds, causing different illnesses. (Germ - a common term to describe a micro-organism that causes disease).

2. Allow all the students to have a look at each slide through the microscope. Tell the students that later in the lesson they will return and make a drawing of what they see.

3. Preface the disease life cycle presentation by asking how illness is spread. The students will likely have many ideas on this subject. Lead into the concept of water-borne diseases.

4. Put up "The Cycle of a Disease-Causing Micro-Organism" (pg. 19) transparency or make xerox copies. Using the information in the reading "Water-Borne Diseases", read or paraphrase the cycle of the giardia. Respond to questions as they arise. The transparency provides a visual reference and a focus for explanation.

5. Explain, if you take a drop of water from a pond and look at it, it doesn't look like much. It's tiny and doesn't have any color. But if you look at the same drop of water under a microscope you may see strange one-celled and multi-celled creatures we call micro-organisms. Tell the students that rivers and lakes that are crystal clear may be polluted, and that some of these micro-organisms may make us sick.

6. Show the glass of water containing algae. Point out which microscope has the algae slide. Tell the class that algae itself does not cause disease, but can cause a bad taste and odor in water and means that the water has been standing and is possible unsafe. Where have you seen this kind of water, what time of year? (Point out that algae grows in standing water in sunny places and is often seen in Alaskan waters in late summer.)

7. Allow time for the students to view the algae and protozoa slide specimens and sketch them on the response sheet.

8. You may also use information and materials presented in Lesson III (grades 1-3).

Additional Activities:

1. Using the "Disease Report" handout, assign students, individually or by groups, a disease to be reported on from encyclopedia books.

2. Draw "The Ugliest Germ". Name the micro-organism, tell where he is found and how to stay away from him.

Suggested Speakers:

Water-Borne Disease
Giardia lamblia

Giardia lamblia is a protozoan - a very small single-celled animal that can only be seen with the aid of a microscope. Giardia is an important disease-causing parasite of man that is found in beavers, moose, dogs, wolves etc. Therefore, Giardia is found in surface water sources tha' these animals live in or use. Giardia lamblia is the most common intestinal parasite in the United States. Giardia is a very small, tough organism. A population of 16,000 Giardia organisms can swim in an ocean no larger than the head of a pin.

Life Cycle

On p[illegible] is the Giardia lamblia life cycle. It starts with man, beaver or other animal. Giardia lives in water or in an animal's intestine. The animal passes the organism through its' feces. Man or an animal eats the cysts that are found in fecally contaminated water or food. Giardia can also be spread between humans by poor sanitary practices. An example of this would be an infected child not washing his hands after going to the bathroom then placing his finger near his mouth, therefore reinfecting himself. The same child can also infect others by having Giardia on his hands. Giardia can be transmitted by feces, fingers, flies or any object that someone who has Giardia uses such as a towel, bedclothes, or a cup and gives that infection to someone else. This is known as the Giardia life cycle because the life of the organism occurs in a cycle.

Symptoms

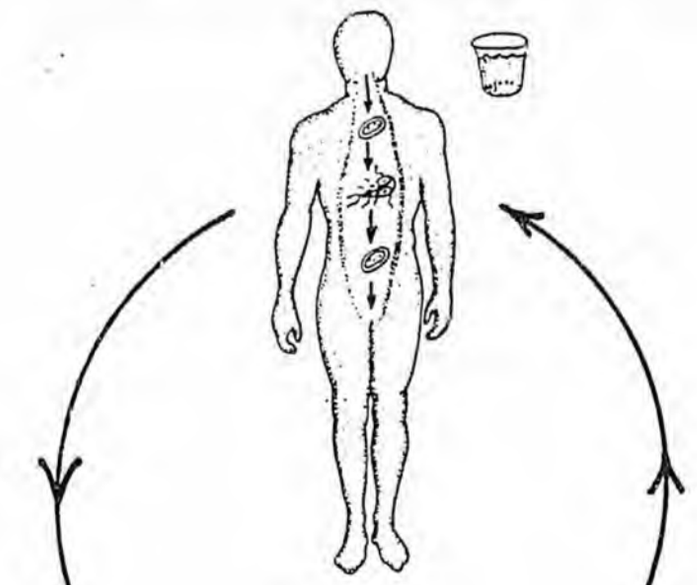
Some people who have Giardia do not show symptoms. Some of the symptoms people who are infected might experience are: abdominal bloating, cramps, excessive gas, tiredness, diarrhea and weight loss. A Giardia infection may reoccur at anytime.

Prevention/Treatment

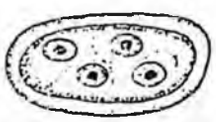
You can prevent getting Giardia by:
* Drinking water that has gone through a water treatment plant
* Boiling your water for one minute
* Using a filter that is one micrometer
* Washing your hands carefully with soap after using the toilet or handling diapers
* Chemically treating your water

If you get Giardia the doctor can prescribe some drugs that will help you.

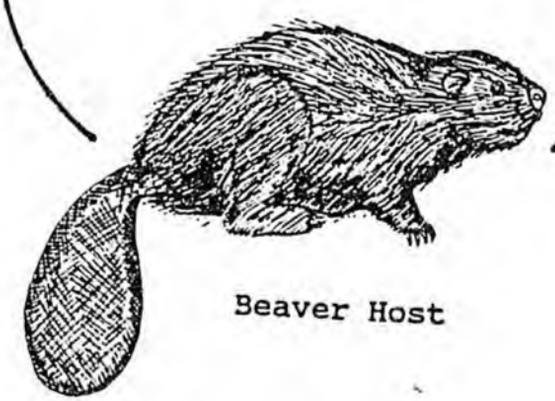
What might happen if people drink water that has Giardia in it?



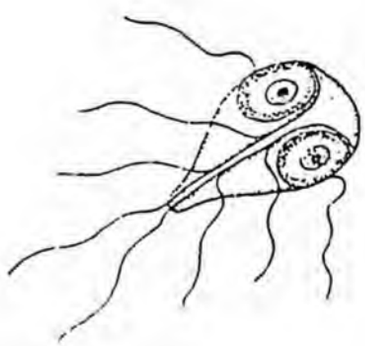
Human Host



Cyst
(In contaminated water or food)



Beaver Host



Trophozoite
(Motile stage in mammal host)

Giardia lamblia LIFE CYCLE
(Human or beaver host)

DISEASE REPORT

The threat and potential threat to safe drinking water in Alaska comes from various sources. Each pollutant, in the right amount and under the right conditions, will cause illness and disease in human beings. These diseases can all be caused by pollution of drinking water:

Typhoid

Cholera

Dysentery

Infectious Hepatitis

Diarrhea

Salmonella

Gastroenteritis

Tapeworm

Use an encyclopedia to read about one of these diseases and write a short report on the health problems.

ALGAE

Slide Response Sheet

Contaminated water supplies directly affect health, causing such water-borne illnesses as infectious hepatitis, shigellosis, diarrhea, and such skin infections as impetigo. There is a high incidence of these diseases in rural Alaska. When safe water is difficult to obtain in a community, health is also affected, as adequate clean supplies are necessary for personal and household hygiene: oral hygiene, treatment of minor cuts and bruises, food preparation, clothing and personal hygiene.

Draw one picture from each of the **two** categories of microorganisms.

PROTOZOA