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ABSTRACT

Project Learning Tree (PLT) is a supplementary environmental education program intended for use in and out of the classroom with young people, their leaders, and teachers in kindergarten through grade 12. The PLT curriculum provides supplementary activities in various subject areas, such as social studies, language arts, mathematics, science, and art. This document provides both a description and rationale for the program. It also details the process through which the program has evolved since 1976. It includes sections dealing with: (1) the goals of PLT; (2) how the PLT process works; (3) the administration of PLT; (4) some of the distinguishing features of PLT; and (5) examples of some of the national recognition the program has received. Attached is a brief flyer that summarizes and promotes the program, along with three issues of "The Branch," PLT's newsletter. (TW)

PROJECT LEARNING TREE

A Program of the American Forest Foundation

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I. SUMMARY

PROJECT LEARNING TREE (PLT) is a supplementary, environmental education program for use in and out of the classroom with young people, their leaders and teachers in kindergarten through grade twelve.

PLT is jointly sponsored by the American Forest Foundation and the Western Regional Environmental Education Council. The Society of American Foresters and the U.S. Forest Service are national associate sponsors. The program provides teaching strategies, activities and resources that help students become aware of their presence in the environment, their impact upon it, and their responsibility for it. PLT's goal is to help students develop the skills and knowledge to make informed decisions regarding the use and management of the environment -- and the confidence to take action on their decisions.

The PLT curriculum provides supplementary teaching activities in various subject areas -- social studies, language arts, mathematics, science, and art. The program was developed jointly by representatives of the forest products industry, environmental educators, and government resource managers. Curriculum activities were created by teams of elementary and high school teachers -- assisted by state department of education consultants, school administrators and college professors. Technical material was provided by conservation organizations, state and federal agencies, and the forest products industry.

PLT is implemented on a state-by-state basis by a co-sponsoring organization -- the state department of education, and/or state forestry agency or association, extension service or other broad-based environmental education group. An implementation plan designed by people within the state includes workshops to develop leaders who, in turn, give workshops to train teachers in the classroom use of PLT. This strategy helps develop a support network for the program in each state.

Since 1976, over 150,000 educators have been introduced to PLT in the 46 states, five Canadian provinces, and Sweden, where it is available. Among PLT's many awards was one presented by President Reagan, honoring PLT as one of the nation's exceptional private sector/volunteer initiatives.

II. WHY ENVIRONMENTAL EDUCATION?

Environmental issues make headlines. But headlines tell only part of the story. Decisions that affect the environment are <u>not</u> made just by politicians, or at the ballot box. They are made everyday, by everyone.

When we turn on a light switch, use some form of transportation to go to school or work or to the woods for a hike, when we fix a meal, wrap a package, or send a letter -- we are making choices that have an impact on natural resources and the environment. We are acting as environmental decision-makers.

The decisions we make, whether in determining policy or choosing lifestyles, are complex. Americans want clean air, clean water, healthy streams and lakes. But they want jobs and cheap energy, too. Americans want pristine wilderness. But they also want easily accessible recreation areas for hunting, hiking and fishing.

PROJECT LEARNING TREE is a supplementary environmental education curriculum designed to prepare students to make environmental decisions responsibly -- based on information, not just emotions, and with better understanding of the consequences of their behavior in the world in which they live.

III. WHY "TEACH FROM TREES"?

> The most effective environmental education programs emphasize student interaction with the natural and social environment. Using the out-of-doors as a learning laboratory whenever possible is emphasized through the PROJECT LEARNING TREE materials at all grade levels. The social process through which people make and implement environmental decisions -- government, law, economics, communications, and others -- are also best studied in the community where they operate.
>
> Rudolph J.H. Schafer
> Director,
> Environmental/Energy Education
> California Department of Education

PROJECT LEARNING TREE uses the forest as a "door" through which students in kindergarten through high school can enter and explore the environment. Based on trees, PLT offers unique opportunities to expose young people to all facets of human relationships with the environment.

Accessibility. Trees are not like oil fields or the ocean. They are everywhere, even in the midst of cities. Teachers have ready and economical access to an educational resource that can be used in, or just outside the classroom. PLT activities encourage the use of the community, schoolyard and neighborhood -- and are adaptable to most any environment.

Concreteness. Forests provide scenic and recreation opportunities, as well as thousands of products: houses for shelter, paper for communications and packaging, medicines, chemicals, even energy for heating homes and running industrial plants. Because trees touch our lives every day in so many ways, students can be directly exposed to the many different points at which their lives interconnect with the environment -- and how the choices they make can affect their lifestyle and the world around them.

Comprehensiveness. Using the forest as a platform for environmental exploration permits students to develop decision-making skills applicable to all aspects of the natural world: energy, air and the atmosphere, water supply and quality, land use, soil watershed protection, wildlife habitat, waste disposal and recycling.

Interconnectedness. Forest-related environmental issues span scientific, technological, economic, social, aesthetic and ethical concerns. Using the forest resource, PLT illuminates the relationship among all factors that must be considered in making responsible environmental decisions. And because the growth cycle of trees runs for decades, PLT lessons help students understand how the impact of all environmental decisions can spread to future generations.

IV. ABOUT PROJECT LEARNING TREE

PROJECT LEARNING TREE was jointly initiated in 1973 by the Western Regional Environmental Education Council (WREEC) and the American Forest Institute (now American Forest Council).. AFC represents the nation's forest-based industries. WREEC membership consists of the environmental education coordinator in the state department of education, and a representative of the state resource management agency, from 13 western states.

Teachers, curriculum specialists, and college professors joined with specialists from industry, public agencies and conservation organizations to write the initial curriculum guides. After field testing and use for a year in ten western states, the original guides were revised and a new edition was published in 1976 -- based on the field tests and comments received from teachers using PLT in the classroom.

The program expanded eastward and new states were added each year to the PLT roster. By 1987, 46 states, five Canadian provinces, and Sweden were participating in the program. The guides are now available in Swedish (Lära med skogen) and in French (L'arbre en tête).

Entering its second decade, PLT is sponsored nationally by WREEC and the American Forest Foundation (AFF). AFF is a 501(c)(3) charitable education foundation supported by grants from individuals, foundations and the forest products industry. The Society of American Foresters and the U.S. Forest Service are national associate sponsors.

PLT is notably diverse in the broad range of local cosponsors who implement the program in each state -- the state department of education and/or the state forestry agency or association, extension service, or other broad-based environmental education organization.

A. Goals of PLT

- To prepare kindergarten through high school young people for informed and responsible decision-making concerning natural resources and human use, and management of those resources and the environment.

- To enhance and strengthen all elements of the regular curriculum by offering those who work with youth a selection of supplementary, environmental education activities for use in the classroom, or in programs like Girl Scouts, Boy Scouts, 4-H, etc.

- To improve and enrich education about natural resources and the environment through cooperative support of educators, private industry, resource agencies and private conservation organizations, nationally and in the states and provinces.

B. How PLT Works

PROJECT LEARNING TREE is an interdisciplinary, supplementary curriculum introduced through teacher workshops.

Workshops. Leadership workshops are held to train a cadre of educators who, in turn, coordinate and lead introductory workshops on a volunteer basis for teachers and others. In all workshops, PLT activity guides and other materials are provided free of charge -- and participants get a hands-on introduction to a range of strategies for introducing PLT into the classroom.

By thus reaching out directly to teachers, and building on the energies of hundreds of volunteers, small investments in PLT can be multiplied in thousands of classrooms.

More than 2,000 facilitators have been trained to lead PLT workshops for teachers, foresters, scout and 4-H leaders and others who work with youth. Since the program began, more than 125,000 educators in the United States have been introduced to PLT through these workshops. Another 20,000 educators in five Canadian provinces, and 6,000 in Sweden use PLT. As many as 1.2 million young people are taught each year by educators trained in the use of PLT materials -- totalling more than 10,000,000 students reached by PLT by 1987.

College and University Courses. PLT is being used increasingly in accredited undergraduate and graduate courses, including education, environmental education, and forestry, among others.

Classroom Use. "PLT Supplementary Activity Guides" -- one for teachers of kindergarten through grade six, and another for grades seven through twelve -- form the core of the program. They suggest activities and strategies that help young people become personally aware of their presence in the environment, their impact upon it, and their responsibility for it.

Activities are designed to be open-ended and to encourage teacher-pupil creativity. They are

integrated into and support the regular curriculum in science, social studies, mathematics, language arts, art, and other subjects.

Program Impact. PLT's content, and the validity of its instructional methodology, have been verified by a range of experts and by more than a decade of successful use in the classroom. PLT's impact on young people has been assessed through studies at the University of Washington, Northern Arizona University, the University of British Columbia, and elsewhere.

These full-scale studies show that children enjoy PLT activities, and that PLT is effective in changing young people's knowledge of and attitudes toward responsible development of natural resources. The evaluations also found that 90% of educators who had attended PLT workshops used the PLT activities in their teaching.

C. How PLT is Administered

The program is administered nationally by the American Forest Council, working on behalf of the American Forest Foundation. A central staff, directed by an environmental educator, oversees PLT implementation in the states -- helping to coordinate and run workshops, counseling state coordinators and workshop leaders, and ensuring quality and continuity in each of the states where PLT is used.

The PLT Planning and Advisory Council, drawing together educators and representatives of industry, helps guide the operations of the program nationwide.

In most of the 46 states where PLT is available, leading educators and community representatives serve on a steering committee that helps determine the implementation strategy best suited to the particular needs of their state. Generally, the person responsible for environmental education in the department of education, forestry agency or association, extension service, or a combination of these, coordinates PLT at the state level.

PLT is carefully monitored. Before any workshop is conducted, a proposal and agenda is submitted to the state coordinator and national staff. Afterwards, a participant evaluation and facilitator's report are submitted for review.

D. Distinguishing Features of PLT

Taken together, PLT's features distinguish it from most other environmental education efforts.

Renewability. PLT's emphasis on renewable natural resources as well as nonrenewable resources is one of its unique features. It is the only instructional program of its kind that emphasizes renewability.

Flexibility. PLT is not a self-contained curriculum unit with a standard recipe for use in the classroom. Because it is designed for integration into the regular curriculum, educators can adapt it to their own teaching styles and the special needs and learning styles of their students.

This flexibility maximizes its use and helps make environmental awareness a continuing and pervasive element in children's learning experiences. According to the president of the Pennsylvania Alliance for Environmental Education, "teachers with whom I have worked are repeatedly impressed with the flexibility and practicality of PLT lessons."

Balance. The fact that PLT was developed jointly by industry, environmentalists, educators, and resource management experts ensures a balanced approach to environmental concerns. "Environmental Action" magazine cited PLT as the "only curriculum material produced by an industry association that wins consistently high praise from educators."

Correlations. PLT activities have been correlated with the Silver-Burdett Science Series (k-6), the Holt Science Series (k-6), and the Girl Scout program. PLT has also been integrated into several state science curricula.

Local Autonomy. PLT implementation is planned and managed by educators within each state where the curriculum is used -- assuring the closest fit possible between local needs and PLT resources.

Networking. One of PLT's principal aims is to create a network of people skilled im cultivating environmental awareness among youth. The network is built through a statewide implementation strategy that begins with the state sponsoring organization.

Drawing from the state's broad pool of education, resource, industry and community talent, a state steering committee is established and a core of workshop leaders trained. Together, they provide continuity to PLT and a support system for the 125,000 U.S. educators using PLT with youth.

This network of 125,000 educators is also sustained through the "Branch", a periodic newsletter mailed to all who have participated in PLT workshops. Through the "Branch", users of PLT can share successful implementation strategies and can learn about other materials and services for use inside and outside the classroom.

Volunteer Support. On the national level and in the states and provinces, volunteer contributions are vital to making PLT work. In every state, educators serving as workshop leaders spend hundreds of hours annually planning and coordinating PLT activities. And facilities for workshops, along with administrative services, are provided by forest products companies, public resource agencies, departments of education, professional teacher organizations and others.

E. National Recognition

PLT and/or its cosponsors have won all major environmental education awards, including:

- The Distinguished Service Award from the North American Association for Environmental Education.
- The Distinguished Service Award from the Conservation Education Association.
- The National Conservation Education Achievement Award from the National Wildlife Federation.
- The Education Award from the Arbor Day Foundation.
- The Educational Sponsorship Award from the National Association for Industry-Education Cooperation.
- In addition, President Reagan honored PLT in 1985 during a private Rose Garden ceremony for being one of the nation's most outstanding private sector/volunteer programs.

GOAL OF PROJECT LEARNING TREE

To help students in grades K-12 become aware of their presence in the environment, their impact upon it, and their responsibility for it, and to develop the skills and knowledge to make informed decisions regarding the use and management of the environment — and the confidence to take action on their decisions.

WHAT IS PROJECT LEARNING TREE?

- Project Learning Tree is an award winning environmental education program designed for teachers and other educators working with students in kindergarten through grade 12.
- PLT uses the forest as a "window" into the natural world, helping young people gain an awareness and knowledge of the world around them, as well as their place within it.
- PLT is a source of interdisciplinary instructional activities and provides workshops and in-service programs for teachers, foresters, park and nature center staff, and youth group leaders.
- PLT is people! It is an international network of students, teachers, parents, community leaders, educational administrators, and representatives from the forest products industry, resource agencies and conservation groups.
- PLT works in the city and the country, whether there is a forest or a single tree.
- PLT helps prepare students to make wise decisions about conservation practices and resource use.

WHAT IS IN THE PROJECT LEARNING TREE GUIDES?

- PLT provides ready-made lessons and activities that can be used to supplement existing curricula.
- PLT activities are action-oriented and can be used in any order and require little, if anything, in the way of equipment.
- PLT activities can be used with students with special needs.
- PLT was written by classroom teachers with the support and assistance of environmental educators, foresters and representatives from forest products companies, resource agencies, and conservation groups.

WHAT ARE THE BENEFITS TO STUDENTS?

STUDENTS:

- learn how to think, not what to think, about our complex environment.
- discover how subjects and skills taught in the classroom relate to the world around them.
- develop skills in creative problem solving, critical thinking, evaluation and research.
- have fun while learning.

WHAT ARE THE BENEFITS TO EDUCATORS?

EDUCATORS:

- discover over 175 activities that help teach science, mathematics, language arts, social studies, humanities, and other subjects.
- receive a ready-to-use PLT guide which actively involves students in the learning process.
- find that PLT activities work with a variety of teaching and learning styles.
- participate in a creative hands-on workshop that helps improve their classroom skills.
- receive a complimentary subscription to PLT's newsletter, the *Branch*, filled with teaching ideas and activities.

BACKGROUND ON PROJECT LEARNING TREE

PLT is a grass roots volunteer program that works in conjunction with local school districts and state agencies.

State coordinators and steering committees guide the development of the program and select and train workshop leaders. PLT is administered nationally by the American Forest Council, a forest products industry trade association dedicated to improving management of the nation's forests.

PLT is cosponsored by the American Forest Foundation (AFF) and the Western Regional Environmental Education Council (WREEC).

AFF is a 501(c)3 charitable education foundation supported by grants from individuals, foundations, and the forest products industry. WREEC is an association of representataives from departments of education and departments of natural resources from 13 western states. The Society of American Foresters and the U.S.D.A. Forest Service are national associate sponsors of PLT.

PLT has reached over 150,000 educators and more than ten million students in 46 states, five Canadian provinces, and Sweden, since it was field tested and revised by classroom teachers in 1977. Research and field surveys show PLT to be an effective teaching tool. Feedback from teachers ensures that PLT will remain a valuable and useful curriculum.

HOW DO I GET INVOLVED?

You find out about PLT resources and activities at a six-hour workshop held in your area, where you will meet with foresters, resource professionals, and other educators. During this workshop you will:

- participate in hands-on activities, both indoors and out.
- learn more about trees and forest ecology from foresters.
- expand your knowledge and teaching skills.
- find out how PLT can enliven your curriculum.
- meet and share ideas, information and resources from other professionals.

At the workshops you receive the PLT guide free of charge and have the opportunity to plan ways in which the guide can be used in your classroom

WORKHOPS IN YOUR AREA:

To find out about the next PLT workshop in your area, or for more information about PLT, contact your PLT state coordinator or write to: PROJECT LEARNING TREE, 1250 Connecticut Avenue NW, Suite 320, Washington, DC 20036.

Kathy McGlauflin, Director

July, 1987

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NEW BRUNSWICK

Dave Folster, Secretary-Manager, Canadian Forestry Assoc. of New Brunswick, Inc., 65 Brunswick St., Fredericton, New Brunswick E3B 1G5 (506)455-8372

NOVA SCOTIA

Elizabeth Northcott, Nova Scotia Forestry Assoc., 64 Inglis Place, Suite 202, Truro, Nova Scotia B2N 4B4 (902)893-4653

QUEBEC

Claude Phaneuf, Ministere Energie et Ressources, Education en conservation, 1530 Boulevard de l'Entente, Quebec City, Quebec G1S 4S7 (418)643-2085

SWEDEN

Bertil Gustafson, Skogsindustrins Information, Villagatan 1, S-114 32 Stockholm

BRANCH PLT™

THE MISSING LINK

Several generations of schoolchildren have by now been taught that glass is made from sand But how many actually believe this? I mean, would you? Is there even the slightest connection between the grit that gets in bologna sandwiches on the beach and the clear panes that keep the winter winds at bay? Certainly not

Yet millions of children — and adults — accept it as fact, despite the extreme improbability In fact, we all make leaps of faith accepting certain truths, which are far from self-evident, each and every day And the pressure to do so increases as we further enter the high-tech era.

Some have referred to this phenomenon as the "Supermarket Syndrome," referring to the fact that people could be easily led to believe that meat comes from factories, manufactured in plastic trays with shrink wrap. The mental connection between store-bought beef and cows is often missed, nevermind the link between plastic trays and offshore oil rigs In such a complicated world, the act of turning on a light is no less remarkable or more comprehensible for the majority of us than is the Aurora Borealis

Tracing wood from forest to finished product in many cases

See MISSING LINK, page 3

SCHOOL SITE ACTION PROJECT

The following project can be used as a supplement to PLT Elementary activity No 75 — Improve Your School Site

I Identify habitats (may amount to individual trees) and areas of high and low use Map these

II Brainstorm a list of ideas for creating study areas, wildlife habitats, and for alleviating any problems caused by human impact

III Develop map including all potential projects

IV Develop an action plan for achieving your goal

A Consider the actions available 1 Persuasion, 2 Consumerism, 3 Legal, 4 Political, 5 "Eco-management"

B Ask the following questions *

1 Is there SUFFICIENT EVIDENCE to warrant action on this issue? 2 Are there ALTERNATIVE ACTIONS available for use? What are they? 3 Is the action chosen the MOST EFFECTIVE one available? 4 Are there LEGAL CONSEQUENCES of this action? If so, what are they? 5 Will there be SOCIAL CONSEQUENCES of this action? If so, what are they? 6 Will there be ECONOMIC CONSEQUENCES of this action? If so, what are they? 7 Do my PERSONAL VALUES support this action? 8 Do I understand the PROCEDURES necessary to take this action? 9 Do I have the SKILLS needed to take this action? 10 Do I have the COURAGE to take this action? 11 Do I have the TIME needed to take this action? 12 Do I have all of the OTHER RESOURCES (other than the above) needed to make this action effective? 13 What are the ECOLOGICAL CONSEQUENCES of this action?

Activity by Dan Sivek, Wisconsin Dept of Natural Resources, West Central District, Eau Claire, Wisconsin

* From Hungerford H R and R B Peyton A Paradigm for Citizen Responsibility Environmental Action Current Issues The Yearbook of Environmental Education and Environmental Studies Eric SMEAC Ohio State University Columbus Ohio p 152

PERSPECTIVE ON "GROWING" OLD

Plants have been on this planet for 430 million years, far longer than the 1 75 million years primitive man and his ancestors have been roaming the hills and valleys First developing on mudflats and estuaries, most early plants were leafless, similar to our club mosses and horsetails, reproduced by spores, and had primitive root systems Over the next 100 million years, plants developed a vascular system to transport water, thickened cell walls to encourage upright growth, leaves for increased photosynthesis, and seeds for

See GROWING OLD, page 3

August 3-6, 1986 The 33rd Annual Conservation Education Association Conference will be held at the Conservation Education Center and Springbrook State Park near Guthrie Center For more information, contact Robert Rye, Conservation Education Center, RR 1, Box 53, Guthrie, IA 50115 or call (515) 747-8383

September 11-17 1986 NAEE Conference The 1986 Conference of the National Association for Environmental Education will include speakers, symposia, workshops, panels, papers, presentations and more Conference participants are not required to be NAEE members but must register for the conference The deadline for workshop proposals, presentations and other conference programs is April 15 The symposium will be held on the campus of the University of Oregon, Eugene, OR For more information, contact Jerry Berberet, Willamette University, Salem, OR 97301 or call (503) 370-6258

PLT PEOPLE

Rhett Bickley, South Carolina PLT coordinator, was recently named Forest Conservationist of the Year by the South Carolina Wildlife Federation Rhett was honored for his leadership in providing PLT workshops to teachers throughout the state Congratulations, Rhett!

Project Learning Tree is a kindergarten through high school education program cosponsored by the Western Regional Environmental Education Council and the American Forest Foundation.

CHEROKEE LEAF PRINTING

By learning the craft of Cherokee leaf printing, you can bring some of nature's beauty indoors The idea is to transfer the natural dyes of a leaf to fabric, retaining the design of the original leaf You will do This is done by beating the leaf chlorophyll directly into the cloth, and then setting it by natural chemical action This technique can be used to decorate any natural-fiber cloth surface, such as tablecloths, curtains and wall hangings

Plain white 100 percent cotton is the best material to use for leaf printing If you would like to cut costs, unbleached muslin is also suitable and gives a natural, hand-worked look to your project Fabric should always be prewashed to remove any sizing chemicals that could interfere with dye transfer

Very little equipment is required for leaf printing You will need a medium-sized, flat-headed hammer, some masking tape, and a large flat board as a pounding surface An adequate supply of newspapers and waxed paper should be available for sandwiching layers of leaves and cloth Pick leaves for printing that are young and tender Although many kinds of leaves can be used, marigolds, carrot tops, stawberry leaves, tulip poplar, and the red or white oaks are especially suitable

Lay several thicknesses of newspaper on your flat board Spread your cloth, right side facing you, on top of the newspaper Put the leaf or leaves on the cloth in the pattern of your choice Waxed paper should be placed over the leaves and secured with masking tape around the edges

Using a flat-headed hammer, pound the chlorophyll out of the leaf until the color transfers to the cloth Pound evenly to get a good print If the leaf does not print evenly, crumple up another leaf, dip it in water, and use it to "paint" the unstained spots

The dyes from the leaves must be set into the fabric to resist fading The color of the finished print depends on the setting medium you select

For rich reddish-brown hues, the cloth can be soaked in a solution of one cup of wood ashes to three gallons of cold water After five minutes of soaking, it should be rinsed in clear water and air-dried away from direct sunlight

To retain the natural green shades of your prints, soak the finished piece in one-half cup salt to two gallons of water for ten minutes Rinse and dry as above

This activity was adapted, with permission, from the article "Cherokee Leaf Printing", by Connaree Highfill, which appeared in the May 1980 issue of *National 4-H News*

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BRANCH staff: Marty Anderson, Wayne Curtis, Phyllis Dixon, Linda Langley, Kathy McGlauflin, Eleanor Norton, Ann Rosenheim and Tom Truswell.

MISSING LINK, *(From page 1)*

takes less of an act of faith than, say, following a winding trail from a mile-deep mine in West Virginia to an automobile in Detroit. In furniture, the wood grain is visible in the same form as in the cross section of a lightning-split tree. And freshly-cut two-by-fours at a construction site have the same appealing scent as an August walk in a conifer forest.

Even some of the more modern products from the forest can be spotted immediately. Anyone who has seen a pile of sawdust and woodchips knows right away the origins of particleboard and chipboard.

But other links are lost. Such as that between individual tree species and the products they produce. Do most children really understand that maple syrup comes from maple trees? Or is "maple syrup" just a brand name to them, like Sergio Valente jeans? How about ash? Imagine if an ash leaf said "baseball bat" with the same instant clarity to children that a pair of golden arches says "hamburgers."

A century ago, people were more likely to work the wood themselves, making eating utensils, pails, barrels, wagon wheels, furniture and the like. Today, as victims of the Supermarket Syndrome, we often see wood as a generic object, a replacement for plastic, or metal. Through education and hands-on experience, that lost knowledge can be slowly regained. Leaves can become "logos" for an endless variety of useful products.

GROWING OLD, *(From page 1)*

protected germination. These plants reached heights of about 100 feet, and some began to develop woody trunks.

About 95 million years ago, flowering, seed-bearing plants began to dominate the global ecosystem, more effectively attracting pollinators and protecting the embryonic seed. A variety of leaf sizes and shapes evolved so that the plant could adapt to almost any environment. An example of this is the smooth-edged leaf with an elongated "drip" tip, essential in the tropics for draining water from the plant and preventing fungal growth. Many of the leaf shapes found in fossils of that era look almost like the trees in your backyard. In some of the fossils, it appears that you're seeing a birch or sassafras leaf. However, except for the ginkgo tree, which has remained unchanged for 225 million years, none of the fossils found actually match any living species.

The dominance of flowering plants coincided with the dramatic rise of mammals on earth. In the last 50 million years, plants have continued to adapt to the changing demands of the environment, constantly providing better ways to disperse seed and pollen. Many species of plants have inhabited earth for millions of years.

Remarkably, there are several living plants which are thousands of years old. The oldest known plant producing seed is the bristlecone pine, occupying the semi-arid craggy heights in southwestern United States. The "Methuselah" of this species was discovered in 1957 in California's Sierra Nevada range. This pine tree is more than 4,600 years old! It was alive when the Egyptians were building their pyramids.

Some plants attain unusual longevity when they reproduce by cloning. Sprouting from a single seed, these plants form a huge network of branches by producing genetically identical extensions of themselves.

Two shrubs that reproduce by this method may even predate the ancient bristlecone pine. One, affectionately nicknamed "King Clone", is a foul-smelling creosote bush in the Mojave Desert. It is 70 feet long, 25 feet wide, and through cloning has lived to be 11,700 years old. Common in desert areas of the Southwest and northern New Mexico, creosote bushes are extremely drought-resistant, a factor which may contribute to their longevity.

Another, possibly older, example of a bush which reproduces by cloning is the box huckleberry. As with the creosote bush, the age of the box huckleberry was estimated by determining the present annual growth rate and multiplying it by the distance that the plants have spread. Covering 100 acres in western Pennsylvania, the oldest recorded member of this species has survived for 13,000 years. This would mean that it germinated when the last ice sheet was receding and our European ancestors still lived in caves.

This information may be useful as background material for PLT Elementary activity No. 37 — Tree Cookies.

COASTAL CAPERS

Coastal Capers is a marine education primer designed to provide elementary grade teachers with activities or "capers" that introduce the marine environment. The primer may also be used by teachers with remedial or special education students, or by 4-H and scout leaders. The twenty capers are designed to motivate students to learn basic skills in science, math, language arts, social studies, and art.

Written by Lundie Spence and Vivian Barbee Cox, *Coastal Capers* is part of the UNC Sea Grant Marine Education Manual series. The other five manuals (*Coastal Geology, Seawater, Coastal Ecology, Coastal Beginnings,* and *Connections*) have activities more suitable for older students (fourth through eighth graders).

The primer consists of three parts: 20 capers, a glossary of animals, and an elementary marine education materials appendix. A sample caper appears on this page and page five.

Coastal Capers is available for $3.50 from UNC Sea Grant College Program, Box 8605, North Carolina State University, Raleigh, NC 27695-8605.

Untitled

A lucky young tree near the water
It's growing much more than it oughter
The branches are twisted, the trunk is bent
No animals live there, none pay rent
This tree is colorful in a gruesome way
With a trunk that's green, light brown, and grey
It's an original, one-of-a-kind work of art
Too bad the scars on it break my heart
Though thin and naked it looks right now
I'd rather kiss my tree than a Guernsey cow

— Mary Cressel

WHAT BIRD ARE YOU?

Purpose

To show that a bird's physical features — its beak, legs and neck — reflect how it has adapted to its surroundings.

Vocabulary

Adaptation — change in a plant or an animal that increases its chances for survival.
Environment — all of the biological, chemical and physical conditions, living and nonliving, that affect an organism or group of organisms.

Materials

Scissors, crayons, glue, construction paper

Teacher background

Birds come in many shapes and sizes. Each evolved over a long time to its present size and shape. Often the bird's features identify where the bird lives and how it feeds.

The long-legged heron wades in shallow water to hunt for minnows. The osprey, which possesses sharp claws and excellent eyesight, swoops down and nabs fish from coastal sounds and bays. Sandpipers use their beaks to poke the surf for worms and small shrimp-like crustaceans.

Teacher preparation

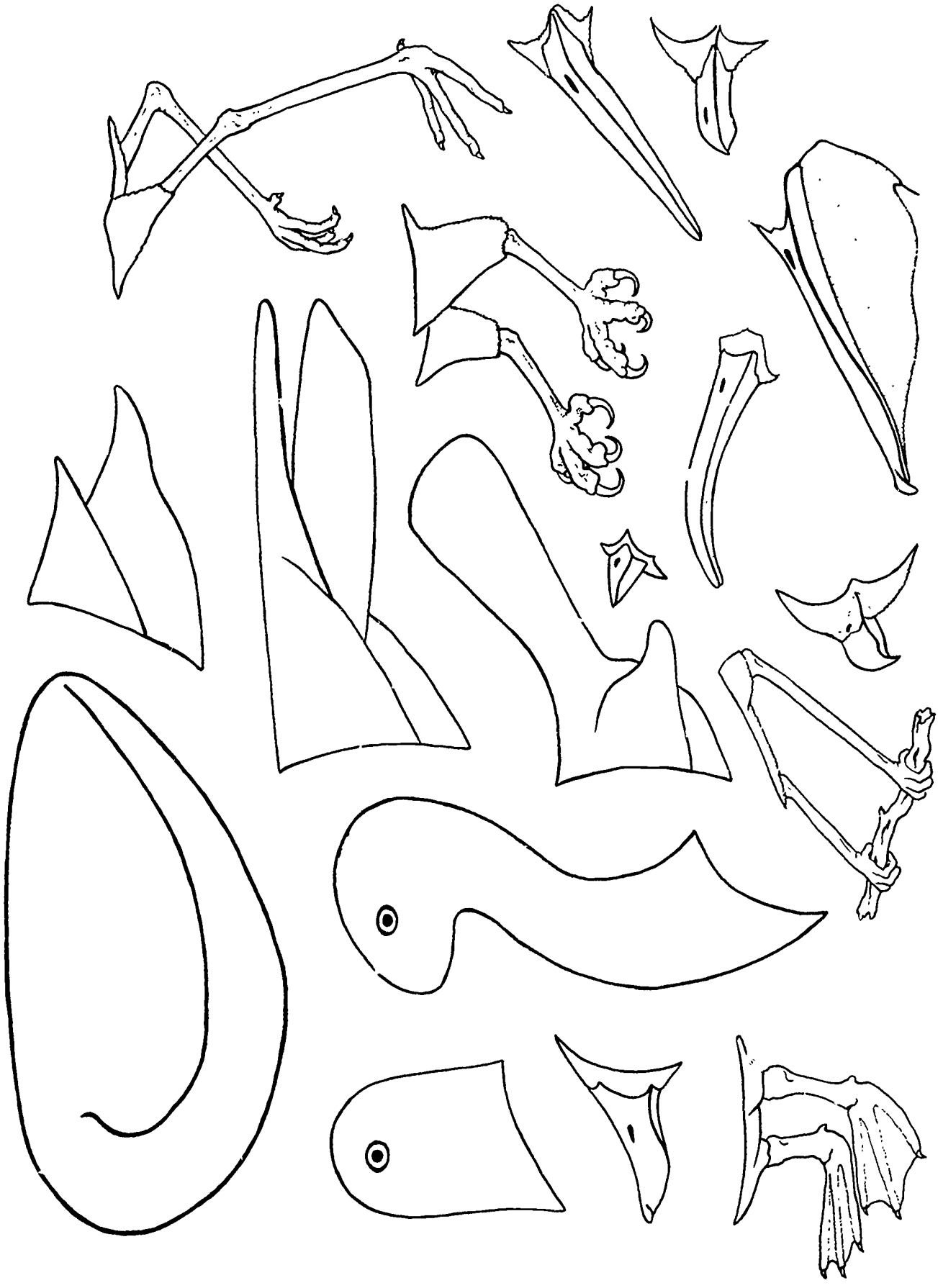
Introduce the class to the various shapes of birds by using films and books. A bird feeder outside the window will attract a variety of birds for direct observation.

Put together a demonstration bird while students discuss the functions of feet, necks and beaks.

Procedure

Duplicate a bird pattern for each team or student. Have the students cut out the bird parts and choose the features they want to include on their bird. Ask the students to form a bird with the parts they've chosen and glue it to construction paper. The students may paint a scene on the construction paper to illustrate the bird's habitat.

It is important to follow the exercise with a group discussion of the bird designs. Why did they use that particular leg or beak? How would the bird feed or where would it live?



RESOURCES

SLIDES AND SLIDE SHOWS

MAMMAL SLIDE LIBRARY

The Mammal Slide Library offers a collection of 850 slides of mammals from around the world, each available at a cost of only $1 00 to the environmental educator Rare and endangered species as well as those found locally in your neighborhood are available

Slides can be selected from a slide list or a catalog The slide list provides common and scientific names and indicates the general nature of the picture The catalog gives common and scientific names, geographic distribution of species, a brief description of the picture, the location and date the picture was taken, the photographer's name, and is indexed by common and scientific names

You can obtain the slide list (free) or a catalog ($2 00 in USA, Canada, and Mexico, $4 00 elsewhere) by sending a request to

Mammal Slide Library
Department of Zoology
State University of New York
Oswego, NY 13126

DISCOVER WILDLIFE

Discover Wildlife in Your World is the exciting new addition to the National Wildlife Federation's filmstrip, slide/tape, and multimedia programs Appropriate for any age, it enhances the appreciation and awareness of wildlife in our world

Through this program, you can discover fascinating animals in many environments — forests, deserts, wetlands, and rivers — and learn special techniques for attracting wildlife and improving habitat in an urban, suburban, or rural setting

From screech owl to otter, flying squirrel to starfish — exciting animals come to life in this professionally-narrated discovery tour of the wildlife in your nearby world

The kit contains 80 slides/frames, cassette tape, narrative script, and an educator's guide with activities and suggestions for adaptation (grades 3-8). Activities include animal flashcards, wildlife advocacy, wildlife museum construction, "What Animal Am I?" game, and many others The cost of the filmstrip set is $24 95, while the slide program is available for $26 95 You can order this kit by sending a check for the specified amount (plus $2 00 shipping charge) to

National Wildlife Federation
1412 Sixteenth Street N W
Washington D C 20036 2266

Be sure to make your check payable to the National Wildlife Federation and provide your complete mailing address

* The National Wildlife Federation has many other filmstrip, slide/tape, and multimedia programs available Contact them at the above address for further information

LOGGING FILM

Scholars and professional filmmakers worked for seven months to reassemble *From Stump to Ship A 1930 Logging Film* from silent motion pictures and a script written by Alfred Ames, president of the Machais (Maine) Lumber Company in the early 1930s It is said to be the most complete record of long lumber operations known to exist The film is a first-hand look at logging before modern technology, including cutting in the forest, the exciting river drive, mill operations, and shipping on sailing schooners

Recognizing its historical potential, the Maine Humanities Council awarded a grant for preservation and public outreach with further funding from Champion International Corporation and the Maine Community Foundation

To launch the film in 1985-86, project staff covered more than 5,500 miles in a program of 22 screenings throughout Maine The presentations proved uniquely successful in tiny Lowell, people arrived on snowmobiles trough the woods and packed the wood-heated grange hall, at the University of Orono one night, audiences overflowed the auditorium twice Its message proved to be accessible to all and during the initial screenings the film elicited frequent requests from teachers for classroom use

From Stump to Ship (28 minutes, black and white) is available for sale on VHS videocassette ($30 00) and 16mm film ($250 00) Write to FROM STUMP TO SHIP, c/o PICS, University of Maine at Orono, Orono, Maine 04469 The 16mm film may be rented for $6 50 by users in New England only from the Instructional Systems Center, Shibles Hall, University of Maine at Orono, Orono, Maine 04469

This film would be a good resource for PLT Secondary activity No 83 — Careers in Forestry

REFERENCE BOOKS

Northern Hardwood Notes — This guide for field foresters includes 48 brief notes on various aspects of northern hardwood management Order for $5 50 a set from Superintendent of Documents, U S Goverment Printing Office, Washington, D C 20402.

Just Open the Door A Complete Guide to Experiencing Environmental Education is available for $9 75 from Interstate Printers and Publishers, Inc , 19-27 North Jackson Street, Danville, IL 618?2 It contains nearly 300 lesson plans for use by middle/junior high school teachers and students Environmental education is defined in its broadest sense and thus the activities serve as a means of integrating different content and skill areas into common topics, such as "Community Studies", "Indians and the Environment" and "Constructing a Native Trail"

A Guide To Curriculum Planning in Environmental Education is a new publication developed by David C Engleson, Supervisor, Environmental Education, Wisconsin State Department of Education, and a state Environmental Education Curriculum Development task force

Dave is Wisconsin's P' coordinator and has included PLT as an example of a starter program for environmental education The guide promotes the infusion of environmental content into the curriculum of all subject areas at all grade levels It is available for $7 00 from Publications-Sales, Department of Public Instruction, P O Box 7841, Madison, WI 53707-7841

CHILDREN'S BOOKS

Being a Plant, Lawrence Pringle, c 1983, Thomas Y Crowell, 88 pages

In *Being a Plant*, Lawrence Pringle explores the mysteries and myths behind plant processes If you've ever wondered how plants reproduce, obtain and transport water, nutrients, and gases, and adapt to environmental changes, this book is for you

Full of surprising facts, *Being a Plant* provides answers before you've even thought of the questions. How fast does sap flow? How many "little mouths" (or stomata) are in a square centimeter of a grass blade? What makes water move up through a plant? How do you tell a bee-pollinated flower from those pollinated by birds, bats, moths, or flies? Can plants really "communicate" with one another?

Being a Plant is sure to spark the curiosity of young scientists and naturalists With its clear explanations of botanical terms and processes, it is an excellent supplement to any of the K-6 PLT Adopt-A-Tree activities

Wood Works by William F Brown, c 1984, Atheneum, 116 pages

William Brown's *Wood Works* is packed with ideas for making things out of wood that really work! There are directions for building a wind-driven car you can ride, waterwheels and windmills, wind- and steam-powered boats, a dymaxion tent, and many other games and projects Only a few tools — a hammer, saw, clamp, bench, measurer, and square — are needed to recreate many of man's most imaginative inventions

With its clear text and line drawings, *Wood Works* provides step-by-step instructions for assembling your project There are also many suggestions of where to find materials cheaply, how to select lumber, and how to practice hammering and sawing skills before you begin your project

The author provides insight into the history of each invention and discusses the concepts behind its unique design *Wood Works* will inspire any beginning woodworker-inventor's imagination and is a wonderful supplement to PLT K-6 activity No 20 — Woodwork

Logging Machines in the Forest by Janet Chiefari, c 1985, New York Dodd, Mead, 57 pages

In *Logging Machines in the Forest*, the logging process is illustrated in full color with plenty of pictures of giant machines — enough to satisfy the yearnings of any youngster

Chiefari also illustrates a point too often lost in over-simplified books for young people that our forests are storehouses for all sorts of products important to people and that they can be and are being renewed

This book is a real winner It's an open window into the real world of logging and reforestation — well organized, written, and beautifully illustrated It will be a great supplement to PLT Elementary activities No 20 — Woodwork, No 21 — Interview a Board Worker, No 31 — Forest Concentration, and No 87 — Keep on Truckin'

UPDATE

☐ New Address On February 1, the American Forest Institute -- one of PLT's cosponsors -- changed its name to the American Forest Council as part of a reorganization effort The AFC's role as cosponsors will remain unchanged If that doesn t complicate things enough, we've also changed our address. Our new address is Project Learning Tree, 1250 Connecticut Ave N W , Washington, DC 20036.

☐ New States PLT has added two new states and another Canadian province to the program. Earlier this year, North Dakota and North Carolina had their first leadership workshops. Manitoba is planning for full participation in the fall

☐ New Coordinators Barbara Middleton has been hired by Oregon State University to coordinate PLT and the University's Forestry Education Program Barbara comes to Oregon from Penn State, where she headed the education programs at the university nature center Margaret Gillespie will serve as PLT coordinator in New Hampshire in addition to her responsibilities as naturalist at the Science Center of New Hampshire

☐ New York The Big Apple is getting a new tree PLT is being offered to teachers in the five boroughs through the New York City Board of Education with the assistance of Laurel Remus a state forester working in New York City

☐ New Leaf This spring more than 75 schools, throughout Oregon added an extra classroom — an outdoor lab — when they participated in project LEAF (Laboratory for Environmental Activities Forest) As reported in the Winter 1985 issue of the *Branch*, LEAF is a pilot program in which students plant and maintain trees on their school grounds Trees for the program were provided by Champion International Corporation The program, says American Forest Council's Western Regional Manager, John Benneth, "is dedicated to the proposition that a child who stoops to plant a tree rises a better citizen"

American Forest Foundation
Project Learning Tree
1250 Connecticut Avenue, N.W.
Washington, D.C. 20036

PLT™

BRANCH

PLT

1976
Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming

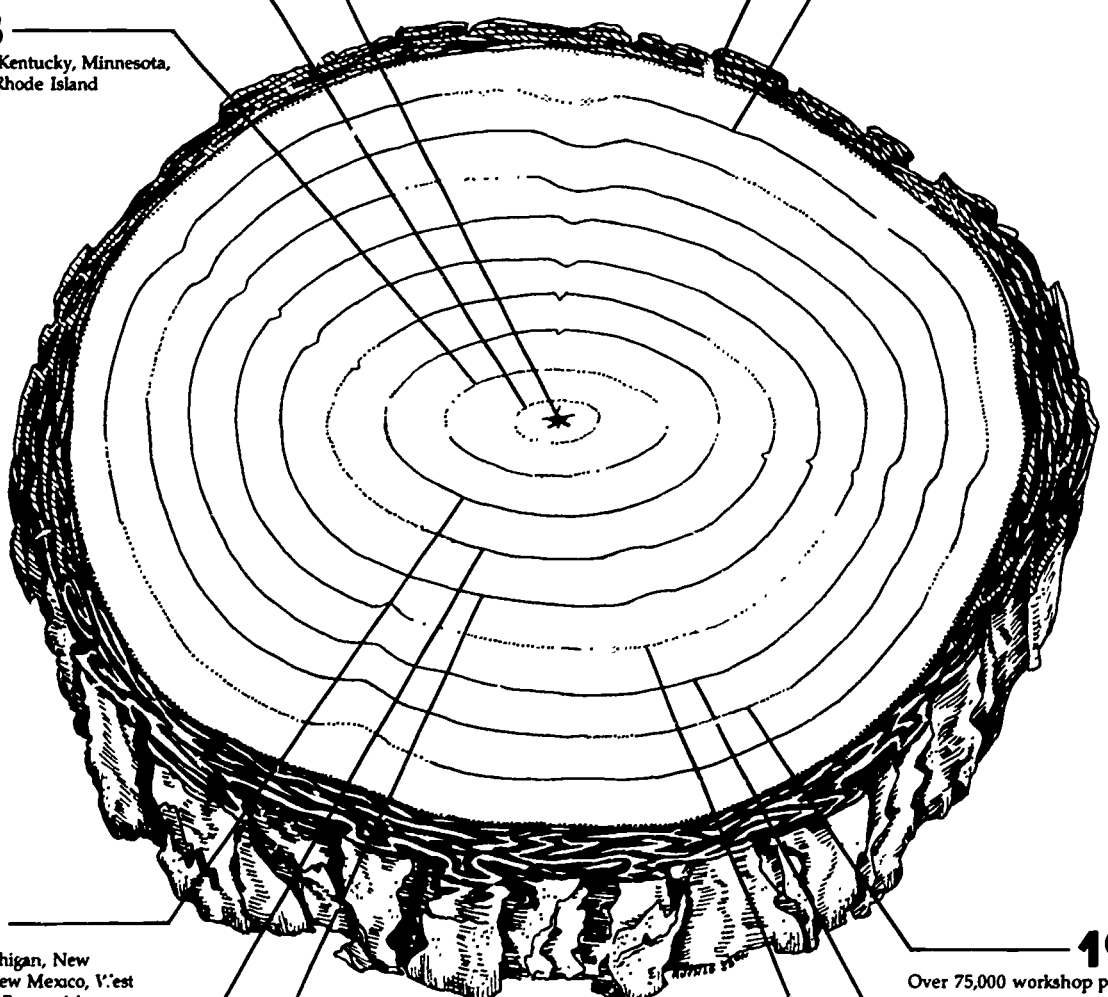
1977
Florida, Iowa, Maine, Pennsylvania, Wisconsin, British Columbia, CA Nat. Resources Federation: Conservation Education Award

1978
Connecticut, Kentucky, Minnesota, New Jersey, Rhode Island

1979
Arkansas, Michigan, New Hampshire, New Mexico, West Virginia, New Brunswick

1980
Alabama, Maryland, Ohio, South Carolina, Vermont, Quebec

1981
Illinois, Massachusetts, Virginia



1986
North Carolina, North Dakota, Alaska, Louisiana, Manitoba

1985
South Dakota, Indiana, Oklahoma, Texas, Tennessee, National Association for Industry-Education Cooperation, Sponsorship Award, President Reagan's Private Sector Initiatives Award

1984
Over 75,000 workshop participants

1983
New York, Hawaii, Conservation Achievement Award from NWF Arbor Day Award for Education

1982
WAEE Award (Wisconsin Association for Environmental Education)

10 years of learning & growing!

FROM SEED TO SUCCESS

The drawing of the tree cookie on this anniversary issue of the *Branch* illustrates PLT's beginning and its growth and development over the years. The idea of a program that would use forestry as a base for teaching students the complex issues surrounding natural resource management began as a seed in the minds of many. That seed has grown to become a model environmental education program.

Before the seed was officially planted in 1976, Project Learning Tree materials were developed in 1974-75 under the sponsorship of the Western Regional Environmental Education Council and the American Forest Institute (now Council).

Over 100 educators in writing conferences developed activities, with the help of government agencies, industry, higher education, and private conservation groups. The goal was to encourage improved awareness, knowledge, attitudes, and skills related to the environment, with a beginning in the forest resource.

Through meetings and workshops, PLT took root and grew to become the healthy program known today. PLT was the first to hold leadership workshops for teams of educators and natural-resource professionals. In turn, these "leaders" help classroom teachers discover strategies for using the materials found in the two PLT activity guides.

After ten years, PLT is continuing its growth — today it is being used in 44 American states and four Canadian provinces, involving more than 100,000 educators, and reaching 2-4 million students.

Project Learning Tree is a kindergarten through high school education program co-sponsored by the Western Regional Environmental Education Council and the American Forest Foundation.

USING PLT? TELL US HOW

Help PLT enter its second decade by letting us know how you use PLT and what you and your students are doing with the activities.

We are looking for adaptations, extensions and resources that may include drawings, poetry, songs, posters, essays or cartoons. Send your entries by the end of February for examples to be published in the Spring 1987 *Branch*. If you submit an entry we will send you a copy of the PLT poster "We All Need Trees." Send materials to Project Learning Tree, 1250 Connecticut Ave., N.W. Suite 320, Wash., D.C. 20036. Some ideas are:

- Send a mural that depicts the different kinds of trees in your area.

See USING PLT page 7

DIRECTOR RECALLS PAST, LOOKS TO FUTURE

As the slogan says, PLT is celebrating its 10th year of learning and growing. But the party's not over without a few words about PLT's past and a glimpse of its future from PLT Director Kathy McGlauflin.

Using one word to describe PLT over the last 10 years, McGlauflin settled on "invigorating" after toying with words like "growth", "fresh", and "leader." "PLT added spark to state environmental education programs and promoted teacher and student involvement in classrooms across the country," she continued.

McGlauflin said the goals and objectives of PLT have remained true and relevant over the past 10 years. "The only changes," she said, "are the methods we now use to reach those goals."

As for the future, McGlauflin said she would like to evaluate the Activity Guides — asking the question, "Are we still meeting the needs of the educators and the students?" There may be a change in the format of the secondary guide, and she envisions the possibility of producing the guides in Spanish to match the French and English versions. Other supplementary materials such as a computer program that teaches forestry and environmental matters are also on the agenda.

McGlauflin said she would like to see the communication between the coordinators and the classroom teachers improved. "I want to see communications continue after the PLT

See PLT IS page 3

SAF: FIRST PLT ASSOCIATE SPONSOR

The Society of American Foresters (SAF) has become the first associate sponsor of Project Learning Tree according to PLT's cosponsors, the American Forest Foundation/ American Forest Council (AFC) and the Western Regional Environmental Education Council

"Project Learning Tree is a wonderful tool for explaining what the forester does," said Charles Bingham, chairman of the American Forest Council's Executive Board and executive vice president of Weyerhaeuser "The associate sponsorship is a natural match Forestry is certainly one of the most misunderstood professions, and Project Learning Tree should help school children understand just what forestry and natural resource management are all about"

SAF president Warren T Doolittle agreed with Bingham saying, "Many of our members have been active in Project Learning Tree in their states over the past few years I am pleased that we can further help to bring forestry's message into schools across the country" SAF is the professional society of foresters and scientists working in related areas that was founded in 1900

PLT Director Kathy McGlauflin noted that PLT had traditionally found strong support among educators, but many foresters were unfamiliar with the program "Now that's changed," McGlauflin added, "the associate sponsorship is a way of formalizing this link between foresters and educators"

AFC President Larry Wiseman said, "We welcome the Society of American Foresters into the Project Learning Tree family of educators, and state and industry forestry executives Their involvement should make PLT's second decade even more successful than the first" ⸗

NFP WEEK

National Forest Products (NFP) Week is slated for Oct 19-25 The celebration of the Great American Forest will be coupled with PLT's 10th Anniversary — this means many of the activities will be focused on PLT

NFP Week is the forest industry s golden opportunity to inform people of good forest management and to help consumers make the link between the products they use every day and our nation's vast commercial forests It's also a good time to show both national and local leaders that a healthy industry is crucial to our economy

This may be a good time to give some thought to activities with students to help celebrate our Great American Forests

The week of fun-filled learning is sponsored by the American Forest Council

PLT POETRY

The best thing about a tree
Is that it can be a home
away from home
It is strong and pretty
And you can use it
And it can be a shelter
And a place for protection
But the best thing about a tree
Is that it can be a home
away from home

(This poem was written by a third grade Indiana student in a special program for students who have difficulty reading spelling and writing)

ANNIVERSARY MESSAGES

"PLT started as a small seedling 10 years ago and has grown to be one of the most widespread programs in North America"

Jim Webster
Director Government Affairs
Kirby Forest Industries Inc

"When introduced to PLT, its value to teachers and students was so evident I couldn't wait to become part of the program I'm looking forward to PLT's second decade"

Clint Rumrill
New York PLT
State Coordinator

"We are glad to see PLT continuing its unique approach to learning, and with the increased assistance from foresters — I see bigger things happening"

John Suffron
Executive Director
Minnesota Forestry Association

"PLT pulls together the foresters, environmental educators and teachers The real key to PLT's success is it makes learning fun by actively involving everyone"

Leon Harkins
North Carolina PLT
State Coordinator

FUTURE, (From page 2)

workshops are over I want to keep our facilitators, coordinators, and workshop participants talking about any PLT concerns they have"

McGlauflin's hopes for the future include having PLT throughout the United States and Canada Finally McGlauflin said she would like to see continued involvement and support for PLT from the forestry and education communities

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WHAT IS A TREE FARM?

A tree farm is a privately owned forest that is managed to produce continuous crops of trees There are nearly 58,000 tree farmers who help meet the nation s growing needs for wood and paper products

The American Tree Farm System is a nationwide program of the American Forest Foundation, administered by the American Forest Council It was created to encourage private forest owners to do an effective job of growing trees as a crop, while protecting wildlife, watersheds and recreational values

The program operates in 50 states through state Tree Farm committees About 10,000 foresters — from industry, government, and consulting firms volunteer their time in the program

To certify a Tree Farm, these state committees arrange for foresters to inspect the farms and follow-up this initial inspection about every five years to ensure qualification for membership in the system

The system, which is supported by membership dues from the forest industry and other voluntary contributions, was launched in 1941 by the wood-using industries

Certified Tree Farmers receive a Tree Farm certificate, a sign displaying the logo (shown above), and a subscription to the *American Tree Farmer* magazine ‡

A COUPLE OF TREE FARMERS

Project Learning Tree and the American Tree Farm System, two programs of the American Forest Foundation, have been credited for doing many things for all kinds of people

But to date, neither PLT nor the American Tree Farm System could take credit for bringing two people together in marriage Now even that's changed John, the Minnesota PLT coordinator for eight years, and Deb Miller are quick to say, "PLT brought us together" As a result of coming together the couple are the owners of a certified Kentucky Tree Farm

It all began when John, the environmental education coordinator for the Minnesota Department of Education, and Deb an elementary science teacher at the St Paul Academy Summit School in St Paul, Minn , attended the 1981 national conference of the North American Association for Environmental Education in a town near Paducah, Ky

At the time, John was president of the association and PLT coordinator for the state of Minnesota Deb was an elementary education graduate student at Murray State University in Murray, Ky and former PLT trainee John and Deb were introduced at a PLT workshop that was offered at the conference, and, as the story goes — the rest is history

After the couple were married in August 1981 and living in John's hometown in Minnesota, Deb, who had spent most of her life in Kentucky, said she "just had to have a piece of Kentucky"

That s when the Millers decided to buy about 104 acres that had been a Tree Farm on the Chaplin River near Lexington The Tree Farm, which now holds about 3000 black walnut trees

John and Deb Miller, Kentucky Tree Farmers

and 2000 white and scotch pine trees, was certified in 1985 by the American Tree Farm System

Since Deb's family live in Kentucky, they did most of the work on the Tree Farm in the beginning Deb said she and John leave their home in Beaver Bay, Minn to visit their Kentucky Tree Farm at least twice a year

"I like trees They've always been a part of my life," said John In fact, John said he had a great-uncle who was a Minnesota forester for about 40 years, and his grandfather was a game warden for the Department of Natural Resources in the state "As they say," laughed John, "the roots *are* deep"

RESOURCES

GUIDES/PAMPHLETS

Wild Bird Feeding Preferences rates seeds according to their appeal to 13 wild bird species It lists 16 commonly used seeds that range from black-striped sunflower and golden millet to cracked corn and wheat The U S Fish and Wildlife Service Urban Wildlife Research Program conducted the research on which this publication is based Cost $1 00 Order from Wild Bird Feeding Preferences, Department 157, National Wildlife Federation, 1412 16th Street, N W Wash , D C 20036 Use this with Project Learning Tree secondary activity No 44, Building for the Birds

The Field Guide to the U S National Forests discusses the location, facilities, services, and other features of national forests Cost $11 95. Order from Congdon and Week, 298 Fifth Avenue, New York, New York 10001 Use this with Project Learning Tree secondary activity No 39, How Much is Enough

Plant a Tree for Your Special Occasion is a free pamphlet that can be ordered by writing to USDA Forest Service, No FS363, P O Box 2417, Wash , D C 20013 This is helpful information for Project Learning Tree elementary activity No 50, A Tree From an Acorn Grows

KITS AND POSTERS

A papermaking kit has been designed for 4th, 5th, and 6th graders The kit includes directions and supplies for 30 students to make one sheet of paper each Cost $6 00 Order from Minnesota Forest Industries, 208 Phoenix Building, Duluth, Minnesota 55802 (price may change) You can use this kit as a follow-up to Project Learning Tree elementary activities No 33, Paper in the Classroom and No 84, Classroom Conservation

Deciduous Woodlands is a color poster that features illustrations of woodland plants Order from Carolina Biological Supply Company, Burlington, N C 27215

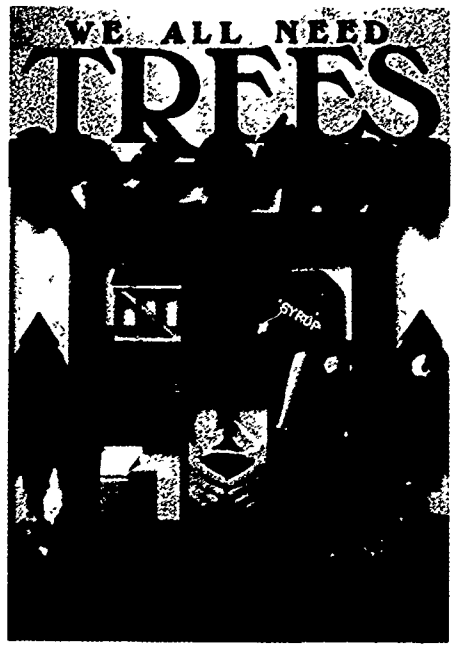
FILMS/VIDEOS

The Garden of Eden film/video explains why it is critical to protect gene pools and the variety of plant and animal life on earth Leaders in science, business, and pharmaceutical research show how improved foods, new products and future medicines depend upon the preservation of natural ecological systems Cost free, except for return shipping and insurance Order from Nature Conservancy Library, Box 315, Franklin Lakes, New Jersey 07417 Use this with Project Learning Tree secondary activities No 38, What is Wise Use, No 43, The Value of Wildlife, No 53, The Value of 100 Acres, and No 59, Endangered Species

USING PLT, From page 2

■"Forests are a part of me" Make a scrapbook about how we are affected by the forest everyday — streets named after trees, people who work in or are associated with forest or forest products or recreational items

■Write a science fiction story on what forests will be like in the year 2076 — when PLT will be 100 years old!



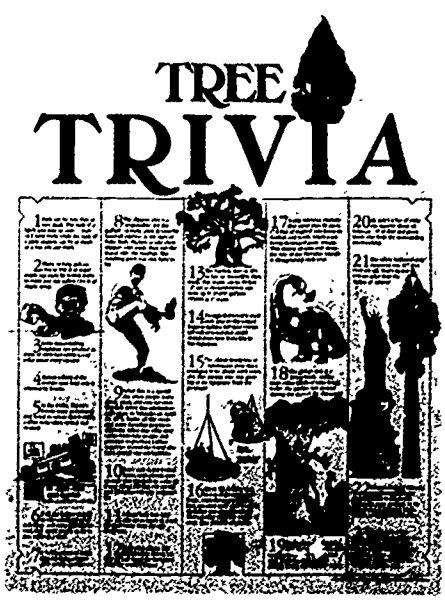
(Front)

PLT POSTER FOR SALE

"We All Need Trees" is Project Learning Tree s first four-color poster The size is 17"x22" It is a result of a cooperative effort between Project Learning Tree and Ranger Rick s NatureScope (published by the National Wildlife Federation) The poster, nded by the American Forest Foundation, was developed to show how important trees are to people and wildlife

To order copies write to PLT Poster, 1250 Connecticut Ave N W Suite 320 Wash D C 20036

Prices
1 -- 24/ $' each (includes shipping)
25 - 499/ $ 25 each + shipping
500 or more/ $ 20 each + shipping



UPDATE

New States Alaska and Louisiana have been added to the PLT network, bringing the total number of states to 44 Leadership workshops were held in Fairbanks and Anchorage, and plans are underway for Louisiana's first workshop in November of this year

State Affairs Oklahoma held its first leadership workshop in July Coordinators Rob Doye and Cindi Smith developed hats and tee-shirts sporting PLT's new logo for facilitators and workshop participants The two deserve roses for a job well done

In the state of Washington, the Weyerhaeuser Company on June 28 planted the two-billionth seedling of the company's 20-year-old High-Yield Forestry program More than 2 5 million acres of Weyerhaeuser's timberlands in the Pacific Northwest and the South have been planted under the program The seedling ceremony also marked completion of Weyerhaeuser's reforestation of its lands destroyed by the Mount Saint Helens volcanic eruption in May 1980

In New England, the New Hampshire Snowmobilers Association board of directors pledged five years of financial support to the state's PLT program

Vermont, Massachusetts, and Rhode Island are on the brink of revitalizing their state PLT programs Look for workshops coming soon Spearheading the efforts are foresters from all three states

Donations For the second year in a row, the Santa Fe Foundation has provided a generous grant to Project Learning Tree, thanks to the efforts of John Stevens, president of Kirby Forest Industries The grant will help the program continue to expand and improve

The State and Private Forestry Fund from the U S Forest Service gave a grant to the New Jersey Bureau of Forestry to sponsor a PLT leadership training for workshops in urban areas

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BRANCH

ENVIRONMENTAL EDUCATION FOR THE 1990S AND BEYOND

"It was the best of times, it was the worst of times," commented Charles Dickens in his *Tale of Two Cities* Surely, Dickens' comments at least as appropriate today as it was when he first stated it many years ago, for while we live in a magnificently exciting world, we also live in a world of great uncertainty and almost overwhelming challenges

Recent advances in science and technology are providing us with unprecedented powers — capabilities heretofore only experienced in dreams or in science-fiction stories. Unfortunately, as those of us interested in and concerned about the environment are painfully aware, many of these achievements have not been attained without paying costly penalties As Barry Commoner remarked, "There is no such thing as a free lunch." Future applications of new technologies will, undoubtedly, present greater challenges and place still greater demands on society

The responsibility for determining if and where modern technologies are to be utilized is being thrust upon society at a phenomenal rate. For me, this raises at least two critical questions. (1) Is society adequately prepared to make wise and responsible decisions about

See EE, page 2

UNION CAMP GIVES PLT A BOOST

Project Learning Tree is funded nationally by forest products industries through contributions to the American Forest Foundation One such contributing member is Union Camp Corporation, a Fortune 500 manufacturer of paper, packaging and lumber

Union Camp's commitment to the long-term protection and management of this country's forests has led them to increase their support for PLT at the local level

In January, Susan Vaughan, community services manager at Union Camp's Eastover, South Carolina mill, and a trained PLT facilitator, held a workshop for 30 Eastover elementary school teachers

In March, Union Camp sponsored a PLT workshop at its corporate headquarters in Wayne, New Jersey for 25 teachers in the Wayne school system Mary Sue Topper, New Jersey's PLT coordinator at the Department of Environmental Protection, and John Herrington, AFC regional manager, conducted the workshop

Both experiences were successful Teachers found out that this corporate giant is not a monolith, but is made up of real people who care And Union Camp folks who participated learned of the problems teachers face daily.

The experience is spreading Union Camp personnel have expressed interest in hosting workshops for teachers in other communities in states where it has manufacturing facilities, such as New Jersey, North Carolina and Georgia This example could be the start of a nationwide, grass-roots effort for any company

If you would like to partner with a local industry, ask them Holding a workshop at an industry facility is a good way for industry and educators to get to know each other, and an easy way to help defray workshop expenses.

KATHRYN OF 1,000 TREES

Who manages a tree farm, teaches fourth grade, invites all the fourth graders in her school district to her tree farm for environmental education, runs a free outdoor summer program, can plant 1,000 trees in two weeks before and after work, and takes care of her disabled husband? Kathryn Lexley of Wellston, Ohio, of course

Kathryn and her husband have helped children learn about nature for the past 23 years Their

See THE SHIRE, page 6

EE, *(From page1)*

how new technologies are used, and (2) will the future leaders of society be any better prepared than we are now to deal with the decision making challenges of a rapidly changing and increasingly more complex world of "tomorrow"!?

Clearly if we are to have a better prepared society and informed decision makers, we need to educate our young people today. EE can develop those skills to prepare today's youth to be effective decision-makers in the future.

EE for the 1990s should:

- **consider the TOTAL environment.** The "spaceship earth" concept points out clearly that we are a small dot in a vast universe. Hence, students need to develop a Global Perspective Clearly, environmental problems do not recognize international boundaries Students need to be made aware of how their actions impact on the world and how, in turn, what goes on in "far away" lands impacts on them.

- **be INFUSED into EXISTING curricula at ALL levels.** Just as everything in the universe is integrated and connected to everything else, so too must EE be integrated into and connected to the total curriculum. To teach EE as a separate discipline would give a one-sided, incomplete, and distorted perspective on the problem It's this kind of "one-sided" thinking that largely contributes to environmental problems To try to add, as some well meaning individuals have argued, a "separate", "sequential", "K-12" EE program into an already overcrowded curriculum will only lead to "Friday afternoon" EE — EE taught only if and when there is time at weeks end This is less likely to happen if EE is infused as an integral part of the already existing complement of courses taught in the schools on a daily basis.

- **emphasize the development of positive environmental values and more mature moral reasoning/judgement.** Environmental problems are mostly moral problems. Society has largely made decisions about environmental issues at a relatively immature, self-serving, immediate gratification level. This needs to be replaced with a more mature, societal/global, long-term perspective

- **emphasize the development of problem solving and thinking skills.** To continue to rely almost totally on information transfer as the dominant mode of teaching/learning will become increasingly impossible as the "information explosion" grows and accelerates Students need more enduring skills that can help them to become more responsible for their own learning, to access information, and to utilize that information wisely.

- **develop decision-making skills that consider both long and short term futures; local-international concerns and problems.** Most environmental problems were created because only short-term, local interests were considered in the decision-making process. Analysis of various case studies can both help to develop decision-making skills and, at the same time, demonstrate the need for considering long-term consequences of decisions and the global/international dimensions of the problem(s)

- **emphasize inquiry methods that directly involve students in investigating REAL problems.** Research has shown that inquiry methods help to effectively develop thinking skills in learners of all ages Moreover, real problems are more effective in teaching thinking/problem solving skills than fictitious problems. Students need to be exposed to real "messy" problems — not simply "classic textbook", "clean" problems. Thinking skill development should be part of the existing curriculum and should not be taught as a separate "discipline".

- **utilize a variety of media in the classroom.** We acquire about 75 percent of our knowledge through sight, 15 percent through hearing, 6 percent by touch, 3 percent by smell, and 3 percent through taste. Lecture relies, for the most part, on hearing alone. By simply utilizing visuals (filmstrips, films, etc.) acquisition of knowledge can be significantly improved. Is it really a mystery why television

Project Learning Tree is a kindergarten through high school education program co-sponsored by the Western Regional Environmental Education Council and the American Forest Foundation.

can be a powerful teaching/learning tool?

- **utilize high quality-low cost/free materials and resources.** Be careful here. There are many materials available from a variety of sources — some are excellent. Some, on the other hand, can be very "expensive" if they are inaccurate and/or biased. If you are unsure about the accuracy or whether materials include hidden biases, seek the assistance of experts.

- **be considered a life-long process.** It is clear that students need to realize that because the world is changing so much and so rapidly, learning must continue on an on-going basis throughout life. The changes will probably necessitate several occupational changes throughout the lifetime of many of your students. Each new career will make new educational demands on the individual. Even those who stay in the same field will need to update their skills and knowledge on a regular basis.

- **be provided to all children — regardless of age, SES, place of residence, and gender.** Research has shown consistently that all children benefit from environmental education — not just select segments of the population.

- **not neglect information transfer but also emphasize the development of information access/retrieval skills as well.** Information — even though the volume is overwhelming — is important in decision-making. Children need to be taught how to access NECESSARY information and

See 1990's, page 6

PLT'S BEST — 1986

The PLT Planning and Advisory Council is pleased to announce the winners of the 1986 National Awards Program. This is the second year for this program, which honors the people and programs which have contributed to PLT's success. The 1986 winners are:

OUTSTANDING PROGRAM COORDINATOR
Shelley Mitchell — Indiana

OUTSTANDING NEW PROGRAM
Oklahoma Project Learning Tree

OUTSTANDING REVITALIZED PROGRAM
New Hampshire Project Learning Tree

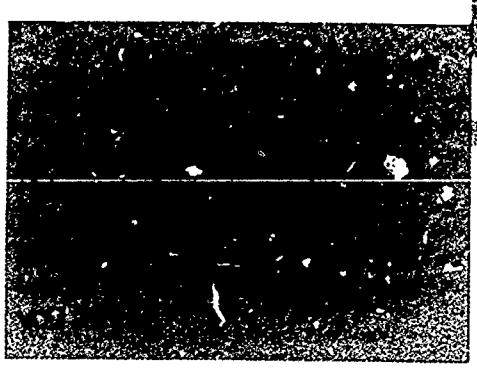
GREATEST CONTRIBUTION TO NATIONAL PROGRAM EXPANSION
Oregon Project Learning Tree

Shelley Mitchell works for the Indiana Division of Forestry as an Education Specialist and in that role coordinates one of the most active PLT programs in the nation. She has successfully integrated PLT into the state's education program, has developed a correlation of PLT activities with the Guidelines & Features for Outdoor Classrooms, and has developed a PLT graduate course at Indiana University.

Oklahoma PLT is cosponsored by the Oklahoma Forestry Division and the Oklahoma Conservation Commission. It is coordinated by Cindi Smith and Rob Doye, representing the sponsoring agencies. Oklahoma is recognized for the outstanding job done on planning and organizing a statewide team effort that has resulted in a highly effective network of facilitators. In addition, they have developed innovative support materials for their program, including workshop kits, hats, T-shirts, publicity packets, and a promotional videotape.

This past year has seen an exemplary program developed by a revitalized steering committee in New Hampshire. The New Hampshire Forestry Communications Council sponsors the program, and in cooperation with the Science Center of New Hampshire has hired Margaret Gillespie to serve as State Coordinator. The Steering Committee has pioneered a successful fund-raising campaign. Margaret has developed a strong network of volunteer facilitators and has provided them with effective support materials.

The Oregon Project Learning Tree program is cosponsored by the Oregon State University College of Forestry and the Oregon Department of Education. Coordinators Barbara Middleton (OSU) and Ray Thiess (ODE) are recognized for developing a model cooperative agreement and for creating an effective total forestry education program for Oregon teachers by integrating PLT with OSU's Forestry Education Program.



POEM

Dogwood Tree

White canopy,
Shimmering leaves,
Graceful limbs
Moss-splotched trunk
Forest finery

-Anon., Indiana

ADOPT-A-MARSH

Dorothy Carpenter's fifth grade class at the Robert Frost School in Derry, New Hampshire carried their Adopt-A-Tree Program a step further. They adopted a marsh!

The three learning disabled boys making up the class made observations during each season of the year. During this year-long project, they prepared a slide presentation and 3-D maps of the marshy tract of land. They also interviewed the Town Planning Board Chairman about the area.

A CASE OF DOUBLE ADOPTION

Something special happens this year between two classes at Harris Elementary School in Brownsburg, Indiana. Deanna Carmen's kindergarten class members will be getting a different perspective on things this year, thanks to Mikey Spansburg's sixth grade class who will be "adopting" the younger students.

The two classes first met in September when each sixth grader made and delivered a card for his or her adopted kindergartner. The students had a chance to chat and get acquainted.

A second meeting in October led students to the school's outdoor lab where the adopted pairs began — what else? — PLT's Adopt-A-Tree! Each sixth grader was instructed to select a tree with his or her kindergartner and talk about the tree — how tall it is, how it feels, any leaves or needles, any animals living in or near it, how it looks now and what changes would occur over the winter. The pairs returned to their trees throughout the school year to observe any changes.

The classes planned at least one activity each month. Some things they have already done include making Halloween masks using grocery sacks, and studying leaf collections made by the sixth graders during a three day camping trip.

Double adoption in Indiana.

THE CLOSER YOU LOOK

Karen Havens used PLT Elementary Activity #5, "The Closer You Look", as a successful art project with her second graders in the Agua Caliente Elementary School in Arizona.

On one half of a large folded piece of paper, she had them draw a tree from memory with crayons.

Then the class went outside to choose one of six trees to examine closely. Each child touched a tree, smelled it, observed any animal life on it, etc. Then they stood back to look at the shape, to count the trunks and main branches, to notice the size and shape of leaves, whether the trunk was long or short, and if it had any blossoms.

When they returned to the classroom, they drew their tree on the other half of their paper. Because the artists had paid such close attention to detail, the class could distinguish one tree from another quite similar to it.

The children were pleased with the improvement shown. They were eager to share this artwork, although often before they were reluctant to expose their work to the comments of others.

ADOPTION PAPERS

PLT facilitators in Pennsylvania and Kentucky have developed their own "Adoption Certificates" for students or workshop participants to remember the tree they adopted.

Melissa Hess, with the Penn Laurel Girl Scout Council in Pennsylvania, says, "IF you can get adoption papers for an ugly

doll, you can have them for a beautiful tree." The elementary school-age girls loved the certificate she devised.

Sporting a large stick-on gold seal on the front, the certificate has on the back estimated "Age or Size (D.B.H. — diameter at breast height) at the time of adoption", and three columns. "Location — Map", "Bark Rubbing" and "Identifying Marks or Leaf Print"

Susan Rauh, a forester from Morehead, Kentucky, also developed "adoption papers" for workshop participants. The certificate can be adapted to include teachers' names and the names of "adopting students".

MOVE OVER, PANDORA

Until David LaPaglia of Chandler, Arizona participated in PLT Elementary Activity #77 ("An Environmental Exchange Box"), he was never sure that ice fishing really existed. "I only saw it in cartoons," he said.

David and the rest of Kay Williams' second-grade class opened their exchange box from a class in New Hampshire recently.

Sam Scott decided he wanted to move to New Hampshire "so I could play in the snow...and you could make snowball fights and forts."

The 24 children learned about northeastern ecology from the box of items sent from students at Milton Mills Elementary School in Milton Mills, N.H. They are taking careful note of their culture and environment and are busy collecting items for an "Arizona Box" to send to New Hampshire

Lisa Ryan, from a farming family, contributed a prickly pear pad, bud, and jelly, postcards, Indian corn, a cotton boll, a state map, and a book of Arizona wildlife

Other items for the box included a scorpion paperweight, a scrapbook with pictures of class projects and a pinata party, a pinata, a videotape showing scenes of the state, and an original state song

From the New Hampshire box, the children were surprised to learn that Milton Mills Elementary was over 100 years old, had only four rooms, two second-grade students, and two first-grade students

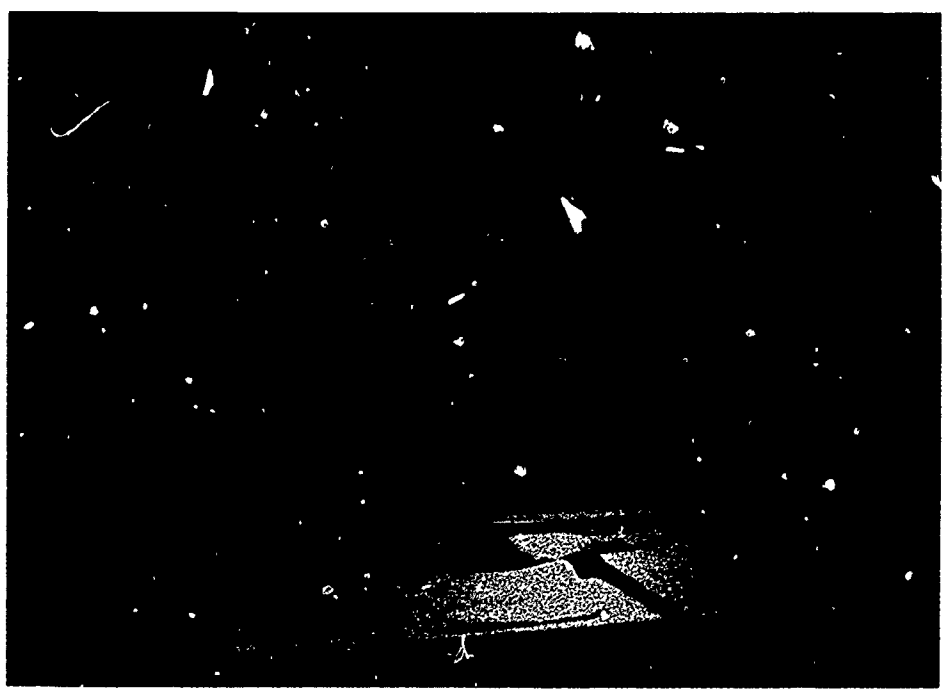
They were impressed by the school's big tower and a bell rung by hand

Williams says of the environmental exchange activity "The beauty of it is this encompasses all the basic skills, and they have a lot more fun than opening a book and reading about it."

Slow learners can be as successful as fast learners "Every student has something important to contribute The kids can feel their first success through this kind of experience."

"This does give them an environmental awareness These people are going to be making decisions as adults."

Arizonans learn about New Hampshire through an environmental exchange box.



THE SHIRE, *(From page 1)*

land, "The Shire", was certified as a Tree Farm in 1982 and Kathryn, assisted by retired teacher Evelyn Watts, has incorporated 50 different Project Learning Tree activities into her program there.

When children arrive at the farm, they are greeted with a tree cookie name tag to pin on (see Elem. Activity #37 "Tree Cookies").

They move through from five to nine learning centers, depending on the group and time available. During the 25 minutes they spend at each center, the children have definite tasks to complete.

At the "Rotten Log Community" they study decomposers (see Elem. Activity # 62: "The Fallen Log"). Using tongue depressors to lift the bark off a fallen log and to remove a section, students then describe the sample, where they found it and how it contributes to the forest community.

Children can build a terrarium at another center, thanks to McDonald's restaurant, who provided salad containers (See Secondary Activity #60. "Build an Ecosystem").

The Loxleys built a lake with a "beach", made with sand and gravel donated annually by Martha Holden Jennings. At the "Aquarium Center", students study water life. Exploring with nets recently, they found frog eggs, dragonfly nymphs and crayfish with eggs under their tails.

One of the most effective aspects of the Loxley teaching methods is follow-up visits. In an extension of Elem. Activity #1, "Adopt-A-Tree", children are able to plant their own trees Seedlings are donated by the Mead Corporation and the Agricultural Conservation Service They return regularly (often with their families) to check the tree's growth

Another popular follow-up learning center is the "Bird Seed Acre" In spring of 1986, every child sowed some seed in a plowed acre. The seed grew into the wildlife food it was supposed to — thick in spots, scarce in others

In the fall of 1986, the children returned. They got to see tracks of deer and raccoon and the fruits of their labor being devoured by grouse and song birds. Kathryn reports "The kids were amazed at the number of seeds in a sunflower

The Loxleys have also provided a refrigerator box "bird blind" Two children with binoculars can observe birds feeding behind a shrub (See Elem. Activity #68. "Trees as Habitats".)

The most touching place for children and adults alike at "The Shire" is the Challenger Memorial Grove. At the request of a sixth grade teacher, Kathryn planted seven White Pines in a semi-circle A stake in front of each tree carries the name of a Challenger crew member, and red ribbons fly freely from the stake. In the center of the area is a bird bath and a laminated write-up about the crew.

Kathryn describes how "beautiful it is to watch children approach the sight, stand in silence, and move on." She placed a mesh basket with a bright red ribbon on it beside the bird bath "I have told the children after we walk the trails and have our ecology finds in our bags they may choose one of their 'finds' to place in the memorial basket. What a sight to watch them choose — stoop — place it — and think!"

Kathryn says, "I should retire — *I can't.* I'm not ready. I'm too excited with the learning going on around me and I'm afraid I'll miss something that's in the future.. Children come first — then the world around us."

1990's, *(From page 3)*

how to use it to solve the problem at hand.

≈ seek to develop greater industry-education cooperation and alliances. Business and industry have much to contribute to education, and most important, they are eager to help. Recent reports indicate that it will cost business and industry $25 billion per year for the foreseeable future to remedy educational deficiencies in people seeking jobs These costs can certainly be reduced if those problems can be solved before the individual enters the job market.

There are many EE programs that can contribute towards developing the skills needed for "tomorrow's world". Project Learning Tree is one of them, there are others, of course. State PLT coordinators and other EE professionals in your area can, and want, to help. Simply ask them — they're GREAT people.

Excerpted from a speech delivered by Dr Louis A Iozzi, Rutgers University, at the 1987 PLT Conference in Menlo Park, Calif

RESOURCES

REFERENCE

The Resource Guide to Educational Materials About Agriculture is a treasure trove of annotated listings of printed materials (books, pamphlets, activity and coloring books), AV (films, filmstrips, slide sets, video tapes and transparencies), resource guides and catalogs, posters, wall charts, and computer software — many applicable to PLT Designed for teachers, these materials from both private and public sources are indexed by title, content area, activity and coloring books, materials with "guides for teachers", and state-related materials. Each of the 328 items lists title, publisher, grade level, format, description of content, price (some free), and ordering information. You can order this free publication from Agriculture in the Classroom, Room 234-W, U.S. Dept of Agriculture, Washington DC 20250. 202/447-5727

Environmental Literature for Young Readers is a bibliography of children's books with environmental themes Available from Duane Toomsen, Environmental Education Consultant, Iowa Dept. of Public Instruction, Grimes State Office Building, Des Moines, IA 50319.

Centering on...Using the Outdoors to Enrich Learning is a 60-page illustrated guide that follows the months of the school year and describes the natural wonders that can be used to enrich teaching (grades K-8 and special education). Send $4.50 to Lenore Miller, Director, Nature Specialty Training Center, 296 Arlene St., Staten Island, NY 10314 718/761-3509 Bulk discounts available.

Opportunities in Environmental Careers helps students of all ages identify career possibilities in the environmental sciences — including career listings in "The Sciences of Living Things", "Resources and Recreation", and "Land Use and Human Settlements". Cost $9.95 (hard cover), $6.95 (soft cover), plus $1.25 shipping (for 1-2 copies), $.50 for each additional copy Order from Bradley Hills Books, P.O Box 30836, Bethesda, MD 20814

STUDY AIDS

Nature Study Aid Replicas of trees, animals, birds and plants come with activities ranging from making your own field guides, tracing and ink printing, creation of displays, dioramas, Create-A-Creature, Build-A-Beast, Tree Keys, Wildlife Schoolyard Maps, and many more For a brochure, contact Outdoor Products & Programs, RR #1, Red Wing, MN 55066 612/345-2868.

ART

Clip art is available to enhance a newsletter, poster or whatever your communication vehicle This 26-page booklet with artwork of New Hampshire animals by Ms. Carolyn Murah sells for $7.00 plus $1.15 postage. Write CLIP-ART, Science Center of New Hampshire, P.O Box 173, Holderness, NH 03245 603/968-7194.

GUIDES

The New England Field Guide to Environmental Education Facilities and Resources, 1986-88 This comprehensive directory lists over 150 organizations in New England which offer Environmental Education programming, facilities or resources Full details given. Lists of other directories, national organizations and people in field included. Make checks for $16 plus $1.50 handling payable to Antioch/NE Graduate School. Mail to New England Guide, Antioch/New England, Roxbury St., Keene, NH 03431.

Forest Soils Information for Foresters and Tree Farmers discusses the role of forest soil scientists and their job of maintaining or improving forest soil productivity. Includes productivity standards of average and good soils. Free from Bradley Hills Books, Box 30836, Bethesda, MD 20814.

SOFTWARE

Farm and Food Bytes Soil and Water Conservation is a new courseware designed for use by students in 4th grade and above. It blends soil and water conservation into language arts, math, social studies and science curricula. Written in Applesoft II, it can be used by individuals or groups, using Apple II, II+, IIe, IIc and Apple IIi computers To order on thirty-day approval, send $32.00 (includes minimum shipping charge) to Soil Conservation Society of America, 7515 N.E. Ankeny Rd , Ankeny, IA 50021-9764 (515) 289-2331. Include street address and phone number.

New States & Province PLT added Georgia and Mississippi to the program, making them the 45th and 46th "PLT states" Nova Scotia is the fifth Canadian province to join the network Georgia held its first leadership workshop in May and Mississippi is due to follow suit soon

Donations The National Association of Professional Forestry Schools and Colleges endorsed Project Learning Tree with a $1,000 donation, sent with the support of President -Elect Gregory N. Brown

The Mead Foundation has contributed $500 for use by the PLT Steering Committee in Michigan Karin Van Dyke, PLT State Coordinator and member of the Michigan Tree Farm Committee, made the contact

AFF Endowment The American Forest Foundation (AFF) has received 7,700 acres of land donations to its new Endowment Fund The gifts include two tracts from Weyerhaeuser Company — a bald eagle roost in Oregon and a rare mountain bog in Washington state, and a large bottomland hardwood tract in Arkansas donated by Potlatch Corporation

The lands will eventually be sold to conservation agencies or organizations, furthering recreation opportunities and protection of environmentally sensitive tracts. Proceeds will be used to support programs such as the American Tree Farm System and PLT

PLT Cross-Referenced Thanks to the Education branch of the Arizona Game and Fish Department, there is a cross-reference of Project Learning Tree and Project WILD activities with the Silver-Burdett Science Series (K-6) and the Holt Science Series (K-6).

The guides indicate which PLT activities are appropriate for use with each of the textbook chapters

If you use either of these textbooks and would like a copy of the cross-references, contact your state coordinator

American Forest Foundation
Project Learning Tree
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ADDRESS CORRECTION REQUESTED