Arbor Day curriculum unit for grades kindergarten through grade six

Kathleen Ann Story

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ARBOR DAY CURRICULUM UNIT
FOR GRADES KINDERGARTEN THROUGH GRADE SIX

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Elementary Education

by
Kathleen Ann Story
May 1992
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Approved by:
Esteban Diaz
Advisor

Date

José Hernandez

Date
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Years ago, as people began settling the United States, the existing trees in the highly settled areas began to disappear. A newspaper man named J. Sterling Morton wanted to come up with a way that people could replenish the trees which they had cut down to build homes and to clear land for farming. Mr. Morton was also a member of the State Board of Agriculture during this time. He lived in the state of Nebraska so that is where he targeted his first "Tree Planting Day" celebration. The actual celebration occurred on April 10, 1872. This was the beginning of Arbor Day.

Arbor Day began slowly with only a few interested people taking part in the celebration. Over the years it has grown to include all 50 of the United States along with many other countries as well. Today many people celebrate Arbor Day, however, there are still many people who do not even know what it is or why it exists. Arbor Day is a celebration of life. Trees give us life. J. Morton Sterling understood the necessity of trees in our country and worked to achieve that goal. National Arbor Day is celebrated on the last Friday of April. Due to
the drastic climatic differences among the 50 states, many states have chosen a different date to celebrate Arbor Day. A list of all the 50 states, their state trees and the day on which they celebrate Arbor Day follows.

<table>
<thead>
<tr>
<th>STATE</th>
<th>STATE TREE</th>
<th>ARBOR DAY OBSERVANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>southern pine</td>
<td>Last full week in February</td>
</tr>
<tr>
<td>Alaska</td>
<td>Sitka spruce</td>
<td>Third Monday in May</td>
</tr>
<tr>
<td>Arizona</td>
<td>palo verde</td>
<td>either the Friday following April 1 or the Friday following February 1</td>
</tr>
<tr>
<td>Arkansas</td>
<td>pine</td>
<td>Third Monday in March</td>
</tr>
<tr>
<td>California</td>
<td>California Redwood (redwood, giant sequoia)</td>
<td>March 7-14</td>
</tr>
<tr>
<td>Connecticut</td>
<td>white oak</td>
<td>April 30</td>
</tr>
<tr>
<td>Delaware</td>
<td>American holly</td>
<td>Last Friday in April</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>scarlet oak</td>
<td>Last Friday in April</td>
</tr>
<tr>
<td>Florida</td>
<td>cabbage palm</td>
<td>Third Friday in February</td>
</tr>
<tr>
<td>Georgia</td>
<td>live oak</td>
<td>Third Friday in January</td>
</tr>
<tr>
<td>Hawaii</td>
<td>kukui</td>
<td>First Friday in April</td>
</tr>
<tr>
<td>Idaho</td>
<td>white pine</td>
<td>Last Friday in April</td>
</tr>
<tr>
<td>Illinois</td>
<td>white oak</td>
<td>Last Friday in April</td>
</tr>
</tbody>
</table>
Indiana - tuliptree - Second Friday in April
Iowa - oak - Last Friday in April
Kansas - cottonwood - Last Friday in March
Kentucky - Kentucky coffeetree - First Friday in April
Louisiana - baldcypress - Third Friday in January
Maine - white pine - Third week in May
Maryland - white oak - First Wednesday in April
Massachusetts - American elm - April 30
Michigan - white pine - Third week in April
Minnesota - Norway pine - Last Friday in April
Missouri - flowering dogwood - First Friday after the first Tuesday in April
Montana - ponderosa pine - Last Friday in April
Nebraska - cottonwood - April 22
Nevada - single-leaf pinon - February 28 in Southern Nevada, April 23 in Northern Nevada
New Hampshire - white birch - Last Friday in April
New Jersey - red oak - Last Friday in April
New Mexico - nut pine or pinon - Second Friday in March
New York - sugar maple - Last Friday in April
North Carolina - pine - First Friday following March 15
North Dakota - American elm - First Friday in May
Ohio - buckeye - Last Friday in April
Oklahoma - redbud - Friday following the second Monday in February
Oregon - Douglas-fir - Last Friday in April
Pennsylvania - hemlock - Last Friday in April
Rhode Island - red maple - Last Friday in April
South Carolina - palmetto - First Friday in December
South Dakota - Black Hills spruce - Last Friday in April
Tennessee - tulip poplar - First Friday in March
Texas - pecan - Third Friday in January
Utah - blue spruce - Third Friday in April
Vermont - sugar maple - First Friday in May
Virginia - dogwood - Second Friday in March
Washington - western hemlock - Second Wednesday in April
West Virginia - sugar maple - Second Friday in April
Wisconsin - sugar maple - Last Friday in April
Wyoming - cottonwood - Last Monday in April
INTRODUCTION

As we view our world, humankind has become increasingly aware of the need to replenish the Earth's natural resources. The need for educating all people on how to renew and preserve the Earth's resources has been addressed by many organizations. To educators falls the duty of creating and instilling environmental awareness and understanding among the Earth's future generations. There are many areas which have received environmental emphasis. Due to this, it is difficult to know exactly where to begin educating the Earth's youth. The approach proposed here begins with one of the oldest environmentally based holidays in the United States' history -- Arbor Day.

Arbor Day began in Nebraska over one hundred years ago. It was the inspiration of J. Sterling Morton, a newspaperman and a member of the State Board of Agriculture. Later he became the United States Secretary of Agriculture. Arbor Day was the result of Morton's effort to rectify the fact that almost every tree in the
state of Nebraska had been chopped down for homes or farming. To add to the efforts to replant Nebraska, the State Board of Agriculture offered monetary prizes for the best and largest groves of trees planted. J. Sterling Morton launched his Arbor Day campaign in 1872. The first observance of Arbor Day occurred on April 10th of that year. Many states followed the example set by Morton and Nebraska and began their own Arbor Day celebrations. J. Sterling Morton had become the "father" of Arbor Day. By 1920, 45 states and territories were celebrating Arbor Day. Morton eloquently described the importance of this new holiday when he said: "Other holidays Repose upon the Past, Arbor Day Proposes for the Future" [sic] (California Association of Nurseriesmen (CAN), 1990).

Despite the fact that this important environmental day began over one hundred years ago, few could tell you what Arbor Day was and even less could tell you when it is celebrated. The idea of a tree planting day has spread throughout the world. Everywhere in the world there are trees; therefore, bringing in materials to teach Arbor Day is as easy as stepping outside into your immediate environment. Many other countries of the world
have also suffered from the intensive cutting of trees and therefore, the depletion of their forest regions. Tree planting "festivals" are celebrated all over the world. "In Japan, it is called Greening Week. In Israel, where it is changing the entire face of the land, it is called the New Year’s Day of the Trees. Korea has a Tree-Loving Week. Iceland has a Student’s Afforestation Day. Yugoslavia holds an Arbor Day in the Spring and an Afforestation Day in the Fall. India celebrates a National Festival of Tree Planting" (CAN, 1990). All over the world the importance of some version of Arbor Day is in evidence.

In the United States the variation of climates has made it unfeasible to celebrate Arbor Day on a uniform date. Each state has set their own Arbor Day date. Some are the same and some are individual. National Arbor Day falls on the last Friday in April. In addition to all 50 states celebrating Arbor Day, each state has adopted a state tree that is representative of their North American region. "Arbor Day celebrates trees in our lives and is a reminder to plant trees for future generations to enjoy, as we give thanks to those who planted trees for us" (The California Department of Forestry and Fire
Many people do not realize the importance of trees in our lives. It would be virtually impossible to picture our world without trees. Humankind has come to rely on trees for an abundance of reasons but probably does not realize the extent of the resources trees provide. Trees provide us with over 50 different products ranging from things we wear, to things we eat, to products we use in building and everyday life. That does not take into account the additional aesthetic value trees provide us with. Trees even provide shelter and homes for those animals humans depend upon for survival.

Arbor Day is a day for renewing and restoring some of the natural landscapes of the Earth. It is an opportunity to help students appreciate the world around them and plant a tree to help beautify the world for future generations. By ignoring this day, educators ignore the need to help young people understand the necessity of giving something back to the Earth rather than just taking from it. Over the years much damage has been done to trees and the natural environments they support. It will take the entire world working together,
planting trees, to begin rectifying the devastation that has already occurred. By educating young people on the importance trees play in our existence, we can hopefully prevent future generations from committing the same mistakes as past generations. Perhaps one way to do this is to have students look upon the trees as an extension of humans. John Muir aptly described this view of the trees with these words:

It has been said that trees are imperfect men, and seem to bemoan their imprisonment rooted in the ground. But they never seem so to me. I never saw a discontented tree. They grip the ground as though they liked it, and though fast rooted they travel about as far as we do. They go wandering forth in all directions with every wind, going and coming like ourselves, traveling with us around the sun two million miles a day, and through space heaven knows how fast and far! (Teale, 1954, pg. 315)

Students need to understand that destroying trees ultimately leads to our own destruction. We are part of that fragile ecosystem that surrounds the Earth. When we
ignore or abuse that place in the ecosystem, we damage or destroy our own future. If we think of the trees as an extended part of ourselves, we can begin to understand the hurt that they have already suffered.

Humankind relies on the Earth for their very existence. Plants, animals and humankind are all part of the same intertwined ecosystem. Without the life-sustaining elements the earth and its atmosphere provide for humans, life would not exist. Trees can help students understand how life and the Earth work together to keep the ecological balance that allows all forms of life to prosper. A tree touches all the elements of nature. Its roots reach into the Earth itself holding its soil and nutrients together. A tree’s branches reach up to the sky providing the removal of toxic carbons and replenishing the atmosphere with fresh air. The trunk of a tree provides shelter, building materials and an aesthetic value to the face of the Earth. By beginning with the simple tree, educators can embrace all the elements of our environment in relationships students can understand. It has been tested and proven numerous times that children learn better through experiences. All students can easily experience a tree. As the Earth’s
problems escalate, so does the need for future generations to be educated and prepared to handle those problems. Students live in accordance with their environment without really noticing their environment. Educators need to open their students eyes to the beauty and wonder around them. In the past, educators have tended to concentrate on basic skills and ignored universal concerns. Universal concerns, such as the depletion of our forest lands, can be implemented throughout the curriculum. Students need relationships to fully understand what they are learning. If educators were to start with the tree, they could easily read about trees, use math skills to project the rate of reforestation, deforestation or growth, teach art through the aesthetic beauty of trees and their surrounding environments, and lastly they could discover social studies through the settlements of our land and its effect on the trees. The most important thing for educators to realize is that the time for ignoring those factors that directly affect life on Earth is gone. I do not propose that educators throw out all other curricular elements and focus exclusively on the environment, but I do feel that the excuses used for not even mentioning the
environment are no longer plausible.

This project will be designed in such a way as to provide educators with the materials necessary to include Arbor Day and its importance into their present content curriculum for all areas. For one hundred years Arbor Day has been influencing generations, as educators we must keep it alive to assure a continued future. No one is ever too young or too old to plant new trees or just appreciate and help protect existing trees. We need to be sure that our fragile ecosystem does not meet destruction through our own ignorance and folly. Earth's future will depend on those individuals educators now see staring up at them in their classrooms. Helping them learn responsibility for the environment is all part of the puzzle of watching them grow into responsible and understanding adults. Arbor Day may be just a small start, but it is a place which allows all educators to embrace the importance of environmental education.
REVIEW OF RELATED LITERATURE

Trees. Why are trees important to our lives and our environment? If there were no trees, would life be the same? The answer to these questions is the purpose of the study of Arbor Day. Studying trees gives us an insight into our environment and nature’s ecosystem. It seems hard to believe that numerous species rely and depend on something as simple as a tree. But the reality is that they do. From the lowliest insect to the largest mammals life is intricately tied to trees.

Through my research, I have learned that trees affect and enhance our environment in a number of ways. The rate of deforestation all over the world has caused increasing concern about the future of our present environment. Currently the forests on our earth are being destroyed at a rate of 40 to 50 million acres a year. This deforestation has caused the increase of desertification all across the earth (Secunda & Dyson, 1991). As deserts increase, the land’s ability to support living things decreases. Even though the earth’s ability to support life is decreasing, the population of
human life on the earth is increasing. Humankind seems to have a way of destroying the things that are important to our own survival. By reducing the forest areas, we are reducing the oxygen supplied by those areas. We are also taking away the plants that absorb the carbon dioxide which living things breathe out. This abundance of carbon dioxide is causing our problems with the ozone layer.

Throughout history man has settled areas and refused to live in conjunction with the environment, which has ultimately caused the destruction of the surrounding environment. This sequence of events is increasingly evident in our earth’s tropical rain forests. Tropical rain forests contain approximately half of the world’s known animal and plant species. They also contain 70 percent of the world’s 3000 identified plants that have anticancer properties (Marchioni & Mazsa, 1988). In a single person’s lifetime as much as a quarter of the plants, animals and microorganisms could become extinct due to the deforestation of these areas. Many species have already become extinct before humankind even had a chance to take note of their existence. To date, scientists believe that the tropics contain at least 3
11

million different animal, plant, and fungi species (Raven, 1988). This number is double the amount of animals, plants and fungi found in temperate regions. Scientists also speculate that the tropics could support as many as 10 million different species. Currently scientist have identified approximately one in every six of these species. It is difficult to estimate the rate of extinction of species which we know so little about; however, it is believed that more than a million species are presently at risk in these areas (Raven 1988). Due to humankind’s total lack of respect for the environment we could possibly be destroying plants, animals and microorganisms that could help with our future survival.

In addition, the destruction of these forests has caused an increasing amount of flooding and soil erosion to occur. Even though the land has been cleared for farming, the lack of a solid vegetational base is washing the nutrients out of the soil at an alarming rate. Areas of land that in the past supported centuries of forests including all the animals and plants that lived within that forest, are now only lasting a few years before the soil will no longer produce substantial crops to support life. By taking away the natural ecosystem of the area,
humankind has caused the soil itself to die (Marchioni & Mazsa, 1988). Humankind seems to learn slowly, however, because they continue to move on and clear more forest areas as soon as the land they are working becomes unproductive. This causes the area of dying soil to increase which could ultimately lead to desertification that would last for centuries. This process of desertification due to the deforestation of an area is illustrated by the ruination of Ethiopia. Their people are now starving because the forests they used to rely on are gone and the land will no longer support the cash crops the forests were cleared to create.

In other areas of the world, trees are threatened by other elements as well as those previously mentioned. The United States, Canada, and northern Europe are facing forest destruction due to the increasing acidity levels of rainwater. This acidity level is caused by the nitrogen and sulphur emissions produced by industries, power plants and automobiles. This acid rain, fog and snow not only kills the existing forests, lakes and other vegetation but it also enters the soil system itself. The more acidic the soil becomes, the more toxic it is to all plant life. When the acid falls on the leaves of
trees it absorbs the nutrients within the tree itself. The acid will also absorb these nutrients through the root system. This causes the death and destruction of the present forest system. It not only kills the present vegetation but due to the toxic levels of the soil itself it prevents any regrowth of the area.

By destroying the forests of the world, humankind is destroying their own life, past and future. Humans cannot live without trees and other vegetation. Trees have provided us with a living history book into our past. By counting the rings on a tree, scientists can discover many things. Scientists can learn the years of drought and the years of extreme rain. Rings on trees from a drought year will be small and show little growth that year. Rings from years of ample rainfall will be large showing much growth during that year (Phipps & McGowan, 1981). With these facts, scientists can discover a probable cause for the end of past civilizations. Trees grow and survive for centuries. Some trees can be aged back to prehistoric times when dinosaurs ruled the earth. Structures built in previous centuries can be approximately dated from the rings found on the wood with which they were built. The position of
a tree’s growth can also tell scientists information about the past. Trees that have grown at an angle could possibly have lived through an avalanche that destroyed an early settlement. Trees tell scientists of past floods and fires that could have had an overwhelming impact on the past civilizations and the environment itself. In many instances trees are our only link to the past and our history (Phipps & McGowan, 1981).

Trees also play an important role in protecting our ecosystem. Everything in the ecosystem balances another element in the system, thus providing a balanced environment where all things can live productively. If one element of this ecosystem disappears, it could cause the disintegration of the entire ecosystem. Soil is the basis of productivity of an ecosystem. Trees play an important role in protecting, preserving and rejuvenating the soil. Trees protect the soil by providing windbreaks, absorbing water to prevent flooding and providing shade for new growth. This protection enables the natural decomposition of organic materials to occur thus rejuvenating the soil so it will support plant life (Ffolliott & Thames, 1983). Forest ecosystems have an inherent ability to support an multitude of plants,
animals and human life. If trees were taken away from this ecosystem, the productive and support ability of the forests would greatly decrease.

For years forests have decreased instead of increased. Problems have grown in proportion with the increasing population. This problem started centuries ago. "France, once 80 percent forested, had trees covering only 14 percent of its territory by 1789" (Postel & Heise, 1988, p. 6). When the Pilgrims arrived in the New World in 1630, forest land totaled approximately 385 million hectares. "By 1920, trees covered 249 million hectares, more than a third less than when European settlement began" (Postel & Heise, 1988, p. 7). In the early eighties, 11.3 million hectares of tropical land were annually cleared. The rate of revegetation of that land in crops was less than half of the lost tropical forest. "Thus 10 hectares were being cleared for every 1 planted. In Africa, the ratio was 29 to 1; in Asia, 5 to 1" (Postel & Heise, 1988, p. 7). Depletion of these forest regions can be directly linked to the increasing climatic changes. As the trees are depleted, more carbon remains in the air causing the earth's atmosphere as a whole to change. This is causing
the increase in the earth’s temperature, known to most scientists as the greenhouse effect (Gough & Noel, 1989). It is also causing the shift in temperatures throughout most regions of the earth. Weather patterns may also be effected by this. Thinking of trees as anything less than a vital part of our ecosystem will result in continued depletion of a vital life giving force.

Humankind, animals and even other plants rely heavily on trees just to survive. Many species of animals use trees as their homes and their source of food. Animals that do not live in trees still depend on trees for shelter and for a source of food. Young plants would not be able to survive the forces of nature if it were not for the protective cover of stabilized trees. Small plant life also attach themselves to the tree itself to benefit from the trees generation of nutrients. Humankind depends on trees for materials to build homes and factories. Trees provide us with paper, perfume, nylons, floor wax, candy, explosives, nuts, salt, printing ink, plastic eating utensils and much much more (California Association of Nurserymen, 1990). In addition, trees provide humankind with an opportunity to improve our environment and our immediate landscape.
They shelter us and our homes from the harmful forces of nature. Trees provide a sound barrier between our homes and roadways, helping to eliminate dust as well. Trees are often taken for granted and their value to life belittled. The impact a tree has on all forms of life has become abundantly clear throughout this literature search. Arbor Day is a day to honor the tree and its contributions and value to our life and our environment. For the educator who has not embraced the need for environmental education, this is a great stepping stone into our ecosystem. Even for the educator who has already discovered the need for building increased environmental awareness among future generations, Arbor Day is an integral part of the program. Each generation must plant trees to enhance and enrich future generations. Trees take years to grow into full maturity. We must always remember that in our lifetimes trees we plant will begin to grow but not reach the full potential of their usefulness until we are long gone. Our early ancestors found a planet with an abundance of forested areas. Through misuse and pollution generated by what we have called progress, our forested areas have become just an echo of their former magnificence. There
has always been a few people who valued the land and its relationship to life. The early North American Indians believed that humans belonged to the land; the land did not belong to humankind. This belief caused them to value land and the life it created. These Indians did not take more than they needed from the land and did not leave scars on the land after they left. It was not until the early settlers arrived that the land became misused. The misconception that trees would always regenerate themselves only held true when the rate of deforestation was equal to the rate of growth. Those days ended long ago. As time marched on more people began to realize that the trees would need help to survive, but in the early days of land development humankind was more interested in their own survival. They did not realize that in the long run they were harming their own kind in numerous ways. Realization of the devastation that has already occurred is slowly sinking in on the generations of today. If we had but listened to those others long ago, we could have avoided some of the devastation we are now facing. The job of rejuvenating the land would also not be so overwhelming for our generation. In his book "Our National Parks"
published in 1901, John Muir gave an adept interpretation of the plight of the trees:

Any fool can destroy trees. They cannot run away; and if they could, they would still be destroyed—chased and hunted down as long as fun or a dollar could be got out of their bark hides, branching horns, or magnificent bole backbones. Few that fell trees plant them; nor would planting avail much toward getting back anything like the noble primeval forests. During a man's life only saplings can be grown, in the place of old trees—tens of centuries old—that have been destroyed. It took more than three thousand years to make some of the trees in the Western woods—trees still standing in perfect strength and beauty, waving and singing in the mighty forests of the Sierra. Through all the wonderful, eventful centuries since Christ's time—and long before that—God has cared for these trees, saved them from drought, disease, avalanches, and a thousand straining, leveling tempests and floods; but he cannot save them
from fools—only Uncle Sam can do that.

National Parks have protected many of our native trees in the United States, however, all the land in the National Parks only account for one-fourth of the forests in the United States. The rest is privately owned and in danger of deforestation. It will take all of the people of the world and all of the governments of the world working together in order to help save the existing forest areas for future generations. Deforestation has become a global concern, it is no longer only applied to a few nations. What one nation does environmentally effects the others by producing acid rain and global warming. By educating the future generations, we can hopefully avoid continuing to aggravate and increase the problems created in the past.

Trees are a pivotal point in our environmental ecosystems. Many plants, animals, organisms and even humankind itself rely on trees. In many ways trees effect daily life for a number of creatures. Many plants and animals live on and within the trees themselves. Due to this fact, trees can also be a pivotal point in the study of our environment. Environmental education has been receiving increasing emphasis in the past few years.
A problem occurs however, when it comes to actually teaching the environment. There are so many diverse views and ideas that it becomes difficult for educators do know which is critically important and which is just a group or organization's opinion. Many educators erect barriers they feel are valid in order to avoid facing the growing need for environmental enlightenment. Trees are an integral part of all communities, not just forest areas. Try to imagine your community itself without even one tree. In today's society, that is a virtual impossibility. Humankind has developed an aesthetic consciousness toward their own immediate environment. In fact, one of the first things people of today do when moving into a new place, is to plant a tree. Therefore, in any given school's immediate environment, there is an abundance of readily available links to the environment and the education of the environment. Educators, at times, tend to make "mountains out of mole hills" when faced with a new element of curriculum. Trees are an integral part of ecosystems just as they are an integral part of curriculum. Our environment is constantly surrounding us and available to us as a resource if we just look. In many cases trees provide students and
adults with an abundance of possibilities in the area of play (Schicker, 1988). Children often use trees for forts, safe base, climbing, swinging and even just sitting under with a friend. Adults looking for a place to relax outside do not automatically go to the area in the direct sun, they instead search for that one perfect area that is in the shade. Even our pets seek out the protection of trees from the elements of nature. Environmental education will not solve all the problems of our present environment, but it will help build the awareness that our environment should not be taken for granted.

Today's students are our future. It is important that educators enlighten them as to the importance of our earth. To begin this process educators need to have a starting point. I believe that Arbor Day is that starting point. Educators can initiate their students into environmental awareness without overwhelming them or having to discuss environmental issues outside of the students basic knowledge background. Today's students are going to face many challenges pertaining to the environment. In its January 2, 1989 issue, Time, identified four critical problems that will play a role
in the future of students:

1. Extinction of plants and animals due to disappearing forests;

2. Global warming caused by carbon dioxide from cars, factories, power plants (industrialized nations) and the burning of tropical forests (less developed nations);

3. Waste (industrial nations are highest in household-generated garbage and toxic industrial waste);

4. Overpopulation (90% of the population growth is occurring in the developing nations, leading to a desperate effort to produce more food, chopping down of forests for firewood, overgrazing of grasslands, and overplanting of croplands) (Riggs-Salter, 1989, p.144).

It becomes apparent after reading the above list, that it is time we got serious about environmental education (DeVall, 1984). Environmental awareness among students will not occur overnight. It is a process that begins with the beginning of their education and lasts, hopefully, a lifetime. By beginning with something familiar to the students educators can begin the
enlightenment process without the students even being aware of the proposed outcome. Starting with Arbor Day, is starting with a simple tree. It is not feasible to teach a five year old (Kindergarten) about global warming, but it is feasible to achieve that level of enlightenment by the time students reach twelve or thirteen (Sixth grade). Throughout education, it is important to build upon the students already existing knowledge. By starting an Arbor Day program in kindergarten and building upon it each year, by the time students reach their teens, a tree will no longer be just a place to find shade or climb on. As shown through my research, trees are just the beginning. They are a pivotal part of the whole environment and therefore an excellent place to pivot our educational program on the environment from. This project will be a resource to educators centering on Arbor Day and the trees that are so vital to our lives.
STATEMENT OF GOALS AND OBJECTIVES

To achieve my desired outcome for this project, it was necessary to set goals and objectives. The goals and their related objectives were set in order for educators and students to achieve success with this program. The program was designed for the elementary levels of kindergarten through sixth grade. It was designed as a source for educators to use in beginning their environmental education program with the celebration of Arbor Day. The goals and objectives of this project are as follows:

**GOAL 1:** To build an understanding of the importance of Arbor Day due to the environmental impact and contribution to the delicate balance of nature of trees and forests.

**OBJECTIVES:**

1. To illustrate the fact that trees are an integral part of their given ecosystem.

2. To portray the fact that humankind is dependent upon trees for their existence.

3. To instill in others the understanding that any
trees taken from the environment by humans must be replaced by humans.

**GOAL 2:** To provide teachers with a background knowledge of Arbor Day, trees and forests; a developed curriculum for K-6 and necessary materials and resources to effectively put Arbor Day and trees into their curriculum.

**OBJECTIVES:**
1. Sequential curriculum materials will be available to assist lesson planning based on the 1990 California State Science Framework.
2. Teachers will be provided with the history of Arbor Day including the many varied dates it is celebrated.

**GOAL 3:** To provide teachers with a list of extended literature to incorporate the value of trees throughout their curriculum.

**OBJECTIVES:**
1. Literature list will contain recommended level.

**GOAL 4:** To increase student awareness of the importance of Arbor Day.

**OBJECTIVES:**
1. Students will be exposed to a variety of media
about Arbor Day.

2. Students will be exposed to a variety of media about trees and products provided by trees.

3. Students will be exposed to a variety of media about the impact and benefits of trees on our environment.
DESIGN OF PROPOSED PROJECT

This project was designed to help educators incorporate Arbor Day and the relating environmental issues into their present curriculum content. My stated goals and their related objectives will guide the developmental processes needed to make this a workable program for educators of grades K-6. I have worked to make this program one that does not repeat itself but instead builds upon itself year after year.

To help educators acquire an understanding of the importance of trees and the environment, my first step was to provide a background history of past mistakes humankind has inadvertently done to harm our current environment. I worked to instill the love of trees into educators through the use of factual records from the past and present regarding the deforestification of our Earth’s natural forests. In addition, I aptly explained the importance of trees in our daily lives and the existence of human life on this planet. I feel that once educators realize the actual impact a simple tree has on
a variety of living creatures, including humans, they will be open to the acquisition of Arbor Day into their present curriculum content. These steps have satisfied my previously stated Goal 1 and its related objectives.

My next step in the organization of my project was to provide teachers with the background history of Arbor Day itself. To accomplish this, I compiled a summary of Arbor Day's evolution into humankind's environmental awareness of the Earth. I listed other resources that contained a more in depth understanding of Arbor Day with each publications specific concentration of information. This section also includes a representative list of all the countries around the world that celebrate some form of Arbor Day. In addition, I also included an overview of the states in our own country that celebrate Arbor Day along with the date they celebrate this day. Lastly, this section includes a list of state trees for each of the 50 United States. This second step in the organization of my project has satisfied my stated Goal 2 and its related objectives.

The third step in the organization of this project was to provide teachers with a list of literature about trees to use across their curriculum content. This will
relieve teachers of the arduous task of compiling their own literature base on the topic of trees. It has also relieved teachers of the time consuming task of reading each of the related literature books in order to determine if it would be appropriate for their given grade level. This organizational step has satisfied my stated Goal 3 and its related objectives.

Step four in my project was to provide teachers with an in depth list of available resources that will enhance student understanding concerning trees, Arbor Day and the importance of both on our environment. This listing will help teachers plan a program that meets the goals they have set for themselves in teaching the importance of trees to their students. This section also has recommended grade levels posted next to each entry. These posted grade levels will help teachers in planning and also alleviate the problem of curriculum content in this area repeating itself year after year instead of building upon itself year after year. This section contains resources ranging from posters to films and videos. It also contains some hands on experiences to use with students to enhance their experiences and learning processes. This step satisfies my stated Goal
4 and its related objectives.

I have also included in my project some examples of lessons I personally have used with second and third grade students. I have taught Arbor Day and its importance to my own classroom of students for the past five years. I have managed to incorporate Arbor Day studies into environmental issues, Earth Day, and endangered species lessons. I have included a description of the enthusiasm and understanding I have been able to instill in my students. These examples are listed throughout the "Lesson Plan Ideas" section of this project.

My project addresses Arbor Day, trees and their effect on the environment and humankind's past disregard of the importance of trees in our natural landscapes and life itself. I have based my project on the 1990 California State Science Framework Life Sciences section. My project does not branch out far enough to encompass all the environmental issues of today. My project is also limited to the elementary grades (K-6) and does not include recommendations for the secondary levels of education.
LESSON IDEAS

The 1990 state science framework has changed some aspects of the old science curriculum. The new framework has integrated the elements of science rather than separating them into individual parts. At the time of this project, the new science texts had not been developed; therefore, this project's grade level estimates parallels the guidelines set in the framework. According to the state framework, the section on life sciences has been changed to the following:

In previous frameworks the topic Living Things was divided into separate sections on plants, protists, animals and human beings. Although it is feasible to separate curricula into these component parts (and many teachers prefer instructional materials that do so), the present framework is designed to emphasize the continuity and comparability of living systems, their components, needs, and histories. In this way the concepts of integrative themes are stressed. Whichever format is used, it is essential to show that classification of living things is based on evolution, because evolution
explains both the similarities among living things and the diverse paths taken by different groups through geologic time. (California State Department of Education, pg. 116)

As stated in the framework, science is an integrated study. Each element effects in some way other elements. My project focuses on Arbor Day and trees; however, as I have previously stated in this paper, the study of trees can be a beginning point into other areas of study. With this in mind, I hope to provide teachers with the means to "leap" into their life science curriculum. The state framework has divided the Life Sciences element into three sections. These sections are: Section A - Living Things; Section B - Cells, Genetics, and Evolution; and, Section C - Ecosystems. Each section contains its own elements which need to be addressed. To give teachers the easiest access to information, I have separated the sections and given activities to go with each. In this way teachers will be able to address the element which they wish to emphasize in their lessons.
PRIMARY LESSON IDEAS

SECTION A-1 - CHARACTERISTICS OF LIVING THINGS:

In the primary grades (K-3), the study of life science portrays the basic elements of what is important to sustain life. "All living things need certain resources to grow, such as food, water, and gases to breathe" (Department of Education, 1990, pg. 116). To meet this element of the framework, the following activities could be used.

1. Seeds - Many trees grow from seeds, though it may take thousands of years. Look at different types of tree seeds. Where do trees store their seeds? (acorn, inside fruit, in pine cones, etc.) Use the different types of seeds you find to make a seed mosaic. You could even use the seeds to build a tree.

2. Take a walk around your school grounds and tally all the different types of seeds. Make a graph of your findings.

3. Take some seeds and plant them in different environments. Put one in a baggy or cup with no soil only a moist cloth. Put another in a baggy or cup with a moist cloth but no soil and no oxygen. Put another in
a baggy or cup with soil but no oxygen. Put another in a baggy or cup with soil and oxygen. Have students keep track of the progress of the seeds by drawing what they see once or twice a week. This drawing paper becomes their data sheet. Let this experiment continue for approximately a month. This is something that is ongoing while you continue with other lessons. When all the data has been collected discuss your findings. This will show students how plants need air, water and soil to grow. If you wish to take this a step further, put one seed in the dark to emphasize the need for light. When choosing a type of seed for this experiment, look closely at the rate of germination (growth). Young students cannot wait long periods for results so it is advised that you use a type of seed with a relatively quick germination rate. Tree seeds are usually slow to germinate so you may wish to use vegetable seeds that tend to germinate quickly. Another helpful hint is to monitor the watering yourself. Students tend to drown the seeds.

4. You can do the same experiment described in #3 but begin with young plants instead of seeds. This can be a next step after the previous experiment or can be used by the older students (grade 3) as their experiment.
Follow the same steps as with the seeds but be sure to add the step where you deprive the plant of light.

5. Where does a tree get food? To help students understand that the food comes to the tree through the roots, draw a large picture of a tree from the roots up. You can then use this picture to chart the path that nutrients from the soil take to go into the tree. To further display this, use a stalk of celery. If you put the celery in colored water, the colored water will slowly fill the veins on the celery as the celery drinks the water. This will show students how a tree drinks through its roots.

6. Project Learning Tree's activity "A Tree From an Acorn Grows" located on page 83. Students will discover the way a tree propagates itself.

SECTION A-2 - STRUCTURES OF LIVING THINGS, INTERACTIONS, MAINTENANCE AND GROWTH OF THE ORGANISM:

The next element under life science for the primary grades deals with the way living things interact with the environment. "Living things have structures that do specific things to help the organism live and grow and meet their needs as they interact with their environments" (Department of Education, 1990, pg. 118).
The following activities will help students understand this element.

1. Project Learning Tree's activity "Tree Cookies" located on pages 60 and 61. Students will be able to perceive time through tree growth.

2. Project Learning Tree's activity "Trees as Habitats" located on pages 112-114. This activity portrays the interaction between trees and the animals that live in them.

3. Project Learning Tree's activity "Tree Shapes, Natural and Unnatural" located on page 17. This activity bring in geometric shapes to the study of trees.

4. Read stories about forests and rainforests and discuss the trees that live there and how they help the animals and other plants. Discuss how trees help people. What do trees do for us? What do they provide us with? What would we do without trees? Divide class into two groups. Have one group draw a mural of the school or other common area with no trees, while the other group draws the same area with trees.

5. Project Wild's activity "Forest in a Jar" located on pages 91 and 92. Students will see the way environments change.
6. Project Wild’s activity "Everybody Needs a Home" located on pages 31 and 32. This shows students the necessities that all plants and animals need.

7. Show students pictures of trees that have grown in a unique way due to avalanche, wind, flood, drought, river flow or any other of nature's wonders. Discuss with students how these trees adapted to their new environment as the environment changed around them. Can people do the same thing? Will the new trees growing grow in the same way as the trees already there? This discussion should help students understand the way trees adapt to their given environment.

8. Project Learning Tree's activity "Did You Ever Eat a Pine Tree?" located on page 50. Students will learn the importance of the forest and other plants to humankind and animals.

SECTION A-3 - RELATIONSHIPS AND CLASSIFICATIONS OF LIVING ORGANISMS:

The next element of life science as stated by the framework deals with evolution. "All living organisms are known to be related, because they have the characteristics of life (they breathe, take in food, reproduce, and so forth). Life has been on earth for a
long time. Many plants and animals, such as dinosaurs, trilobites, mammoths, giant tree ferns, and horsetail trees, lived long ago but have become extinct" (Department of Education, 1990, pg. 121). This element of life science lets the educator branch out to cover endangered species. When most people think of endangered species they think of animals, however, there are numerous plants that are also endangered. One of the most visible for California is the Giant Redwoods. The following activities will help students understand what endangered means and how it affects them.

1. Project Learning Tree's activity "Healing Wounds" located on page 86. This activity shows us the way trees have the ability to heal themselves.

2. Endangered versus Extinct - many students do not know the difference between these two words. Tell students a story using flannel board characters or real pictures. As you tell your story display the characters or pictures. When you come to the part of the story where you are talking about things that are extinct take the character away (completely out of sight) and explain to students that it is gone forever. To display your characters that are endangered, draw or show a picture of
a woodcutter getting ready to chop down the tree or fire getting ready to climb the tree. Primary students tend to remember things in story form more frequently then things just told to them. Your story can be anything you create but your pictures or characters should be real trees. Later you can have students do a class graph of endangered and extinct trees.

SECTION A-4 - HUMAN INTERACTION WITH LIVING THINGS:

The next element under life sciences deals with human interaction with the environment. "Humans use plants and animals for food and clothing. They farm the soil, mine resources from the earth, and get energy by burning fuels, including wood, which is also used to make paper and to build. . . . Living things and essential resources need to be respected" (Department of Education, 1990, pg. 125). This section will allow students to discover the numerous resources that come from trees. The following activities will help.

1. Use the list of products from trees to build a picture of the importance of trees to humankind. Students will be amazed at the product list. Graph the products on a chart based on things that are essential
for human life and things that are luxuries. Of the things that are essential, what materials can be substituted to produce the same effect? Your final results should be the things that only trees can give us.

2. Project Wild's activity "Playing Lightly on the Earth" located on pages 211 and 212. Explains the difference between damaging and not damaging the environment.

SECTION B-1 - CELL STRUCTURE, FUNCTIONS AND GROWTH:

This element of the framework discusses the smaller structures of life. "All living things are made of smaller structures, such as tissues and organs" (Department of Education, 1990, pg. 127). This aspect of life is difficult for small children to understand; therefore, I will put this section in the simplest of terms.

1. Discuss with students the things which a tree needs to survive. Things such as; food from soil that worms enrich, water from runoff, light from the sun, and plain old simple air. These are all small organisms that help the tree survive and that could not survive without the tree. To illustrate this to students, take some
seedling trees and deprive each one of them of one of these elements. This will show students how closely these organisms must work together to survive.

2. Keepers of the Earth activity "Nutrient Cyclers", located on page 140. This activity helps students understand the interaction on organisms on the forest floor.

3. Project Learning Tree's activity "What's in Soil", located on page 87-88. Students will discover all the elements on soil and where they came from.

SECTION B-2 - CHARACTERISTICS OF LIVING THINGS THAT ARE PASSED ON THROUGH GENERATIONS:

This element of Section B discusses the inherited traits of life forms. "Living things resemble their parents because all parents pass on their physical characteristics to their offspring" (Department of Education, 1990, pg. 128).

1. Plant different types of seeds. Be sure to label each plant. When they begin to grow, check to see if each seed grew into a plant resembling their bigger full grown relatives. Do acorns grow into Giant Redwoods? Do flower seeds grow into trees? Discuss your findings as a class. This lesson can be related to the
students themselves and their families. This takes the lesson into the realm of Social Studies.

SECTION B-3 - LIFE'S CHANGES AND DIVERSIFICATIONS THROUGH TIME:

This third and final element of Section B is concerned with the changes living organisms go through. "All living things have features that they inherit from their parents. All life forms are related to each other because they share common features. Living things are grouped together on the basis of these features, which they have inherited from common ancestors" (Department of Education, 1990, pg. 130).

1. Gather pictures of all different types of redwood trees. By looking carefully at these pictures have the class generate a list of similarities and differences. From this generated list, have students draw a picture of what they think the original redwood looked like. Which characteristics did it have? This activity can be done with any family group of trees.

SECTION C-1 - ECOSYSTEMS AND HOW ORGANISMS INTERACT IN ECOSYSTEMS:

This section focuses on ecosystems. This first
element deals with the interaction of all elements in the development of a given ecosystem. "Living things live in particular kinds of environments, because these are where they find the things and the conditions that they need to survive" (Department of Education, 1990, pg. 136). This element continues to explore the concepts of plant adaptation to each other and the environment. "Living things interact with other living thing in many ways, depending on each other for food, shelter, and mutually advantageous purposes such as social groupings" (Department of Education, 1990, pg. 137).

1. Keepers of the Earth activity "Brother Soil, Sister Tree" located on page 35-36. This activity shows students the way trees rely on elements around them; including humans. It also shows how the elements around the tree rely on the tree.

2. Project Learning Tree's activity "Trees as Habitats" located on pages 112-114. This activity helps students understand the impact trees have on all the animals around it.

3. Project Learning Tree's activity "Did You Ever Eat a Pine Tree?" located on page 50. This activity helps students realize the importance trees play in the
lives of humankind.

4. Divide your class into two groups. Have one group draw a mural of your school without trees of any kind. Have the other group draw a mural of your school with the trees it has and any additional trees they feel it needs. Compare the two murals. Using the murals as a base, brainstorm a list of products that you use at the school that you would no longer have without trees. Have students write a story about their day at the school without the benefit of products from trees.

SECTION C-2 - THE ENERGY FLOW WITHIN AN ECOSYSTEM:

This element of the framework deals with the energy an ecosystem produces. "Living things must gain energy from their environment, either by converting it from sunlight (algae and plants) or by eating other organisms or organic matter" (Department of Education, 1990, pg. 138).

1. Project Learning Tree's activity "Can You Dig It?" located on page 92. This activity helps students identify daily energy used and which energies used are renewable.

2. Project Learning Tree's activity "Another Way of
Seeing" located on page 150. This activity looks at the human aspect, both in the past and now.

3. Discuss with students where the air we breathe comes from. Once they realize that without trees and other green plants we wouldn't have air to breathe they start looking at trees in a new way. How can we help the trees in our community to survive? Without those trees would we be able to survive?

SECTION C-3 - CHANGES IN ECOSYSTEMS:

This element deals with the changes ecosystems must go through due to natural phenomena or human intervention. "As seasons change, living things also change. Each species has its own life cycle. Events in its life cycle are matched with particular events in its surroundings. Ecosystems have changed through time as the living things in them have also changed. New kinds of organisms have appeared, and others have become extinct" (Department of Education, 1990, pg. 139). This element lets us explore the simple elements of change as seen in the seasons of the year. It also lets us look at larger ecosystems and the changes that occur due to human intervention and ignorance.
This is an excellent time to bring the tropical rain forests into your curriculum. There is an abundance of information about these forests, including fiction and non-fiction literature books directed at children. Rain forests are also an excellent vehicle to use in studying this aspect of the framework. Due to human intervention, there are many plant and animal life forms that are already extinct in these forests. Plants in the rain forests also have an abundance of healing qualities that we are slowly destroying due to our ignorance. Rain forest study will definitely help teachers show their students about organisms that appear and those that become extinct.

1. Using a map, locate the rain forests of the world. Students will discover that the majority of them are near the equator. Use pictures and books to discover the abundance of plant and animal life that inhabit these forests. Generate a list of products which humankind gets exclusively from these forests. Have students draw a picture of the rain forest (you may wish to do this in mural form). In addition students can write a factual or a fictional story about a day in the rain forests.

2. Initiate a study of the seasons of the year.
You may wish to have this project go all year with students collecting leaves of different colors to study and use for art. Studying seasons can take you into the science study of weather also.

3. Project Learning Tree's activity "Large Leaves" located on page 111. This activity leads students through a study of leaves.

4. Project Learning Tree's activity "The Second Little Pig" located on pages 11-12. This activity shows students the products which humans are dependent upon trees for; thus, leading to the destruction of our forests.

5. Project Learning Tree's activity, "Signs of Fall" located on page 24. This helps students learn the difference between deciduous and evergreen trees.

SECTION C-4 - RESPONSIBILITIES OF HUMANS TOWARD ECOSYSTEMS:

This final section of the framework for Life Science discusses the responsibility of humans to the environment. "Human practices can often affect the well-being of other species in the environment. Humans should respect living things and foster their survival. Because we depend on other species for food, clothing, shelter,
and other needs and will continue to do so, it is important for humans to respect nature and conserve natural habitats, resources, and species" (Department of Education, 1990, pg. 141). The human impact on the world around us can be productive or devastating. Through the years humankind has had a tendency to act without thinking about future consequences of those actions. Over the centuries learned men have been trying to forstal what they saw as the destruction of our world. Now it is up to us as educators to release into society a generation of citizens which respect the environment and work to keep what we have and restore what our ancestors carelessly squandered.

1. Project Learning Tree’s activity, "Healing Wounds" located on page 86. This shows students damage done to trees and the trees ability, in most cases, to heal itself.

2. Project Learning Tree’s activity, "Adopt-A-Tree" located on pages 4-6. This activity helps students appreciate a tree and notice the changes it goes through.

3. Project Learning Tree’s activity, "Plant Personification" located on pages 25-26. This activity helps students portray their feelings about the
environment.

4. Recycling. Begin recycling in your classroom. All paper comes from trees. An average person in North America uses 580 pounds of paper each year! By recycling newspaper in your classroom you can actually save trees. If your class recycles three feet of newspaper, you have saved one tree. This is very important when you think of all the newspapers printed each day. Each Sunday alone, the United States uses more than 500,000 trees in the newspapers it reads. Think of all the trees that died to give us the news.

5. Plant trees. Ask around your community at nurseries to see if you can get a donation of a tree for your school for Arbor Day. If not, have your students do a fund raiser to buy a tree for this special day. Let your class plant the tree themselves (it has more meaning that way). In addition, the forest service is usually able to find seedling trees for you to give to your students to plant at home. The forest service may even allow your class to take a fieldtrip to the mountains to help them plant trees. GET INVOLVED!!

6. Protect the trees already in existence on your school site and community. Once students understand the
importance of trees they are the best proctors of other who abuse them. They can build basins around existing trees so that they are easier to water. They can also identify and label the trees so that your playground becomes a learning center on plant life.

7. Share with their families. Many students share the knowledge learned in school with their families. If we as teachers instill in our students a love for trees, they will pass that love onto their siblings at home. They may even get their parents to become environmentally conscience.

INTERMEDIATE LESSON IDEAS

SECTION A-1 - CHARACTERISTICS OF LIVING THINGS:

For the intermediate grades, this section takes the study of Life Science one step further. "Living things grow, metabolize food, reproduce, and interact with their environments. all living things have basic requirements of nutrition and growth, needing food, water, and gas exchange for respiration. Plants, as well as some one-celled organisms that can photosynthesize, are able to make food out of air and water, using the energy from
sunlight and nutrients from soil or water" (Department of Education, 1990, pg. 116-117). This section helps students focus on the processes plants go through to create air and food for mankind. The following lesson ideas will help illustrate these processes to students.

1. School Gardening - Grow a garden on your school site with students doing ALL the work. This will show students the needs of plants before they are planted and during the production of their fruit. Students will be able to see the changes. To emphasize each element's importance, deprive a section of one element. Have one section that you do not water, another that is in the shade and doesn't get sunlight, and one section where plants are deprived of both. Vegetables grow faster so students do not become bored with the process, however, fruit trees will add benefit to your school site for many years.

2. Project Learning Tree's "Sunlight and Shades of Green". This activity will help students observe the effects of sunlight on plant leaves. This is the basis of photosynthesis.
SECTION A-2 - STRUCTURES, INTERACTIONS, MAINTENANCE AND GROWTH OF LIVING ORGANISMS:

This section deals with how organisms perform their functions and how they interact with each other. "Multicelled organisms have particular tissues (e.g., bones, muscles, wood), organs (e.g., livers, lungs, hearts, stems, roots, leaves), and organ systems (e.g., circulatory, respiratory, reproductive) that perform specific life functions (structural support, water regulation, digestion, circulation of nutrients, and so forth)" (Department of Education, 1990, pg. 118). This section goes on to study the process of life itself. "Organisms progress through life cycles of birth, growth, reproduction, and death. These cycles include the growth and development of the young" (Department of Education, 1990, pg. 119). Lastly this section deals with the interaction of organisms on the environments in which they live. "Information about the environment is collected by all organisms. This information helps them adapt to local or temporary conditions, to obtain food, and to resist predation and death. Plants have tissues and organs that react to light, water, and other stimuli: animals have nervous systems that process and store information from the environment" (Department of
The following activities will help you show this to students.

1. Trees Adapt - Discuss with students the fact that plants, including trees, adapt to the environments in which they find themselves. To illustrate this to students share pictures of trees growing on the edge of a cliff with virtually no soil, trees growing in a swamp with constant moisture, trees growing at an angle due to an avalanche when they were young, etc. Any picture that shows a tree growing in or around conditions that are not ideal. This discussion could be followed up by students writing about unusual trees or creating a mural of "survivors" (trees that have the will to live).

2. Survey the Forest - Take a trip to your local mountains to survey the trees. Look for wounds in the bark that have healed themselves, trees growing at odd angles, trees that are fighting off fungus or algae, or anything that is interesting to your students. This activity will let students experience the forest and help them to see how the trees have adapted to environmental conditions.

3. Project Learning Tree's activity "Healing Wounds" located on page 86. This activity will help
students recognize damage on trees and the trees unique ability to heal itself.

4. Project Learning Tree's activity "The Fallen Log" located on page 100-101. This activity will show students the benefit trees have for the environment even after they die and fall.

SECTION A-3 – RELATIONSHIPS AND CLASSIFICATIONS OF LIVING ORGANISMS:

This section of the framework deals with the relationship between organisms. "Groups of organisms are known to be related because they share essential features common to them but not to other organisms. Examples are feathers, which all birds have but no other organisms have; fur, which is unique to mammals; and flowers, unique to flowering plants. Most groups of organisms have long histories that are known form the fossil record" (Department of Education, 1990, pg. 121-122). This section lets us look at the classifications of plants and why they are classified that way.

1. Survey your Playground – Have students survey the playground and the trees located there. Have them come up with ways to classify those trees into categories. After students have developed their own
theories, research the types of trees found to discover if the student's conclusions were correct. At this point it may be beneficial to ask at local nurseries and colleges to see if you can get an expert to come and discuss it with your students.

2. Project Learning Tree's activity "Tree Cookies" located on page 60-61. This activity lets students see the history of a tree's growth through its growth rings.

3. Project Learning Tree's activity "Leaf Hunt Relay" located on page 11. This activity has students match leaves on the playground which will help them with tree identification.

SECTION A-4 - HUMAN INTERACTION WITH OTHER LIVING THINGS:

This section talks about the interaction of mankind on the environment and the organisms that live in the environment. "Hundreds of species of plants and animals become extinct each year as humans destroy the natural habitat in tropical rain forests and other ecosystems to plant crops and raise animals, harvest firewood, dam rivers, and drain estuaries" (Department of Education, 1990, pg. 125). This section provides teachers with the opening to study the various types of rain forests and
the benefits they bring to the environment.

1. Rain forests - For intermediate students the study of rain forests can also become a geography lesson. There are different types of rain forests located in different types of climates. Travel the globe with your students and locate all the rain forests of the world. Discuss the benefits of these rain forests and the uses of their plants and trees. Humankind's influence on the rain forests are at different levels in different areas. Discuss this fact with students and try to come to a conclusion as to why they are so different. Writing about rain forest can follow up this activity. Students may even choose to write to their congressman to encourage them to help save the existing forests. Murals and pictures of the integration of life in the rain forests would also be a good activity for students.

2. Project Learning Tree's activity "Forest Consequences" located on pages 151-152. This activity demonstrates the influences of humankind on the forest environments.

3. Project Learning Tree's activity "Forest
SECTION B-1 - STRUCTURE, FUNCTIONS AND GROWTH OF CELLS:

This section discusses the relationship of a given organisms cells. "There are many different kinds of cells in animals and plants, and different kinds of cells (e.g., muscle, blood, bone, skin, wood, and guard cells) perform different functions in the bodies of their whole organisms. The different functions of cells all contribute to the well-being of the organism" (Department of Education, 1990, pg. 127). The following ideas will help students discover this interdependence.

1. Tree Parts - Trees have different parts that help it adapt to the changing environment. Take a tree apart; cut it into logs and look at the different sections. Bark for protection, rings to monitor growth, core to provide stability, and the numerous fibers to carry food and moisture throughout the tree.

2. Project Learning Tree's activity, "Did you See That Dogwood Bark?" located on pages 109-110. This activity allows students to discover the relationships
and differences between two species of trees by only looking at their bark.

3. Project Learning Tree's activity, "Christmas Trees - After Christmas" located on pages 18-119. This activity lets students study tree growth and the growth rings to discover the types of weather trees have been through.

SECTION B-2 - CHARACTERISTICS OF LIVING THINGS PASSED ON THROUGH GENERATIONS:

This section of the framework takes students through the life cycle of organisms. "Living organisms progress through a life cycle that is characteristic of their species. This cycle begins with the combination of genetic material in the new cell and continues through all the phases of growth and development to the adult form through reproduction and death" (Department of Education, 1990, pg. 128). The following activities will help teach this idea.

1. Project Learning Tree's activity "The Fallen Log" located on pages 100-101. This activity allows students to see the interactions of animals, plants and the fallen log.

2. Literature book #22 on literature list. This
book takes students through the life of a tree from beginning to end and back to beginning again.

3. Project Learning Tree's activity, "Web of Life" located on pages 106-107. This activity helps students see the interdependence of organisms on each other.

SECTION C-1 - INTERACTION OF ORGANISMS IN AN ECOSYSTEM:

This section deals with the ecosystems in which organisms live. "All living things interact with each other and with the physical environment. All organisms are part of their environments; they need things from their environments that enable them to survive and grow. All organisms are influenced by environmental forces, and each organism also influences its environment to some extent" (Department of Education, 1990, pg. 137). This section opens the door for teachers to help their students learn the impact mankind has on the environment around them.

1. Project Learning Tree's activity, "Trees as Habitats" located on pages 112-114. This activity takes students to the trees and teaches them who lives there.

2. Literature book #17 on the literature list. This book shows students in an interesting way the many
animals and plants that rely on one tree in the rain forest.

3. Project Wild's activity, "Eco-enrichers" located on pages 69-70. This activity shows students the importance of all organisms contributions to the ecological balance.

4. Project Wild's activity, "Planning for People and Wildlife" located on pages 205-207. This activity will help students generate ways in which humankind and the environment can live together without one destroying the other.

SECTION C-2 - ENERGY FLOW WITHIN AN ECOSYSTEM:

This section of the framework discusses the food chain and its cycle through the environment. "Green plants are the foundation of the energy flow in most ecosystems because they produce their own food, using sunlight, water, air, and minerals from their environments" (Department of Education, 1990, pg. 139).

1. Project Learning Tree's activity, "Sunlight and Shades of Green" located on page 99. This activity helps students understand the importance of sunlight on plant leaves.
2. Young Plants - Take young trees in pots and deprive them of various fundamental elements; such as, sunlight, air, and water. Chart the changes in the tree's growth. You can even use different types of soils to the the minerals given the the trees are different. Do a full science experiment on this project taking students through the scientific process. This will require students to think the project through from hypothesis to conclusion.

SECTION C-3 - CHANGES IN ECOSYSTEMS:

This section deals with the changes which ecosystems go through. "Ecosystems and the organisms in them change with daily, seasonal, and annual cycles of environmental change. Organisms have their own cycles of life, from birth to death, and also cycles of growth, feeding, and reproduction" (Department of Education, 1990, pgs. 139-140). This section provides teachers with the opportunity to teach students the value of careful planning before tampering with the environment.

1. Old Growth Forests - Take your students through the world plotting on a map the locations of all the old growth forests. These forests are the ancient forests
that have survived for thousands, maybe millions, of years. Look through old maps of the forest regions of the world compared to the map the students have just developed. Our forests have diminished drastically in with the passing of time. Have your students build theories as to why this has occurred. Discuss natural loss, loss due to weather changes and loss due to humankind. This should help students understand how changing one element in the ecosystem can change the entire landscape of that region.

2. Project Learning Tree's activity, "School Yard Diversity" located on page 117. This activity shows students the relationship between trees and animals in the own backyard.

3. Literature book #25 in the literature list. This book tells the story of how one man made a difference in his own immediate environment just by planting trees.

SECTION C-4 - HUMAN RESPONSIBILITY TOWARD ECOSYSTEMS:

This last section deals with the responsibility of humankind when it comes to preserving our ecosystems. "Waste disposal, the use of land (particularly the
elimination of feeding and breeding grounds of many species), imprudent collecting, pest control, hunting practices, and the destruction of natural habitats through human-caused disasters have contributed to the extinction of species and the loss of their natural geographic and ecological ranges and have threatened or destroyed ecosystems" (Department of Education, 1990, pgs. 141-142). This section lets teachers and students explore the damage that has already been done and to brainstorm new ideas to stop the destruction in the future.

1. Research - Have students divide into cooperative groups to research a specific type or area of forests. Have them find out how the area has changed over the years. Groups can even be assigned rain forest areas that are slowly disappearing. Student groups can also find out what, if anything, has been done to rectify the diminishment of forests in that area. Students can then come up with their own ideas on how to protect the remaining forest area. A culminating activity for students could be to write to their legislator describing the problem and providing their projected solutions to help the remaining forests.
SUMMARY

For centuries, far sighted individuals have been discussing the necessity for protecting our wooded areas. If we were to have listened all those years ago, we would not be in the severe condition, in regards to our forests, that we are today. It can seem overwhelming when it is understood that a simple tree can provide humankind with so much of our staples in life. The aesthetic value of trees has also been long appreciated by many. One such person was Ralph Waldo Emerson, who in the 1800's said the following:

I do not count the hours I spend
In wandering by the sea
The forest is my loyal friend
Like God it useth me.
(California Department of Forestry and Fire Protection, p. 666)

Trees provide us with so much it is hard to verbalize it all. One of the most important and basic things it provides humankind with is oxygen. Though it is not the only plant that provides oxygen for living things, it is one of the most majestic.

This project was designed specifically with the thought of the classroom teacher in mind. Trees are a part of life wherever humankind is located. Due to this, it is a readily available source for teachers to use when
teaching about the environment. All teachers have needed in order to utilize this source, was a guide as to where to begin and where the lessons could take them and their class. The lesson ideas section of this project will provide teachers with this information. A unit beginning and/or surrounding Arbor Day can take a classroom of students on many wondrous adventures into their own backyards. It can also take students to many different countries all over the world.

This project gives teachers everything necessary to teach a unit on Arbor Day and trees. It begins with an overview and history of Arbor Day, along with a listing of all the states, the day they celebrate Arbor Day and their individual state trees. This section is designed to give teachers and understanding of why their is an Arbor Day. Following this is the background knowledge and history of trees throughout the world. This includes forests and the devastating effect humankind has had on these lands. This overview contains information about trees that we find close to home and those trees that are located in the ever changing regions of rainforests. The lesson ideas section is designed to give teachers easily planned lessons, games and projects. Some of the ideas
are ideas that I have personally used in my own primary classroom with excellent results. Others are ideas that can be found in resources that are available to teachers throughout the country. With the increased emphasis on using literature in teaching all subject areas, I have also included a listing of books available to teachers. This listing contains books for primary and intermediate levels of study. Some of the stories are fictional and other are non-fictional. My literature listing is only the beginning of all the available literature sources. This listing, however, does save the classroom teacher time in the tedious process of locating books for this subject area. Finally, this project also includes a listing of sources from the California Department of Forestry and Fire Protection. These sources, which are included in the appendix, are all related to trees and forests. They also include a summary of the source and the address or location of that given source. This section will also assist teachers in acquiring any additional information, projects, kits and videos they choose in teaching this unit.
AVAILABLE LITERATURE


12. Burchardt, Nellie. What Are We Going To Do,


15. Buscaglia, Leo. **The Fall of Freddie The Leaf:** Charles B. Slack, 1982. All ages.


30. Hutchins, Ross E. *This is a Tree:* Dodd, Mead and Co., 1964. Intermediate and advanced.


47. Seuss, Dr. *The Lorax*: Random House, 1971. All ages. Also available on video.


BIBLIOGRAPHY


APPENDIX

EDUCATIONAL RESOURCES TO HELP TEACH

ARBOR DAY

Source:
Forestry and Tree Education Catalogue. California Department of Forestry and Fire Protection.
ARBOR DAY

Type of Material: Pamphlet
Intended for: K-Adult

Copyright: No Language: English
Loan: Yes
Free: Yes

Key Descriptors: Arbor Day, Urban Forestry/ Trees

Resource Provider: Florida Division of Forestry, Mike Kettles, - County Forester, 12175 125th St, N, Largo, FL 34644 USA Ph. 813-586-5477
Address to use to obtain material: Florida Division of Forestry, Forest Education Bureau, 3125 Conner Blvd., Tallahassee, FL 32301

ARBOR DAY BOOKLET

Type of Material: Booklet
Intended for: 4

Copyright: No Language: English
Free: Yes
Length: 18 pages

Description: A booklet intended to be given to 4th graders on Arbor Day. Contains very brief descriptions of what a tree is, Arbor Day, why trees are important, and forest types. Also contains a nice identification key to common eastern trees, a glossary, a hidden-word (tree names) puzzle, planting instructions and historical tidbits. Most of the material probably obtained from the Ohio Department of Natural Resources.

Key Descriptors: Arbor Day

Resource Provider: City of Columbus, Jack, Low, - City Forester, 420 W. Whittier St., Columbus, OH 43215 USA

ARBOR DAY ADOPTION CERTIFICATE

Type of Material: Certificate
Intended for: K-Adult

Language: English

Description: The City of Aurora gives away these certificates along with tree seedlings to kids and grownups during the many Arbor Day festivities. The back of the certificate describes the trees available for adoption plus planting guidelines.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Propagation/ Care, Urban Forestry/ Trees

Resource Provider: City of Aurora, Renita Baskin, - Forestry Division, 1470 S. Havana St., Aurora, CO 80012 USA Ph. 303-695-7150
ARBOR DAY DETECTIVES (SCAVENGER HUNT)

Type of Material: Poster
Intended for: 4-6

Date: 1987
Copyright: No
Language: English
Free: On site
Length: 1 page

Description: This chart teaches children about trees by encouraging observation of on-site trees and exploring their feelings about trees. Sample questions are "What do animals use trees for?" "Find a tree smaller than you and describe it." "Put this paper against a tree and rub this square with a pencil." Could be adapted to other settings.

Conceptual Categories: 14, 15, 17, 20, 35

Resource Provider: Sacramento Science Center, Bruce Forman, 3615 Auburn Blvd., Sacramento, CA 95821 USA Ph. 916-449-8255

ARBOR DAY ESSAY CONTEST

Type of Material: Game
Intended for: 5-6

Date: 1986
Language: English

Description: The Division of Forestry cooperates with McDonald's Restaurants (of South Dakota) and the State Association of Conservation Districts to sponsor an annual Arbor Day Essay Contest open to 5th and 6th graders in the state. Local contests are held in most of South Dakota's 69 Conservation Districts. Local winners receive cash prizes and certificates and are forwarded to the state contest for judging. Contest posters and flyers are available in McDonald's Restaurants, Conservation District and Division of Forestry offices, and other appropriate locations around the state.

This is a state program and we offer copies of printed materials to anyone who may be interested in using the idea in another state.

Key Descriptors: Arbor Day

Resource Provider: Shelterbelt, David W. Erickson, - Urban Forestry Specialist, 445 Capitol Ave., E. Pierre, SD 57501 USA Ph. 605-773-4259
ARUB DAY IN SOUTH DAKOTA

Type of Material: Brochure
Intended for: 5-Adult

Date: 1988
Language: English Purchase: 1-3 copies free
Length: 8 pages

Description: Brochure entitled 'Arbor Day in South Dakota' distributed to teachers and other educators upon request. Has been included in 'Celebrate Arbor Day' packets provided by the National Arbor Day Foundation. Provides ideas on how to celebrate Arbor Day, organize a program, information on the history of Arbor Day and benefits of planting trees.

Key Descriptors: Appreciation/ Benefits Importance, Arbor Day

Resource Provider: Shelterbelt, David W. Erickson - Urban Forestry Specialist, 443 Capitol Ave., L. Pierre, SD 57501 USA Ph. 605-773-4259

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ARUB DAY INFORMATION PACKET

Type of Material: Pamphlet
Intended for: 3-4

Copyright: No Language: English
Free: Yes Length: 14 pages

Description: Informational publication covering prose, poems, songs, quotes, proclamation, etc. about Arbor Day. An excellent teacher resource for Arbor Day or tree planting activities.

Key Descriptors: Arbor Day, Ethics/ Social Values/ Sociology
Conceptual Categories: 20, 47, 49

Resource Provider: International Society of Arboriculture, Headquarters - Coordinator, Member Services, Leal Park, 303 W. University Ave., P.O. Box 71, Urbana, IL 61801 USA Ph. 217-328-2032

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**ARBOR DAY POSTER CONTEST**

*Type of Material: Poster*

*Intended for: 3-5*

*Date: 1987*

*Copyright: No Language: English Purchase: Supported by local school districts.*

*Length: 1 page*

*Description: Poster contest is open to school children in grades 3, 4, and 5. It is developed around a certain topic and the children do the project in March and April in accordance with Arbor Day.*

*The 1987 theme was Trees and Me. The 1988 theme was How the Forests Help to Build the Foundation of Cincinnati (1988 Bicentennial year).*

*Key Descriptors: Arbor Day, Ecosystems/ Ecology/ Plant Communities, Urban Forestry/ Trees*

*Conceptual Categories: 20, 38, 43, 46, 48, 49*

*Resource Provider: County Park District, Hamilton, Patricia Planitz, Park Naturalist, 10245 Winton Rd., Cincinnati, OH 45231 USA Ph 513-385-4653*

**ARBOR DAY PROGRAM**

*Type of Material: Film Strip (audio tape)*

*Intended for: 4*

*Date: 1988*

*Copyright: No Language: English*

*Free: Yes*

*Length: 2 pages 1.5 hours*

*Description: An Arbor Day program for fourth graders consisting of a short history of Arbor Day and information about trees: a) how they grow, b) what we use trees for, c) why we need trees, and d) questions and answers.*

*The program ends with a filmstrip (or a slide show) and a tree planting demonstration.*

*Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day*

*Resource Provider: Borough of Eatontown, John Ratalowski, Arborist, 47 Broad St., Eatontown, NJ USA Ph 201-389-7655*
ARBOR DAY SLIDE SHOW PRESENTATION

Type of Material: Slide Show (script, color)
Intended for: 5

Date: 1987  Author: City of Fort Collins Forestry Division
Language: English
Loan: Contact provider for possible loan arrangements.
Length: 4 pages 25 minutes 60 frames 1 lessons

Description: The slide show was developed to reach all fifth grade school children in the local school district. All fifth grade classes begin learning about plants, ecology and physiology (i.e., photosynthesis, foodchains, etc.) as a prerequisite for 'ec-week' when they are in 6th grade. The slide show emphasizes parts and functions of trees and their importance in rural, natural and urban environments. The presentations are made in conjunction with Arbor Day, and a portion of the talk is dedicated to J. Sterling Morton.

Key Descriptors: Arbor Day, Products: Human Use: Industry, Tree Growth: Anatomy/ Physiology, Urban Forestry/Trees
Conceptual Categories: 14, 15, 17, 18, 20, 21, 22, 23, 24, 25, 26, 29, 30, 32, 44, 45

Resource Provider: City of Fort Collins, Tim Buchanan - City Forester, 737 Blue Mesa, Fort Collins, CO 80526 USA Ph. 303-221-6660

ARBOR DAY TEACHER'S GUIDE

Type of Material: Booklet
Intended for: 4

Date: 1984  Author: Several
Copyright: Yes  Language: English  Purchase: Inquire
Free: Free to Missouri teachers.
Length: 32 pages

Description: Guide to assist teachers in conducting classes and projects about trees, conservation, and natural resource management. Contents include Arbor Day history, seedling care and distribution, data about Missouri's forests, songs, posters, poems, suggested field activities, a bibliography, conservation addresses, a list of forests in Missouri, and an outline for an Arbor Day ceremony.

Key Descriptors: Arbor Day
Conceptual Categories: 20, 29, 46, 47, 50

Resource Provider: Missouri Department of Conservation, Jerry Presley - Director, 2901 N. Ten Mile Dr., Jefferson City, MO 65105 USA Ph. 314-751-4115
ARBOR DAY TEACHER'S KIT

Type of Material: Teacher's Packet or Kit
Intended for: 3-6

Language: English Purchase: 2 or more - $1.00
Free: Single copy

Description: Distributed annually between December and February, this useful packet provides ideas for Arbor Day activities, information on the value and benefits trees provide, small poster, coloring book, an Arbor Day proclamation, a Woodsey Owl song sheet, an Arbor Day history sheet, and a booklet showing how a tree grows.

Key Descriptors: Appreciation/ Benefits/ Importance, Urban Forestry/ Trees
Conceptual Categories: 20, 46, 47

Resource Provider: California Association of Nurserymen, Paula Schaeffer, 1419 21st St, Sacramento, CA 95814 USA Ph. 916-448-2881

ARBOR DAY USA: NOTHING LOVELY AS A TREE

Type of Material: Booklet
Intended for: 3-6

Language: English Free: Single copy Length: 10 pages

Description: This useful booklet has a history of Arbor Day, describes how trees help the environment, contains poems and songs to celebrate Arbor Day and trees, provides a proposed program for an Arbor Day planting, suggested words for a tree dedication and a sample Arbor Day Proclamation for a mayor

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Ethics/ Social Values/ Sociology

Resource Provider: International Society of Arboriculture, 5 Lincoln Square, P.O. Box 71, Urbana, IL 61801 USA

ARBOR DAY/ED.

Type of Material: Pamphlet
Intended for: 4-Adult

Language: English Free: Yes

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day

Resource Provider: Cooperative Extension, Mississippi State University, Leader, Extension Forestry, P.O. Box 5446, Mississippi State, MS 39762 USA Ph. 601-325-3150
ARBOR DAY/NATIONAL GARDEN WEEK KIT

Type of Material: Curriculum, Pamphlet, Poster
Intended for: K-6

Date: 1987
Copyright: No Language: English Purchase: First kit is free Additional pre-made kits are $3.00 each. Bulk quantities of materials are free to schools, civic organizations, scout groups, etc. Available yearly in limited quantities from Nov. 1 - Jan. 15.
Length: 20 pages

Description: The Arbor Day/ National Garden Week Kit is designed to introduce children to the wonder of trees and plants (although some materials are also of interest to adults). Items in kit vary slightly from year to year, but usually include the following for use in the classroom, scout group, junior garden club or civic group:

- Arbor Day - news release, historical information, camera-ready ad slick, ideas for observing Arbor Day, Arbor Day proclamation, tree products list, 'How a Tree Grows' pamphlet, tree care pamphlet, coloring book, poster, order form for sticker about trees, sung and poem sheets, program ideas and teacher's guide.

- National Garden Week - seed packets, sticker, pamphlet on plants/ conservation/ environment, coloring pages, contest with prizes, songsheet, information sheet on how plants grow, activity ideas book and teacher's guide.

Key Descriptors: Arbor Day, Energy Conservation, Propagation/ Care, Tree Growth/ Anatomy/ Physiology

Conceptual Categories: 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 32, 35, 47

Resource Provider: California Association of Nurseries, Education Coordinator, 1419 21st St., Sacramento, CA 95814 USA Ph. 916-448-2881
ARBOR MONTH EDUCATION AND PROMOTION MATERIALS

Type of Material: Lesson Plan, Pamphlet, Poster, Public Service Announcement
Intended for: K-Adult
Date: 1988
Copyright: No
Language: English
Free: Limited quantities

Description: Annually, an arbor month education piece is produced for distribution to Minnesota schools. An Arbor Month poster and companion materials are sent to Minnesota communities. An official state Arbor Day ceremony is held on the last Friday in April as a kick-off to Arbor Month in May.

Key Descriptors: Arbor Day, Tree Growth, Anatomy, Physiology, Tree/Plant Identification, Urban Forestry/Trees
Conceptual Categories: 8, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23

Resource Provider: Minnesota Department of Agriculture, Steven Shimke, Plant Health Specialist, 90 W Plato Blvd., St. Paul, MN 55107 USA Ph. 612-296-8410

ARBOR WEEK MATERIALS

Type of Material: Pamphlet, Poster
Intended for: K-12
Date: 1988
Author: Oregon Arbor Week Council
Copyright: No
Language: English
Free: Yes
Length: 10 pages

Description: The information is designed to encourage teachers to be active in the Oregon Arbor Week Celebration. This information includes a brochure suggesting possible learning opportunities and wide variety of community resources available for help. Other information details 'How to Plant a Tree,' Arbor Week bookmark, poster contest, etc.

Key Descriptors: Appreciation, Benefits/Importance, Arbor Day, Propagation/Care

Resource Provider: Oregon Arbor Week Council, Oregon Dept. of Forestry, Public Affairs, 2600 State Street, Salem, OR 97310 USA Ph. 503-378-2562
ARBOR WEEK SLIDE SHOW

Type of Material: Slide Show (script, color)
Intended for: 5-8

Date: 1987
Copyright: No
Language: English
Loan: Yes
Length: 47 frames

Description: Describes the history of Arbor Day and why California celebrates Arbor Day on Luther Burbank’s birthday. Shows the kinds of places in California where forests are located. Also discusses who manages and protects trees and forests: what a forest is, the benefits forests provide from oxygen production to soil stabilization, and why forest trees are a renewable resource.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Habitat-Plant and Wildlife, Products/ Human Use/ Industry
Conceptual Categories: 20, 46, 47

Resource Provider: Society of American Foresters (SAF), Wynoom Chapter, Gary Nakamura, - Extension Forester, Redding, CA 96002 USA Ph. 916-225-5509

BEING A PLANT

Type of Material: Book
Intended for: K-6

Date: 1983 Author: Lawrence Pringle
Copyright: Yes Language: English
Length: 88 pages

Description: Explores the mysteries and myths behind plant processes. Explains how plants reproduce, obtain and transport water, nutrients, and gases, and adapt to environmental changes. It answers questions such as: 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? The book contains clear explorations of botanical terms and processes.

Key Descriptors: Chemistry (oxygen production/ photosynthesis/ carbon cycle), Propagation/ Care, Tree Growth/ Anatomy/ Physiology
BIOLOGICAL DIVERSITY GLOBAL ISSUE EDUCATION PACKET

Type of Material: Curriculum, Teacher's Packet or Kit
Intended for: 3-12

Language: English Purchase: $5.00 + $1.00 postage (for 1 or more packets, $2.00 postage)

Description: Informs students about biological diversity, stressing the interdependence of the global ecosystem. Helps students understand how individual choices and decisions affect the global environment, encouraging students to explore positive opportunities and suggesting alternative courses of action.

All of the lesson plans and activities emphasize interactive learning models using hands-on activities, group discussions, role-playing, simulations, and individual creativity. Vocabulary words are highlighted the first time they are used.

BILLY B. SINGS ABOUT TREES

Type of Material: Audio Tape Cassette
Intended for: K-6

Date: 1978 Author: Bill Brennan
Copyright: Yes Language: English Purchase: $9.95 + $1.50 postage
Length: 40 minutes

Description: 'Billy B. Sings About Trees' includes 14 upbeat songs on the life and death of trees. Primarily focused on deciduous trees and aimed at the primary levels this recording brings to life tree parts, 'My Roots Run Deep,' 'This Bark on Me' and tree processes, 'The Rock & Roll of Photosynthesis.'

Key Descriptors: Arbor Day, Chemistry (oxygen production/ photosynthesis/ carbon cycle), Tree Growth/ Anatomy/ Physiology

Resource Provider: Do Dreams Music, 'Billy B' Brennan, P.O. Box 5623, Takoma Park, MD 20912 USA Ph 301-445-3845

BIRDS, BEES AND TREES: 3900

Type of Material: Slide Show (audio tape, color)
Intended for: 3-12

Date: 1978
Language: English
Rent: Inquire
Length: 78 frames

Description: Describes the delicate relationship in nature of the tree, of its regeneration and how it can be used as replenished, how it has a birth and death cycle like other plants, though longer.

Key Descriptors: Life Cycle, Tree Growth, Anatomy, Physiology

Resource Provider: Forest Extension Service, Librarian Box 6000, Fredericton, New Brunswick E3B 5H1 Canada Ph. 506-453-3711
BIRTH OF A SOUTHERN PINE

Type of Material: Film (color, sound)
Intended for: 4-Adult

Language: English
Rent: $10.00
Length: 15 minutes

Description: A forester explains the cycle from seed to mature pine planting project. Dated, but suitable for youth groups.

Key Descriptors: Life Cycle, Propagation/Care, Tree Growth/Anatomy/Physiology

Resource Provider: Cooperative Extension, North Carolina State University, Extension Forestry Resources, Box 8003, NC State, Raleigh, NC 27695 USA Ph. 919-737-3386

BIRTH OF A FOREST

Type of Material: Book
Intended for: 3-8

Author: Millicent E. Selsam
Language: English

Description: This book shows how a lake goes through various stages of succession until it finally becomes a forest.

Key Descriptors: Ecosystems/Ecology/Plant Communities, Habitat-Plant and Wildlife, Succession

Conceptual Categories: 37, 38, 39, 40

Resource Provider: Harper & Row, New York, NY USA

Address to use to obtain material: Local library or bookstore.

CARLY CARDINAL'S TREES ARE TERRIFIC

Type of Material: Public Service Announcement
Intended for: 3-Adult

Language: English
Free: Yes

Description: Public service announcements for TV (3/4 in, 2 in., and 1 in. video formats) featuring the cartoon character Carly Cardinal promoting trees in the urban environment.

Key Descriptors: Amenity/Cultural Values, Appreciation/Benefits/Importance, Arbor Day, Urban Forestry/Trees

Resource Provider: National Arbor Day Foundation, The Mary Yager. Executive Secretary, 100 Arbor Avenue, Nebraska City, NE 68410 USA Ph. 402-474-5655
CARING FOR THE FOREST

Type of Material: Curriculum, Poster
Intended for: 4-6

Date: 1980 Author: Forest Schafer
Copyright: Yes Language: English Purchase: $7.50
Print With Trees Are For People on-site program
Length: 5 pages

Description: Caring for the Forest was written with the assistance of the California Dept. of Environmental Education and professional foresters. It is a colorfully designed kit of teaching materials containing a conservation wall chart, a teaching guide, and four quality duplicating masters for use in instruction with grades 4, 5, and 6.

Professionally prepared for attractiveness and ease of use, this mini-unit addresses the values of trees, forests, careers in forestry, renewability of the resource, and government forest land use.

A colorfully designed kit of teaching materials containing a conservation poster, teaching guide, and four quality duplicating masters.

This instructional unit introduces students to the basic concepts of forest use and conservation. The five basic activities in the Caretakers program are: Superstom's Report (Tree Identification); The Forest's Endless Cycle; Gifts From Trees: Trees as a Crop; and The All-Purpose Forest.

Key Descriptors: Arbor Day, Comprehensive, Multiple Use, Products/ Human Use/ Industry

Resource Provider: Women in Timber, California, Hazel Jackson, P.O. Box 543, Pioneer, CA 95666 USA Ph. 209-293-7595
Address to use to obtain material: Or: Trees Are For People, Nancy Immon, Director, 2588D El Camino Real 0322, Carlsbad, CA 92008, 619-434-0233.

CHANGING FOREST: A FIRST FILM/00617

Type of Material: Film (color, 16mm, sound)
Intended for: K-6

Date: 1970
Copyright: Yes Language: English
Rent: $7.40
Length: 11 minutes

Description: Explains how forests change with the season. As the seasons change, animal life in the forest changes. Birds, insects and other animals have ways of adjusting to the seasons.

Key Descriptors: Climate, General, Habitat-Plant, Wildlife

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CHILD'S GARDEN, A

Type of Material: Book
Intended for: K-6

Language: English
Free: Single copy
Length: 54 pages

Description: Information on everything needed to know about planting and growing vegetables. It contains projects that would be useful in a tree program. One copy is free to teachers.

Key Descriptors: Propagation/Care

Resource Provider: Chevron Chemical Company - Public Affairs Dept., P.O. Box 3744, San Francisco, CA 94119 USA

CHILDREN OF THE GREEN EARTH

Type of Material: Videotape (VHS, color)
Intended for: 4-Adult

Language: English
Rent: $20.00
Length: 20 minutes

Description: An introduction to Children of the Green Earth, the wonder of trees in our lives and the need for tree planting. Beautiful music, children's voices and photos of a tree planting with Richard St. Barbe Baker.

Key Descriptors: Appreciation/Benefits/Importance, Global Forestry

Resource Provider: Michael Soule, - Director, 3712 Lakeview Rd., Leaworth, KS 66048 USA Ph. 913-651-6899
Address to use to obtain material: Children of the Green Earth, P.O. Box 95219, Seattle, WA 98145-2219, Ph. (206) 525-4002.
CHILDREN OF THE GREEN EARTH NEWSLETTER

Type of Material: Newsletter
Intended for: K-Adult

Language: English Purchase: $10 current issues, $2.50 for back copies

Description: Periodic newsletter on worldwide reforestation efforts. Each issue features one region of the world, with tree lore, current tree-planting work and a two-page children’s section of stories, interesting facts and games which can be reproduced for classroom use.

Key Descriptors: Amenity/ Cultural Values, Appreciation/ Benefits/ Importance, Arbor Day, Global Forestry

Resource Provider: Children of the Green Earth, Michael Soule, Director, P.O. Box 95219, Seattle, WA 98145 USA Ph. 206-525-4002

CHILDREN WHO PLANT TREES, THE

Type of Material: Workshop (children, adults, teachers)
Education Facility (indoor & outdoor)
Intended for: K-Adult

Language: English Purchase: $125 for 1-2 hour program

Description: Teaches children about tree structure, growth and their value to people and the rest of the ecosystem through a program of slides, storytelling, culminated by tree-planting.

Key Descriptors: Amenity/ Cultural Values, Appreciation/ Benefits/ Importance, Ecosystems/ Ecology/ Plant Communities, Products/ Human Use/ Industry

Resource Provider: Environmental and Cultural Programs and Services, Michael Caduto, P.O. Box 1052, Norwell VT 05055 USA Ph. 802-649-1815
CHRISTMAS TREE FARM

Type of Material: Book
Intended for: K-6

Date: 1974 Author: David Budbill
Language: English

Description: The author shows all the work that goes into producing Christmas trees. The illustrations are colorful and informative.

Key Descriptors: Products/ Human Use/ Industry, Woodlands/ Small Landowners/ Tree Farmers

Conceptual Categories: 29

Address to use to obtain material: Local library or bookstore.

CITY TREES: A CURRICULUM GUIDE OF OUR URBAN FOREST AND COMMUNITY

Type of Material: Curriculum
Intended for: K-12

Date: 1988
Copyright: Yes Language: English Purchase: Contact provider.
Length: 75 lessons

Description: City trees provide an exciting laboratory in which students can explore their physical environment and community from many perspectives. The activities in the guide box link in-depth classroom study with the excitement of hands-on learning. Using the urban forest will provide a fresh approach in a variety of disciplines. Used in conjunction with a tree planting project, students will find a rewarding end to this program, and as the trees at the school mature, they will provide an ongoing laboratory for study.

The curriculum includes a teacher's workshop, posters, pamphlets and supporting urban forestry resources.

Key Descriptors: Soils, Tree Growth/ Anatomy/ Physiology, Tree/Plant Identification, Urban Forestry/ Trees

Resource Provider: San Francisco Friends of the Urban Forest, Cheryl Kollin, 512 2nd St., 4th Fl., San Francisco CA 94107 USA Ph. 415-543-5000

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CONSERVATION AND BALANCE IN NATURE

Type of Material: Film
Intended for: 4-Adult

Date: 1967
Language: English
Loan: Free loan use to California and Hawaii residents only.
Length: 18 minutes

Description: This film clearly depicts the natural balance among plants, animals and their environment. It shows how this may easily be disturbed by man's actions.

Key Descriptors: Diversity/Interdependence, Ecosystems, Ecology/Plant Communities, Habitat-Plant and Wildlife
Conceptual Categories: 35. 36. 37. 38. 43

Resource Provider: USDA - Forest Service, Region 5 File Library, Audience Planners, Inc., 5107 Douglas Fir Dr. Calabasas, CA 91302 USA Ph. 818-884-3100

DEAD SNAGS

Type of Material: Slide Show (audio tape, color)
Intended for: 5-Adult

Date: 1986 Author: Portland Audubon Society
Copyright: Yes Language: English Purchase: Contact Portland Audubon Society for purchase information. Rent: $5.00 Loan: Yes
Length: 30 minutes

Description: Illustrates that there is life in dead trees. Snags serve as a home for many types of wildlife. This slide program is designed to encourage property owners to recognize this wildlife value of dead trees and allow them to remain for wildlife as opposed to unnecessary cutting.

Key Descriptors: Appreciation/ Benefits/ Importance, Diversity/Interdependence, Ecosystems/ Ecology/ Plant Communities, Habitat-Plant and Wildlife
Conceptual Categories: 9. 31. 34. 35. 37. 38. 39. 40. 41. 42. 43. 44

Resource Provider: Audubon Society, Richardson Bay Audubon Center and Sanctuary, 376 Greenwood Cove Rd., Tiburon, CA 94920 USA Ph. 415-388-2524
Address to use to obtain material: Or Portland Audubon Society
CONSERVATION CROSSWORD PUZZLE

Type of Material: Chart
Intended for: 6-Adult

Language: English
Free: Yes

Description: Useful as an awareness tool for Arbor Day.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day

Resource Provider: Cooperative Extension, Mississippi State University, - Leader, Extension Forestry, P.O. Box 5496, Mississippi State, MS 39762 USA. Ph. 601-325-3150

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DAYS OF A TREE

Type of Material: Film (color)
Intended for: K-8

Copyright: Yes Language: English
Loan: 2 weeks
Length: 28 minutes

Description: A father takes his son to a favorite trout stream where he fished as a boy only to find that a forest fire has destroyed the stream and area. They learn from a local forest ranger that several forest fires in the area have ruined the fish habitats, soil, timber and entire local watersheds. They learn that trees retain water and help to prevent soil erosion and flooding. The importance and protection of the forest is emphasized. Fire fighting equipment and a field staff studying insect damage and streams is shown.

Key Descriptors: Protection-Fire/ Insects/ Disease, Soils, Water

Resource Provider: Ontario Ministry of Natural Resources, - Film Library: Audio Visual Unit - Communications Branch, Room 5440, Whitney Block. Queen's Park, Toronto, Ontario M7A 1W3 Canada. Ph. 416-963-1325

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DEAD TREE, THE

Type of Material: Book
Intended for: 4-12
Date: 1972 Author: Alvin Tresseut
Language: English
Description: A presentation of the nature cycle of life in the forest where even a dead tree serves to enhance new growth.

Key Descriptors: Ecosystems/ Ecology/ Plant Communities, Habitat-Plant and Wildlife, Life Cycle, Tree Growth/Anatomy/Physiology

Resource Provider: School Book Service, New York, NY USA

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DEATH OF AN OLD TREE

Type of Material: Film (color, 16mm, sound)
Intended for: K-Adult
Date: 1975
Copyright: Yes Language: English
Length: 9 minutes

Description: Poetic film that concentrates on a 700-year-old old tree, a tree that is dying, yet beneath the crusted bark there is still life and growth. The tree has displayed its beauty to generations. "Man marvels at such a thing as this - here is life before your father's father's father."

Key Descriptors: Appreciation/ Benefits/ Importance, Life Cycle, Tree Growth, Anatomy, Physiology

Resource Provider: Sacramento County Office of Education, 9738 Lincoln Village Dr., Sacramento, CA 95827
USA Ph. 916-360-2571

EDUCATIONAL GAMES

Type of Material: Game
Intended for: K-Adult
Author: Gredna Landolt
Language: Spanish

Description: Complements the forestry education program (See Methodology Guide - Program of Forestry Education). Intended to teach basic ecological and forestry concepts to the Andean children, through games. It consists of posters and cards. Colored and laminated.

Key Descriptors: Appreciation/ Benefits/ Importance, Ecosystems/ Ecology/ Plant Communities, Global Forestry, Life Cycle

Resource Provider: United Nations FAO Project/Holanda/INFOR, P.O. Box 11842, Lima 11, Peru Ph. 72-85-22

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EDUCATIONAL POSTERS

Type of Material: Poster
Intended for: 3-6

Author: Walter Tournier Enrique Niquin
Language: Spanish

Description: Posters 50 x 70 cm with two-color illustrations. Complementary material for the forestry program as listed in the Methodology Guide - Program of Forestry Education. A set of 24 posters.

Key Descriptors: Appreciation/ Benefits/ Importance, Global Forestry

Resource Provider: United Nations FAO Project/Holanda/
INFOR. P.O. Box 11842, Lima II. Peru Ph. 72-85-22

EDUCATIONAL STATE FOREST SYSTEM

Type of Material: Audio Tape Cassette, Education Facility (indoor & outdoor), Slide Show (audio tape, color)
Intended for: K-Adult

Copyright: No Language: English
Free: Yes

Description: The North Carolina Forest Service has five Educational State Forests (Rendezvous Mountain, Tutik Bladen, Lakes, Holmes, and Clemmons) and one undeveloped, with others being planned.

The purpose of the Educational State Forest system is to teach children and adults about the forest environment and how and why we need to manage our forest resources and practice good conservation and stewardship.

The education program is twofold. The Educational Program includes activity packets, ranger conducted programs, teacher workshops, and day camps. The Interpretive Program includes outdoor and indoor exhibits and displays, talking tree trail, interpretive center, forestry demonstration trail, tree identification signs, and handouts.

Educational visits to the Educational State Forests have been incorporated into the curriculums of several North Carolina school systems.

Key Descriptors: Amenity/ Cultural Values, Comprehensive, Management Practices/ Silviculture, Multiple Use

Resource Provider: North Carolina Dept. of Natural Resources & Community Development, Harry F. Layman, Forest Resources Director, P.O. Box 27687, Raleigh, NC 27611 USA
Address to use to obtain material: Joe C. Hogue, Jr., P.O. Box 27687, Raleigh, NC 27611.
ETC!

Type of Material: Curriculum
Intended for: K-3

Date: 1978
Copyright: Yes
Language: English
Purchase: $40.00

Description: ETC! is a kit containing 108 Environmental Task Cards for all primary children using the Inquiry Approach and Student Involvement through Oral and Written Language. The cards emphasize four areas: Awareness, The Outdoors, Soil, and Man's Impact. Most of the activities can be done outdoors using inexpensive or free materials. The activities are designed to increase the learner's awareness of environmental concepts.

Key Descriptors: Appreciation/ Benefits/ Importance, General, Soils, Urban Forestry/ Trees
Conceptual Categories: 1, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 28, 34, 35, 46, 49

Resource Provider: ETC! Environmental Task Cards, Jean Wobbe, P.O. Box 1749, Redding, CA 96099 USA Ph. 966-241-9606

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EXPLORING CITY TREES AND THE NEED FOR URBAN FORESTS

Type of Material: Book
Intended for: 4-8

Date: 1976
Author: Margaret Jean Anderson
Language: English

Description: This book makes the life processes of the tree understandable to children. It suggests activities will teach what trees contribute to the city environment.

Key Descriptors: Appreciation, Benefits, Importance, Life Cycle, Urban Forestry, Trees
Conceptual Categories: 11, 20, 30, 37, 38, 47

Address to use to obtain material: Local library or bookstore.

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FOCUS ON FORESTS

Type of Material: Computer Software, Poster, Teacher Manual
Intended for: 5-7

Date: 1988
Copyright: Yes Language: English Purchase: $19.95 (plus $3.00 shipping per order)

Description: This Apple IIe and IIc-compatible computer program is a new component of the Project Learning Tree (PLT) program. It is available as an independent teaching instrument or as an adjunct to PLT activities.

Uses color graphics to develop students' critical thinking and creative problem-solving skills. In applying these skills the Apple IIe and IIc-compatible disk program will teach students about the natural groupings of tree species and where they grow in the U.S.; describe the counties with various soil types, climatic and topographical variation.

FOREST BOOK, THE

Type of Material: Book
Intended for: K-6

Author: Helen Juliar
Language: English Purchase: $7.95

Description: In notebook style written by a teacher, its multi-level games and activities are centered around forestry.

Key Descriptors: General

FOREST APPRECIATION

Type of Material: Book
Intended for: K-4

Date: 1976
Copyright: Yes Language: English Purchase: $6.00 (Canadian dollars)
Length: 27 pages

Description: A teacher's guide intended to develop a sensitivity and appreciation for woodland areas. A series of forest walks are used to have students discover the many species of flora and fauna found in the forest ecosystem.

Key Descriptors: Appreciation/ Benefits/ Importance, Ecosystems/ Ecology/ Plant Communities
Conceptual Categories: 35, 37

Resource Provider: Pacific Educational Press, C.J. Anastasiou, Executive Director, Faculty of Education, The University of British Columbia, Vancouver, British Columbia, V6T 1Z5 Canada Ph. 604-228-5385
FOREST IN MY CLASSROOM, A

Type of Material: Book
Intended for: 4-7

Date: 1983
Copyright: Yes Language: English Purchase: $8.00 (Canadian dollars)
Length: 60 pages

Description: This teacher's guide outlines many forest activities that can be used in the classroom to help students develop a love and understanding of the forest. Topics covered include: The First Environmentalists, The First Loggers, Properties of Wood Forest Products, Art and the Forest, Animals of the Forest and Forests of the Future.

Key Descriptors: Appreciation/ Benefits, Importance, Habitat-Plant and Wildlife, Harvesting: Logging, Products, Human Use/ Industry

Resource Provider: Pacific Educational Press, C.J. Anastasiou, Executive Director, Faculty of Education, The University of British Columbia, Vancouver, British Columbia, V8T 1Z5 Canada Ph. 604-228-5385

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FOREST IN OUR FUTURE/#2

Type of Material: Poster
Intended for: K-Adult

Language: English

Description: Two small posters which show a child in the forest with a small tree.

Key Descriptors: Appreciation/ Benefits/ Importance

Resource Provider: Department of Natural Resources, Dawson Watson, Information Officer, P.O. Box 6000, Fredericton, NB E3A 4P4 Canada

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FOREST IS A HOME ADDRESS FOR:

Type of Material: Info/Fact Sheet(s)
Intended for: K-Adult

Author: Wisconsin Department of Natural Resources
Copyright: No Language: English
Free: Single copies
Length: 2 pages

Description: A 2-page fact sheet about forest habitat. The front page illustration contains drawings of shrubs, trees, animals, birds, identified as inhabitants of an eastern forest. The second page describes the different Wisconsin forests.

Key Descriptors: Appreciation/ Benefits/ Importance, Ecosystems/ Ecology/ Plant Communities, Habitat-Plant and Wildlife
Conceptual Categories: 9, 11, 34, 35, 36, 37, 38

Resource Provider: Wisconsin Department of Natural Resources, Cathy M. Cliff, Environmental Education Specialist, 101 S. Webster, P.O. Box 7921, Madison, WI 53707 USA Ph. 608-267-7529

FOREST IS ALSO...NUTS, BERRIES, AND LEAVES, A

Type of Material: Slide Show (audio tape)
Intended for: 1-Adult

Date: 1978
Language: English
Loan: Free loan use to California and Hawaii residents only.
Length: 8 minutes 80 frames

Description: The how and why leaves change colors, the food in forest and what it can supply. Plants to sing, there's more than one, all presented in music and rhyme.

Key Descriptors: Products/ Human Use/ Industry, Tree Growth/ Anatomy/ Physiology, Tree/Plant Identification
Conceptual Categories: 9, 10, 22

Resource Provider: USDA - Forest Service, Region 5 Film Library, Audience Planners, Inc., 5107 Douglas Fir Dr, Calabasas, CA 91302 USA Ph. 818-884-3100
FOREST OF TREES AND LOGS, THE

Type of Material: Film (color)
Intended for: 3-Adult

Language: English
Loan: 2 weeks
Length: 15 minutes

Description: Shot in the great rain forest of Washington State, this film presents this forest as a vital natural area that is more valuable to man standing than in the form of logs. The forest is explored as a place of life, an environment with delicate interrelationships harboring the living, providing food, and which even in decay, brings forth vitality. Man in his quest for natural resources is whittling away at the remaining forests of the world.

Key Descriptors: Amenity/ Cultural Values, Diversity/ Interdependence, Ethics/ Social Values/ Sociology, Rainforests
Conceptual Categories: 36, 39, 43, 44, 45, 49, 50

Resource Provider: Ontario Ministry of Natural Resources - Film Library/Audio Visual Unit - Communications Branch, Room 5440, Whitney Block, Queen's Park, Toronto, Ontario M7A 1W3 Canada Ph. 416-963-1325
FOREST PRODUCTS KIT

Type of Material: Curriculum
Intended for: 3-6

Date: 1988 Author: Cheryl Walters
Language: English
Length: 21 pages

Description: This teaching unit is an attempt to help students in grades three through six explore forest products and their uses in a fun fashion. It is science-based, yet interdisciplinary in nature and adaptable to many subject areas.

The unit is divided into five lesson plans, each designed to last one hour. The lessons are objective-based and contain five general sections. First, is an 'Information Box' with objectives, concept, length and subject matter. This is followed by 'Background' materials for your use to help prepare you for the lesson. Next, a discovery oriented 'Activity' allows your students to learn by action, using readily available materials. The 'Discussion' contains questions which enlarge students' experience and brings out the educational significance of the activity. Finally, 'Branching Out' gives additional activities which follow-through, expand and reinforce the lesson. Frequently, these activities allow the teacher to incorporate other subject areas into the lesson plan.

Although these lessons were designed to form the forest products unit, each lesson is also designed to stand on its own. The last lesson is a unit review. The lessons are arranged to be used in the following order: 1) 1001 Forest Products, 2) Edible Forest Products, 3) STRENGTH vs. Strength, 4) Trees and the Mail-Order Catalogue, and 5) 'Treevial Pursuit'.

Key Descriptors: Products/ Human Use/ Industry

Resource Provider: World Forestry Center, Carol Smart, Director of Education, 4033 S.W. Canyon Road, Portland, OR 97221 USA Ph. 503-228-1367
FOREST TO FARMS ON THE COASTAL PLAIN/#48-13880A

Type of Material: Slide Show (audio tape, color)
Intended for: 6-12

Language: English Purchase: $118.57
Length: 71 frames

Description: Full-color photographs document the story of the extensive clearing of the low-lying forests of the mid-Atlantic coastal plain. Clearing creates vast expanses of new farmland but has serious ecological consequences for the area's wildlife, as well as for the coastal shellfish populations. In carousel tray, and includes teacher's guide.

Key Descriptors: Habitat-Plant and Wildlife, Planning
Products/ Human Use/ Industry, Water
Conceptual Categories: 7, 43, 44, 45, 49

Resource Provider: Carolina Biological Supply Company,
Robert E. Mize, - Audio-Visual Developer, P.O. Box 1059,
Burlington, NC 27215 USA Ph. 919-226-6000,
800-334-5551, 800-632-1231 (NC)
Address to use to obtain material: 2700 York Road, Burlingon NC 27215, OR: Carolina Biological Supply Co., Box 187, Gladstone, OR 97027.

FOREST TRAILS

Type of Material: Film
Intended for: K-Adult

Language: English
Loan: Yes
Length: 20 minutes

Description: Filmed by Manitoba outdoors photographer, George Catter, this film depicts a habitat of southern Manitoba. The forest is a different world altogether, with boundless beautiful types of living things, all of which add to our enjoyment of life.

Key Descriptors: Appreciation/ Benefits/ Importance, Global Forestry, Habitat-Plant and Wildlife
Conceptual Categories: 38
FORESTRY CENTER

Type of Material: Education Facility (indoor & outdoor)
Intended for: K-Adult

Language: English

Description: The World Forestry Center is a diverse forestry education facility geared for visits by both classrooms and families. The Center is the repository for exhibits such as the 100 years plus Jesup Collection of Woods of the United States of America. Its main exhibit hall features a talking tree. Other displays include a slide show of Forests of the World, a presentation on the devastating Tillamook Burn, and simulated plywood, paper and saw mills. Other collections besides the Jesup include wooden fly-rod, hand-carved carousel horse and wooden bowl collections.

The World Forestry Center rents forestry films for a $5.00 handling fee for a 2-week period. In addition, the Center offers presentations to visiting classes, a summer forest camp, a demonstration forest and various classes and workshops on a quarterly basis to the public.

General admission to the World Forestry Center's Exhibit Hall is $2.00 for adults and $1.00 for students 6-18. Children under 6 and seniors 62 or over are admitted free. Membership is also available at various rates. Contact the Center for more information.

Key Descriptors: Appreciation/ Benefits/ Importance, Global Forestry, Management Practices/ Silviculture, Products/ Human Use/ Industry

Resource Provider: World Forestry Center, Carol Smart, Director of Education, 4033 S.W. Canyon Road, Portland, OR 97221 USA Ph. 503-228-1367
FORESTRY CALENDARS

Type of Material: Calendar
Intended for: K-Adult
Language: Spanish

Description: Presents forestry aspects of the Peruvian Sierra with pictures, slogans, and signs, on the reverse of the page. It has permanent value as a teaching tool.

1984 Calendar. Signs: By-laws of rural communities; Soil conservation; Firewood; Water Cycles; Benefits of forestry; Benefits of trees.

1985 Calendar. Signs: How to plant a tree; Soil and water conservation; Let's produce q'enua trees; Agricultural implements in the Andes; Management of eucalyptus buds; Women, your participation is important.

1986 Calendar. Procedures for recognizing and official registration of rural communities; Storing and care of C*-viable seeds; Viable community forestry industries; Benefits from prickly pear; Trees and wild animals; Frosts; Relation between trees and soil.

Key Descriptors: Appreciation/ Benefits/ Importance, Comprehensive, Global Forestry, Water

Resource Provider: United Nations FAO Project/Holanda/INFOR, P.O. Box 11842, Lima 11, Peru Ph. 72-85-22

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FORESTRY FILM CATALOG

Type of Material: Catalog
Intended for: K-Adult
Copyright: No Language: English
Free: Yes

Key Descriptors: General

Resource Provider: Florida Division of Forestry, Mike Kettles, - County Forester, 12175 125th St. N, Largo, FL 33774 USA Ph. 813-586-5477
Address to use to obtain material: Florida Division of Forestry, Forest Education Bureau, 3125 Conner Blvd., Tallahassee, FL 32301

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FORESTS AND TREES OF THE UNITED STATES

Type of Material: Booklet, Poster
Intended for: 4-Adult

Date: 1982
Language: English
Free: Single copy

Description: This large colorful poster graphically depicts the major forest community types of the U.S. and the major species of each forest type. The booklet by the same title offers teaching successions for using the map/poster.

Key Descriptors: Ecosystems/ Ecology/ Plant Communities. Tree/Plant Identification
Conceptual Categories: 1, 5, 9, 10, 20

Resource Provider: American Forest Council, Phyllis Dickson, 1250 Connecticut Ave. NW, Suite 320, Washington, DC 20036 USA Ph. 800-424-2485

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FORESTS/04925

Type of Material: Film (color, 16mm, sound)
Intended for: K-3

Date: 1959
Copyright: Yes Language: English
Rent: $8
Length: 10 minutes

Description: Of historical value. Shows forest products. Describes tree harvesting from planting to final processing. Stresses the need for conservation and how to achieve it. (Gateway)

Key Descriptors: Products/ Human Use/ Industry, Propagation/ Care, Harvesting/ Logging
Conceptual Categories: 6, 20, 29, 46, 47, 49

Resource Provider: University of Wisconsin - Extension, Bureau of Audio Visual Instruction, P.O. Box 2093, Madison, WI 53701 USA Ph. 608-262-3902, 800-362-6888 (WI only)

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FORESTS: A NORTH AMERICAN HERITAGE #311-18

Type of Material: Film (color, 16mm, sound), Videotape (color)
Intended for: 5-Adult

Date: 1986
Copyright: Yes Language: English Purchase: $225 film/$49.95 video
Length: 11 minutes

Description: North America is a varied land that supports a variety of forests from the hardwoods of eastern America to the conifers of the Northwest. What is a forest? What are the forest regimes of North America? Of what value are forests? Why are there different kinds of forests? The history of forest ownership and management is also mentioned. The question is asked, "What does the future hold for forests?"

Key Descriptors: Amenities/ Cultural Values, Management Practices/Silviculture, Multiple Use, Products/Human Use/Industry
Conceptual Categories: 6, 14, 15, 20, 29, 35, 37, 38, 40, 46, 47, 49

Resource Provider: West Wind Productions, Inc., P.O. Box 3532, Boulder, CO 80307 USA Ph. 303-443-2882, 1-800-228-2882

FOREVER LIVING FORESTS/GF#7

Type of Material: Film (color, 16mm, sound)
Intended for: 5-Adult

Language: English
Rent: $5.00
Length: 25 minutes

Description: Attractive film about the California redwoods. Emphasis on industrial aspect. Managed redwood forests not only produce much more wood than an unmanaged forest but are more open to sunlight and provide more recreational uses. Well done sequences of logging, milling, and utilization of redwood.

Key Descriptors: Harvesting/Logging, Products/Human Use/Industry, Redwoods

Resource Provider: World Forestry Center, Carol Smart, Director of Education, 4033 S.W. Canyon Road, Portland, OR 97221 USA Ph. 503-228-1367

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FROM SEED, TO TREE, TO YOU

Type of Material: Booklet
Intended for: 3-4

Date: 1984
Copyright: Yes Language: English
Length: 39 pages

Description: In this fun activities booklet, Eva Green shows students around timber country and tells them about trees. Included are activities for coloring, puzzles, hidden-pictures, mazes, secret codes, word scrambles, connect the dots, wordsearch and more! Includes a glossary. Useful for teachers in focusing on the benefits trees provide us in celebrating Arbor Day.

Key Descriptors: Arbor Day, Multiple Use, Products/ Human Use/ Industry, Tree/Plant Identification
Conceptual Categories: 3, 20, 46, 47, 49

Resource Provider: Women In Timber, Washington, Ann Forest Burns, 369 State Highway 12, Montesano, WA 98563 USA Ph. 206-621-9168, 206-527-2571

FROM THESE FORESTS

Type of Material: Film (color, sound)
Intended for: 3-Adult

Date: 1960
Language: English
Length: 25 minutes

Description: Shows how recreational opportunities and good forestry practices are combined in woodlands owned by one large paper company. The story of good wildlife and forestry management is told with scenes of hunting and fishing that will appeal to all audiences.

Key Descriptors: Management Practices/ Silviculture, Multiple Use

Resource Provider: Cooperative Extension, Clemson University, Extension Forestry, 272 Lenotsky Hall, Clemson, SC 29631 USA Ph. 803-656-2478
Address to use to obtain material: Clemson University Communications Center, Room 83, P & A Bldg., Clemson, SC 29634-5607.
GLOBAL ISSUE EDUCATION PACKET - TROPICAL FORESTS

Type of Material: Teacher's Packet or Kit
Intended for: K-12

Date: 1987
Language: English
Purchase: $7.00 + $3.00 p/h

Description: Curriculum materials are developed on the tropical forest to: a) inform students at the K-12 level about a specific global issue and stress the interdependence of the global ecosystem, b) help students to realize that their individual choices and decisions can and do affect the global environment, c) encourage students to explore positive opportunities to help shape the future of this planet, and d) provide students with alternative courses of action.

All of the lesson plans and activities emphasize interactive learning models through participation in hands-on activities, group discussions, role-playing, simulations, and individual creativity.

Key Descriptors: Diversity/Interdependence, Ecosystem/Ecology/Plant Communities, Ethics/Social Values/Sociology, Rainforests
Conceptual Categories: 35, 36, 37, 38, 39, 40, 41, 42, 44, 45

Resource Provider: Global Tomorrow Coalition, Amy Holm, 1325 G St., N.W., Suite 915, Washington, DC 20005 USA

GREAT AMERICAN FOREST, THE

Type of Material: Booklet
Intended for: Adult

Date: 1970
Language: English
Free: Single copy
Length: 15 pages

Description: This magazine-quality booklet depicts with words and color photographs the many uses and products derived from the forest. Discusses how better use of forestland can compensate for land going to other users. Describes the American Tree Farm System whose members, often small landowners, carry out good forestry practices on their private land.

Key Descriptors: Appreciation/Benefits/Importance, Products/Human Use/Industry, Tree Growth/Anatomy/Physiology, Woodlands/Small Landowners/Tree Farmers
Conceptual Categories: 6, 20, 29, 46, 47, 48, 49, 50

Resource Provider: American Forest Council, Phyllis Dickson, 1250 Connecticut Ave, NW, Suite 320, Washington, DC 20036 USA Ph. 800-424-2485
GREEN WORLD, THE'SY0804

Type of Material: VHS, Beta
Intended for: 5-Adult

Date: 1986 Author: Sony (Producer)
Copyright: Yes Language: English Purchase: $14.95 ea. + $3.00 shipping & handling.
Length: 52 minutes

Description: A 30-foot python that swallows kangaroos whole. Fox-sized bats that travel in flocks 25,000 strong. Huge iridescent butterflies whose larvae look like spiky hallucinations. Giant flightless birds whose pale green eggs are incubated by the male. Ash trees that soar 322 feet into the air, making them the world's tallest hardwoods.

These are just some of the denizens of the Australian rain forests featured in The Green World. Though comprising only a fraction of the continent, these forests surpass a surrealists's dream in their riotous bounty of life. They are nature's experimental workshops, where thousands of new species remain virtually undiscovered. This film touches on the efforts of people working to save this vital Australian resource from man's greed.

Key Descriptors: Habitat-Plant and Wildlife, Hardwoods, Rainforests
Conceptual Categories: 11, 34, 49

Resource Provider: Karol Video - Education Coordinator, 22 Riverview Dr., Wayne, NJ 07470 USA Ph. 201-628-9111

GROW YOUR OWN TREE

Type of Material: Audio Tape Cassette, Curriculum, Film Strip (audio tape), Color, Pamphlet, Poster
Intended for: K-4

Date: 1987 Author: National Arbor Day Foundation
Copyright: Yes Language: English Free: Yes Length: Varies

Description: A variety of creative educational material especially designed for lower-elementary grades. The material includes 2 color filmstrips about the value of trees and tree planting, wall posters with the same themes, a teacher's guide (with complete lesson plans), student activity materials for hands-on learning experiences (planting a seedling, etc.), awards and membership (to the Arbor Day Foundation) availability.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Tree/Plant Identification, Urban Forestry/ Trees
Conceptual Categories: 2, 8, 11, 15, 17, 18, 20, 23, 24, 25, 35, 46, 51

Resource Provider: City of St. Louis Park, Jim Vaughan, 7305 Oxford St., St. Louis Park, MN 55426 USA Ph. 612-924-2565

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GRÖW-A-TREE KIT

Type of Material: Tree, Teacher's Packet or Kit
Intended for: K-6


Description: The Grow-A-Tree kit includes a wrap-around label to fit a liter bottle, a poster, and seeds for each child. A workbook assists the teacher in the project. This project gives each student the opportunity to be part of one of the many wonders of nature. The child will be challenged to think about the world around her as well as parts of the world far away. The child germinates a seed, plants it, and experiences it coming to life. Students will learn about the ecology of our planet and the bond of humankind.

Key Descriptors: Amenity/ Cultural Values, Tree Growth/ Anatomy/ Physiology, Urban Forestry/ Trees, Woodlands' Small Landowners' Tree Farmers

Conceptual Categories: 14, 15, 16, 17, 18, 20, 28, 36, 44, 45, 46, 49, 50, 51

Resource Provider: Trees for Life, Inc., Balbir Mathur, Executive Director, 1103 Jefferson, Wichita, KS 67203 USA Ph. 316-263-7294

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HISTORY OF ARBOR DAY #1

Type of Material: Slide Show (script, color)
Intended for: 4-7

Copyright: No Language: English

Description: Provides a written introductory history of the Arbor Day and of California’s Arbor Day. The slide and script show what a forest is and the benefits it provides. Discusses what people can do to make trees have a healthy place to grow.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Propagation/ Care

Conceptual Categories: 20, 46, 47

Resource Provider: Society of American Foresters (SAF), Blythe Chapter, Gary Nakamura, - Extension Forester, Blythe, CA 96002 USA Ph. 916-225-5509

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HISTORY OF SMOKEY BEAR

Type of Material: Slide Show (audio tape)
Intended for: K-6
Language: English
Loan: Yes

Key Descriptors: Protection-Fire/ Insects/ Disease
Conceptual Categories: 34

Resource Provider: Rogue River National Forest. - Public
Information Officer, 333 W. 8th St., Box 520, Medford,
OR 97501 USA Ph. 503-424-3600

STORY OF ARBOR DAY #2

Type of Material: Slide Show (script. color)
Intended for: 4-7

Date: 1987
Copyright: No Language: English
Length: 37 frames

Description: Provides a written introductory history of the
1st Arbor Day and of California's Arbor Day. The slide
show and script is almost identical to this Chapter's 'Hist­
ory of Arbor Day/Slide Show #1' which is also available.
Depicts what a forest is and the benefits a forest provides.
Discusses what people can do to make sure trees have a
healthy place to grow.

Key Descriptors: Appreciation; Benefits; Importance; Ar­
bor Day; Propagation; Care
Conceptual Categories: 20, 46, 47

Yreka Chapter, Gary Nakamura. - Extension Forester,
Yreka, CA 96092 USA Ph. 916-225-5509

HOW A TREE GROWS/FS-8

Type of Material: Poster
Intended for: 3-Adult

Date: 1968
Copyright: No Language: English Purchase: $ .20/ea.

Description: A poster identifying the parts of tree. The
narrative explains the growth process and photosynthesis.
A handy teaching tool for a wide range of audiences.

Key Descriptors: Chemistry (oxygen production/ photo­
synthesis/ carbon cycle). Tree Growth/ Anatomy/ Physiol­
ogy
Conceptual Categories: 23, 24, 25, 26, 28, 32, 39, 42

Resource Provider: White River National Forest. Patty
Frederick. - Vis Receptionist, P.O. Box 948, Glenwood
Springs. CO 81602 USA
Address to use to obtain material: USDA, Forest Service.
Rocky Mountain Regional Office, P.O. Box 25127, Lak­
ewood, CO 80225, 303-236-9431.
HOW TO IDENTIFY TREES

Type of Material: Slide Show (audio tape, color)
Intended for: 3-6

Author: J.R. Fazio S.M. Shaw,, and S.H. Ham
Language: English
Loan: Yes
Length: 10 minutes

Description: Slides accompanied with a tape explains to third through sixth graders how to identify trees.

Key Descriptors: Tree/Plant Identification

Resource Provider: Natural Resources Extension Programs, Dr. James P. Lassoie, - Associate Professor, 122-A Fernow Hall, Cornell University, Ithaca, NY 14853 USA
Ph. 607-255-2117, Ext. 2114

HOW TO IDENTIFY TREES/4H-SS-4344

Type of Material: Slide Show (color)
Intended for: 4-12

Date: 1980
Language: English
Rent: $8.00 (Make check payable to University of Minnesota.)

Description: Used in conjunction with a 4-H program.

Key Descriptors: Tree/Plant Identification, Urban Forestry Trees

Resource Provider: Minnesota Extension Service, Harold Scholten. 3 Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108 USA Ph. 612-625-8173

HOW TREES BENEFIT YOU/P655

Type of Material: Info/Fact Sheet(s)
Intended for: 4-Adult

Language: English
Free: Yes

Description: Useful for Arbor Day

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Ethics/ Social Values/ Sociology

Resource Provider: Cooperative Extension, Mississippi State University, - Leader, Extension Forestry, P.O. Box 5446, Mississippi State, MS 39762 USA Ph. 601-325-3150
HOW TREES HELP CLEAN THE AIR (USDA)/ED.

Type of Material: Pamphlet
Intended for: 6-Adult

Language: English
Free: Yes

Description: Could be used as an Arbor Day awareness tool.

Key Descriptors: Acid Rain/ Pollution, Appreciation/ Benefits/ Importance, Arbor Day. Chemistry (oxygen production/ photosynthesis/ carbon cycle)

Resource Provider: Cooperative Extension, Mississippi State University, - Leader. Extension Forestry, P.O. Box 5496, Mississippi State, MS 39762 USA Ph. 601-325-3150

HOW TREES REPRODUCE

Type of Material: Slide Show (audio tape, color)
Intended for: 3-6

Author: J.R. Fazio D.M. Shaw., and S.H. Ham
Language: English
Length: 9 minutes

Description: A slide presentation put forth by the 4-H Association designed to teach children from third to sixth grades. This particular module is part II in a series produced by 4-H on trees and forests.

Key Descriptors: Ecosystems/ Ecology/ Plant Communities, Tree Growth/ Anatomy/ Physiology

Resource Provider: Natural Resources Extension Programs, Dr. James P. Lassoie, - Associate Professor. 122-A Fernow Hall, Cornell University, Ithaca, NY 14853 USA Ph. 607-255-2117, Ext. 2114

HUG-A-TREE AND SURVIVE

Type of Material: Slide Show (audio tape), Visiting Teacher
Intended for: K-6

Copyright: Yes Language: English
Free: Yes
Length: 30 minutes 1 lessons

Description: The Hug-A-Tree and Survive Program was started in San Diego County by searchers after a nine-year-old lost boy died in the local mountains. It teaches children survival principles, one being to hug a tree once they know they are lost. Hugging a tree and even talking to it reduces the fear of being alone, calming and preventing panic. By staying in one place, a lost child can be found quicker and avoid being injured in a fall.

Key Descriptors: Ethics/ Social Values/ Sociology. General

Resource Provider: Hug-A-Tree Program, Larry Buffaloe, 2800 Meadowview Road, Sacramento, CA 95832 USA Ph. 916-427-4235
HUG A TREE...AND OTHER THINGS TO DO OUTDOORS WITH YOUNG CHILDREN/CAF 10500

Type of Material: Book
Intended for: K-2

Author: Robert E. Rockwell et al.
Copyright: Yes Language: English Purchase: $10.45 (includes postage + handling)
Length: 106 pages

Description: This book for teachers, parents or youth group leaders provides fun activities for younger children that encourage their curiosity and a desire to learn. It is based on the premise that children learn best through direct experience and exploration. Adults are cast as facilitators who support the children’s investigations rather than that of a leader who imposes a direction. Adults play an important role in introducing children to activities which serve to broaden their initial experiences and to encourage more complex thinking.

Includes information on how to use the book; how to expand the outdoor experience by the varied methods children could record data and how to get kids to talk. Other chapters include Outdoor Education Isn’t Always in the Woods; How to Organize for an Outdoor-Experience; Where to go for help; Loving Your Environment - Aesthetic and Affective Experiences; Turning On Your Senses; Observation Experiences; Backyard Data Collecting, Measurement Experiences; Change and Time Experiences and Hodge Podge.

Activities that deal specifically with trees include Hugging A Tree; Leaves Don’t All Fall the Same Way; Curves and Straights - the Shapes Nature Makes; Scavenger Hunt; Grab Bag Lotto; Count What You Can and Do It Again; Long, Short, Tall, Small - Compare them All; and Fill the Space - an Area Game.

Key Descriptors: Amenity/ Cultural Values, Appreciation/ Benefits/ Importance. General, Urban Forestry/ Trees

Resource Provider: GryphonHouse, Jean Berry Racin, Education Markets Coordinator, 3706 Otis St., P.O. Box 275, Mt. Rainier, MD 20712 USA Ph. 301-779-6200

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I AM A TREE ... LET'S LEARN ABOUT ME

Type of Material: Coloring Book
Intended for: K-4

Author: Designer/Artist: Faith Skoog Concept: Joy Baker
Copyright: Yes Language: English Purchase: 500 copies - $2540; 10,000 copies - $3400; 15,000 copies - $4400; 20,000 copies - $5450; 25,000 copies - $6400; plus freight charges.
Length: 24 pages

Description: In a non-directed way, 'I Am A Tree' introduces children to basic facts about trees, and the uses and benefits they provide. It was created to reach out to the younger audiences often overlooked in other educational programs. These are the people who will be voting on land and forestry issues in less than half of an Intensive Southern pine rotation!

Key Descriptors: Appreciation/ Benefits/ Importance, Habitat-Plant and Wildlife, Multiple Use, Tree Growth/Anatomy/Physiology
Conceptual Categories: 8, 9, 15, 18, 20, 25, 35, 49

Resource Provider: Weyerhaeuser Company, Education Coordinator, 810 Whitting Ave. a P.O. Box 1060, Hot Springs, AR 71901 USA Ph. 501-624-8498

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KEEP A GREAT THING GROWING AMERICA, TREE CITY USA

Type of Material: Booklet
Intended for: 4-Adult

Language: English
Free: Yes

Description: Explains what urban forestry is, what benefits it provides, and what people can do to promote it where they live. Can be used in conjunction with A Special Kind of Care video or slide presentation.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Ethics/ Social Values/ Sociology, Urban Forestry/Trees

Resource Provider: National Arbor Day Foundation, The, 100 Arbor Avenue, Nebraska City, NE 68410 USA Ph. 402-474-5655

page 368
LEAFLET TREE PLANTING/TREE TENDING COMBINED

Type of Material: Pamphlet
Intended for: 3-Adult

Date: 1983 Author: R.T. Marks
Language: English
Free: Yes
Length: 2 pages

Description: An illustrated guide to planting seedlings, it also names the parts of the tree and gives suggestions of what not to do when planting young trees with particular attention to the roots.

Also available in the Lesotho language.

Key Descriptors: Propagation/ Care, Protection-Fire/ Insects/ Disease

Resource Provider: Forestry Division, Mr. T.J. Green, Chief Forestry Officer, P.O. Box 774, Maseru 100, Lesotho, USA Ph. 322826

page 382

LEARN TO LOVE TREES

Type of Material: Curriculum, Booklet
Intended for: 4-Adult

Language: English
Free: Single copy
Length: 6 pages

Description: This small booklet with colorful cartoon-like illustrations aims at teaching children that forests are important and why. Includes discussion of trees as a renewable resource, useful products people get from trees, the many uses of forests (from recreation to watershed protection), how trees affect soil, water and air, and the importance of reforesting land.

Provides a Learn to Love Trees Program for teachers to use with students. Could be used in preparing for Arbor Day.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Multiple Use, Products/ Human Use/ Industry Conceptual Categories: 6, 20, 29, 35, 46, 47, 48, 49

Resource Provider: American Forest Council, Ph: Dickson, 1250 Connecticut Ave. NW, Suite 320, Washington, DC 20036 USA Ph. 800-424-2485

page 382
LIFE IN A DECIDUOUS FOREST/CD-FM-5012

Type of Material: Film (16mm)
Intended for: 4-10

Date: 1963
Language: English
Rent: $8.00 (Make check payable to University of Minnesota.)

Key Descriptors: Habitat-Plant and Wildlife

Resource Provider: Minnesota Extension Service, Harold Scholten, 3 Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108 USA Ph. 612-625-8173

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LIFE AND DEATH OF A TREE/2-1266

Type of Material: Film (color, sound)
Intended for: 4-Adult

Date: 1979
Copyright: Yes Language: English
Loan: Available to Sacramento and Yolo County School Districts which contract for the film/video service.
Length: 20 minutes

Description: Living or dead, an oak tree is a stage where many kinds of plants and animals play out their fates. Live, it nurtures a variety of animals. It dies slowly, and the ecosystem changes; now it feeds and shelters different plants and animals. In the end, it decays into humus, life support for a new tree. Could be used as part of an Arbor Day celebration.

Key Descriptors: Arbor Day, Ecosystems/ Ecology/ Plant Communities, Habitat-Plant and Wildlife, Hardwoods
Conceptual Categories: 9, 11, 31, 33, 34, 35, 37, 38, 39, 40, 42

Resource Provider: County Office of Education, Sacramento, Dr. Mary Reed, - Media Director, 9738 Lincoln Village Drive, Sacramento, CA 95827 USA Ph. 916-366-4460

page 388
LIFE IN A NATIONAL FOREST

Type of Material: Film
Intended for: K-4

Language: English
Loan: Free loan use to California and Hawaii residents only.
Length: 11 minutes

Description: Eddie visits his uncle who is a Forest Ranger and learns about natural resources and how a U.S. National Forest is managed.

Key Descriptors: Management Practices/ Silviculture, Multiple Use, National Forests (Including Wilderness), Products/ Human Use/ Industry
Conceptual Categories: 20, 46, 47

Resource Provider: USDA - Forest Service, Region 5 Film Library, - Audience Planners, Inc., 5107 Douglas Fir Dr., Calabasas, CA 91302 USA Ph. 818-884-3100

LIFE OF A TREE, THE

Type of Material: Curriculum
Intended for: 3-5

Date: 1989 Author: H. Sharon Ossenbruggen
Copyright: No Language: English

Description: This learning package (available early 1989) consists of several components:

1. Videotape introducing the topic 'Lives of Trees' and showing a 4th grade class performing a play called 'This is Your Life, Acer Maple.' It introduces the important characters in a tree's life.
2. Slide/tape and poster called 'Life, Death, and Rebirth of a Tree.'
3. Instructions for creating puppets from the play in smaller hand version from simple materials in classroom.
4. Script so children can perform with puppets for others.
5. Other materials to plant or adopt their own tree to observe its life cycle.

Key Descriptors: Arbor Day, Life Cycle, Tree Growth/ Anatomy/ Physiology, Urban Forestry/ Trees
Conceptual Categories: 10, 12, 14, 15, 17, 18, 21, 22, 25, 31, 35

Resource Provider: USDA - Forest Service, H. Sharon Ossenbruggen, - Information Specialist, Box 640, Durham, NH 03824 USA Ph. 603-868-5710
LIFE OF THE FOREST, THE

Type of Material: Booklet
Intended for: K-Adult

Date: 1985
Language: English
Length: 16 pages

Description: The forest is a complex community where trees and other plants and animals live in delicate balance. Understanding how this community functions is of vital interest in learning about the growth processes of trees, their role in the forest world, how they can be used fully without waste, and how to improve their quality.

This booklet covers how a tree seed takes root, how the trunk feeds and supports a growing tree, comparing the leaves of different tree species, the life history recorded in a tree's ring, a glimpse of the life of the forest in the summer, the uses of a single log, and breeding healthier and faster-growing trees for the future.

Key Descriptors: Ecosystems/ Ecology/ Plant Communities, Life Cycle, Products/ Human Use/ Industry, Tree Growth/ Anatomy/ Physiology
Conceptual Categories: 6, 13, 20, 22, 23, 24, 26, 37, 38

Resource Provider: Champion International Corporation, Creative Services Dept., One Champion Plaza, Stamford, CT 06921 USA Ph. 203-358-6683

LIFE ON THE FOREST FLOOR: A FIRST FILM/02100

Type of Material: Film (color, 16mm, sound)
Intended for: K-8

Date: 1972
Copyright: Yes Language: English
Rent: $7.00
Length: 10 minutes

Description: Describes the environment of the forest floor - shelters from strong sunlight, moist atmosphere, source of food produced from falling leaves and rotting stumps, and refuge for many kinds of animals and plants.

Key Descriptors: Ecosystems/ Ecology/ Plant Communities, Habitat-Plant and Wildlife

Resource Provider: Cooperative Extension, Oklahoma State University, Audio Visual Center, 216 Library, Stillwater, OK 74078 USA Ph. 405-624-7213
LIFE, DEATH, AND REBIRTH OF A TREE/FS-356

Type of Material: Poster
Intended for: K-Adult

Date: 1987 Author: Alex L. Shigo
Copyright: No Language: English
Free: Yes

Description: Color poster, 24 x 36 in., showing 12 stages in the life of a tree.

Key Descriptors: Arbor Day, Life Cycle, Tree Growth/Anatomy/Physiology

Resource Provider: USDA - Forest Service, Northeast Forest Experiment Station, H. Sharon Ossenbruggen, - Forest Sciences Laboratory, P.O. Box 640, Durham, NH 03824 USA Ph. 603-868-5710
Address to use to obtain material: May also be obtained from the Government Printing Office, Washington, DC 20402.

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LITTLE SMOKEY/#17A

Type of Material: Film (color, 16mm, sound)
Intended for: K-8

Copyright: Yes Language: English
Loan: Yes
Length: 15 minutes

Description: Narration by Hopalong Cassidy. This film tells the true story of Smokey Bear - as a cub playing in the woods, how he survived the forest fire in Tinaden National Forest, to how he went to Washington, D.C. Depicts Smokey as a living symbol of fire prevention to school children. The film could be useful in discussing how forest fire concepts have changed to be a management tool.

Key Descriptors: Amenity/Cultural Values, History, Protection-Fire/Insects/Disease

Resource Provider: USDA Forest Service - Grey Towers - Pinchot Institute for Conservation Studies, Riaa Thompson, P.O. Box 188, Milford, PA 18337 USA Ph. 717-296-6401

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LORAX/09166 FILM, 11616 VIDEO

Type of Material: Film (color, 16mm, sound), Videotape (VHS, color)
Intended for: K-6

Date: 1972
Copyright: Yes Language: English
Rent: $17.50
Length: 25 minutes

Description: Animates the Dr. Seuss tale of the ecology-minded Lorax's attempts to save some trees needed for the survival of certain animals, when the industrious Once-ler moves into the area to cut them down. Tells what happens to the air, water, and inhabitants when the trees aren't replanted. Ends as the Once-ler gives the last seed to a young boy with a message (BFA).

Key Descriptors: Habitat-Plant and Wildlife, Ethics/ Social Values/ Sociology, Diversity/ Interdependence, Propagation/ Care
Conceptual Categories: 7, 11, 20, 34, 35, 36, 43, 44, 45, 49, 50

Resource Provider: University of Wisconsin - Extension, Bureau of Audio Visual Instruction, P.O. Box 2093, Madison, WI 53701 USA Ph. 608-262-3902, 800-362-6888 (WI only)
LOOK AROUND YOU IN SPRING

Type of Material: Film (color, 16mm, sound)
Intended for: 4-9

Date: 1978
Language: English
Cost: $1.25
Length: 17 minutes

Description: Depicts the awakening of springtime in nature. Explores the nesting and courting behaviors of birds, the new life being formed in the pond, the budding of flowers and trees, and the awakening of those creatures who hibernated during the winter. Explains that spring is a fascinating time to identify flowers and collect and observe nature's objects. (Mar/Chuck)

Key Descriptors: Climate, Tree Growth/Anatomy/Physiology
Conceptual Categories: 16, 22

Resource Provider: University of Wisconsin - Extension, Bureau of Audio Visual Instruction, P.O. Box 2093, Madison, WI 53701 USA Ph. 608-262-3902, 800-362-6888 (WI only)

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MAN WHO COULDN'T STOP SNEEZING, THE

Intended for: K-8

Language: English
Free: Single copy
Length: 16 pages

Description: An illustrated children's story about the importance of wood in our lives.

Key Descriptors: Appreciation/Benefits/Importance, Energy, Wood Fiber, Global Forestry

Resource Provider: Manitoba Department of Natural Resources - Forestry Branch, Communications Coordinator, 300-530 Kenaston Blvd., Winnipeg, Manitoba, R3N 1Z4 Canada Ph. 204-945-8238
Address to use to obtain material: Nova Scotia Lands & Forestry, P.O. Box 68, Truro, N.S. B2N 5B8.

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MAN OF THE TREES

Type of Material: Film, Videotape
Intended for: 4-12

Date: 1985
Copyright: Yes Language: English Purchase: $395.00
Rent: $40.00
Length: 25 minutes

Description: Richard St. Barbe-Baker brings world attention to the alarming rate at which the world's deserts are expanding, because of tree felling and overgrazing. Man of the Trees includes footage from Baker's 1952 Sahara crossing and ecological survey, plus other archival material that sketches his early life in the forests of Canada, colonial Kenya and Nigeria, and the struggle for the Redwoods of California. The film shows his support of the Chipko people in India, and explores his involvement in New Zealand.

Provides these questions for discussion: 1) Why are trees so important in the ecological balance? 2) Why have so many trees been lost to modern man? 3) What are some ways to guard against the problems associated with the loss of trees? 4) How has Mr. St. Barbe-Baker contributed to conservation methods? 5) Would you say that he was "born before his time?" Why?

Key Descriptors: Harvesting/Logging, History, National Forests (Including Wilderness), Redwoods
Conceptual Categories: 43, 44, 45, 46, 47, 49, 50

Resource Provider: Journal Films - Education Coordinator, 930 Pitner Avenue, Evanston, IL 60202 USA Ph. 312-328-6700

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MAN WHO PLANTED TREES, THE 1933

Type of Material: Videotape (VHS, color)
Intended for: K-Adult

Date: 1988
Language: English
Rent: Inquire
Length: 30 minutes

Description: Academy Award winning animated feature with a reforestation forest management message suitable for all audiences.

Key Descriptors: Amenity/Cultural Values, Appreciation/Benefits/Importance, Ethics/Social Values/Sociology, Global Forestry

Resource Provider: Forest Extension Service - Librarian, Box 6000, Fredericton, New Brunswick E3B 5H1 Canada Ph. 506-453-3711

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MAN'S BEST FRIEND IS A TREE

Type of Material: Poster
Intended for: 3-8

Language: English
Free: Available within Los Angeles County.
Length: 1 page

Description: Explains the benefits of trees in the urban environment, including purification of the air, providers of habitat, products for human use, use in control of soil erosion, aesthetic benefits, economic benefits.

Key Descriptors: Amenity/ Cultural Values, Ecosystem/ Ecology/ Plant Communities, Products/ Human Use/ Industry, Urban Forestry/ Trees
Conceptual Categories: 38, 39, 42, 46, 47, 49

Resource Provider: Los Angeles County Fire Department, Forestry Division, P.O. Box 3009, Los Angeles, CA 90051 USA Ph. 213-267-2481

page 416

MAPLE TREE

Intended for: K-6

Date: 1968 Author: Edith Thatcher
Language: English

Description: An engaging story of a maple tree from birth (seed formation and budding) to furniture.

Key Descriptors: Products/ Human Use/ Industry, Tree Growth/ Anatomy/ Physiology
Conceptual Categories: 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29

Resource Provider: William Morrow & Co., New York, NY USA

page 431
MORE THAN TREES

Type of Material: Film (color), Videotape (VHS, color)
Intended for: K-Adult

Language: English
Loan: Yes
Length: 30 minutes

Description: Explores the delicate and often hidden relationships of forest plants and animals. The film is an aesthetic study of a year in the forest, of happenings both above and below ground. It travels from bacteria to trees, earthworms to hawks. The film shows that there is more to a forest than generally meets the eye.

Available at no charge to Oklahoma schools, sportsmen’s clubs and civic organizations for public showing.

Key Descriptors: Appreciation/ Benefits/ Importance, Ecosystems/ Ecology/ Plant Communities, Habitat-Plant and Wildlife

Resource Provider: Oklahoma Department of Wildlife Conservation, Ron Masters, 1605 E. Osage, McAlester, OK 74501 USA Ph. 918-426-0767
Address to use to obtain material: 1801 N. Lincoln, P.O. Box 53465, Oklahoma City, OK 73105-4498.

MR. DO BEE AND TREES COLOR BOOK/CDF

Type of Material: Coloring Book
Intended for: K-2

Date: 1980
Language: English
Free: Yes
Length: 6 pages

Description: Shows, using a coloring book format for young children, that trees make shade to keep us cooler, provide homes for wildlife, and increase the beauty of our schools and cities.

Good to help set the stage for Arbor Day celebrations for city children.

Colorful stickers of Mr. Do Bee are also available.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Habitat-Plant and Wildlife, Urban Forestry/ Trees

Resource Provider: California Department of Forestry and Fire Protection (CDF), Brian G. Barrett, Resource Management, Room 1516-29, P.O. Box 944246, Sacramento, CA 95814 USA Ph. 916-323-2495
MY FRIEND THE FOREST

Type of Material: Slide Show (script, color)
Intended for: 4-6

Date: 1988 Author: Dwight Barnett
Copyright: No Language: English Purchase: Not yet established.
Length: 12 minutes

Description: Talks about the woods and all the neat things children can do in the woods, and invites children to be a friend to the woods. The enthusiastic presentation makes the forest really come alive for the children.

Key Descriptors: Appreciation/ Benefits/ Importance, General

Resource Provider: Tennessee Department of Conservation, Roy C. Ashley, Director of Forestry, 701 Broadway - Customs House, Nashville, TN 37203 USA Ph. 615-742-6621
Address to use to obtain material: Dwight Barnett, I & E Forester - same address.

NEED TREES

Type of Material: Poster
Intended for: 4-Adult

Language: English
Free: Yes
Length: 2 pages

Description: One side of this two-sided colorful poster depicts the many uses of trees from homes for wildlife to milk cartons. The second side illustrates 23 little known and interesting facts about trees and tree products. Useful in support of Arbor Day activities.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Diversity/ Interdependence, Products/ Human Use/ Industry

Resource Provider: American Forest Council, Phyllis Dickson, 1250 Connecticut Ave. NW. Suite 320, Washington, DC 20036 USA Ph. 800-424-2485
NOTES FROM OTIS

Type of Material: Curriculum, Periodical
Intended for: 1-6

Date: 1988 Author: Education Unit Staff
Copyright: Yes Language: English Purchase: $10.00 per grade level per school year for purchase out-of-state. Free to Missouri teachers.
Length: 4 ea. pages

Description: The student newspapers are one component of the 'Learning With Otis' elementary conservation education program. They are provided to teachers in classroom quantities four times per school year. January 1988's edition discusses trees.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Products/ Human Use/ Industry
Conceptual Categories: 4, 5, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 31, 34, 35, 44, 46, 47, 49, 51

Resource Provider: Missouri Department of Conservation, Jerry Presley, Director, 2901 N. Ten Mile Dr., Jefferson City, MO 65105 USA Ph. 314-751-4115

OH! CHRISTMAS TREE

Type of Material: Lesson Plan, Visiting Teacher
Intended for: K-Adult

Date: 1988
Language: English Purchase: $2/person, $5/lesson plan only

Description: Offered in the Fall, participants learn about the history of the Christmas tree tradition and are given an opportunity to act out a Christmas legend. They learn to identify 5-7 commonly used conifers and view a slide show about growing and harvesting Christmas trees. The group receives and plants a Christmas tree seedling and discusses ways of conserving natural resources at Christmas by making ornaments from recycled materials. The program includes a 1-1/2 hour indoor docent visit and an optional field trip to a Christmas tree plantation. Limited to 30 participants.

Application deadline is October 30.

Key Descriptors: Appreciation/ Benefits/ Importance, History, Tree/Plant Identification, Woodlands/ Small Landowners/ Tree Farmers

Resource Provider: Society for the Protection of New Hampshire Forests, Jeff Wallner, Resource Education Specialist, P.O. Box 97, Bethlehem, NH 03574 USA Ph. 603-444-6228, 869-2683
Address to use to obtain materials: Sandra Zicus, Coordinator, SPNHF, 54 Portsmouth St., Concord, NH 03301

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OUR FORESTS, A RENEWABLE RESOURCE/TEACHER'S GUIDE

Type of Material: Slide Show (audio tape, color)
Intended for: K-4

Language: English
Rent: $5.00
Length: 15 minutes

Description: An introductory slide tape designed for groups coming to the Forestry Center but also useful for introducing trees to any group. Concepts covered include some of the benefits we receive from trees, renewable resources, conifers and broadleaf trees, as well as identifying major northwest tree species.

Key Descriptors: Amenity/ Cultural Values, General, Products/ Human Use/ Industry, Tree/Plant Identification

Resource Provider: World Forestry Center, Carol Smart, Director of Education, 4033 S.W. Canyon Road, Portland, OR 97221 USA Ph. 503-228-1367

OUR FORESTS

Type of Material: Booklet, Teacher's Manual

Length: 23 pages

Description: Designed to serve as a teaching aid for a unit on trees and forests. A 10-page teacher's manual is available free, when used as a guide in conjunction with 'Our Forests' booklet.

Resource Provider: Southern Forest Products Association, P.O. Box 52468, New Orleans, GA 70152 USA

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OUR FORESTS/ED.

Type of Material: Pamphlet
Intended for: 4-Adult

Language: English
Free: Yes

Key Descriptors: Appreciation/ Benefits/ Importance, General

Resource Provider: Cooperative Extension, Mississippi State University, - Leader, Extension Forestry, P.O. Box 5446, Mississippi State, MS 39762 USA Ph. 601-325-3150

page 500
OUR FRIEND THE FOREST

Type of Material: Slide Show (script)
Intended for: K-5

Date: 1988 Author: Dwight Barnett
Copyright: No Language: English Purchase: Approx. $50.00
Length: 20 minutes 80 frames

Description: Our Friend the Forest slide show is designed to increase interest in nature in general and forests in particular, while introducing some basic biology and ecology. Shows fun things to do, interesting things to see in the way of wildflowers, trees (flowers, fruit, seed dispersal, leaves, bark), and tree personalities. Wood products, forest harvest and regrowth, clean water. Animals: food, shelter, etc. It offers a summary of forest benefits: wood, water, wildlife, wildflowers and plants, fun and beauty. What can we do for the forest? Being careful with fire, don't littering, plant trees in town. More fun in the forest. Humorous and beautiful slides keep children interested.

Key Descriptors: Amenity/ Cultural Values, Appreciation/ Benefits/ Importance, Diversity/ Interdependence, Habitat-Plant and Wildlife
Conceptual Categories: 9, 11, 18, 19, 20, 35, 46, 47, 48, 49

Resource Provider: Tennessee Division of Forestry,
Dwight D. Barnett, 701 Broadway, Nashville, TN 37219
USA Ph. 615-742-6630 615-742-6630

OUR LIVING FOREST

Type of Material: Pamphlet, Poster
Intended for: 4-6

Date: 1985
Language: English
Free: Yes

Description: Pamphlet is designed to do three things. The basic purpose is to reinforce the forestry messages contained in three films funded by a grant. The inside provides an opportunity for testing individuals' knowledge by completing two quizzes. The outside can be used as a poster, which depicts the various activities during a forest's life cycle. Pamphlet is free when used with Alberta Forestry Assoc. films.

Key Descriptors: Appreciation/ Benefits/ Importance, Global Forestry, Life Cycle

Resource Provider: Manitoba Department of Natural Resources - Forestry Branch, Communications Coordinator, 300-530 Kenaston Blvd., Winnipeg, Manitoba, R3N 1Z4 Canada Ph. 204-945-8238
Address to use to obtain material: Alberta Forestry Assoc., Suite 311, 10526 Jasper Ave., Edmonton, Alberta T5J 1Z5.
PLANTS: IMPROVING OUR ENVIRONMENT

Type of Material: Booklet, Teacher’s Manual

Date: 1987
Language: English Purchase: Booklet: 1 for $.75; 2-99 $.25 ea.; 100-499, $.18 ea.; further discounts on larger quantities
Teacher’s guide: $2.00 (more than 1, $.50 each)

Description: (3) Contact SWCS for a free brochure of other available publications.

This brightly colored, educational cartoon booklet describes how humans are dependent on green plants for food, water, shelter, and oxygen. In an informative and fun way this cartoon booklet also describes how important plants, and trees specifically, are for pollution abatement, soil conservation, beautification, building materials, and more.

The accompanying Teacher’s Guide emphasizes the central theme of the booklet and contains objectives and suggested student activities. The Guide consists of a file folder with three pages of objectives, background information, teaching methods, and four activity masters.

The Soil Conservation Society of America (SCSA) also publishes a similar cartoon booklet entitled ‘Plants, Animals & Man: Sharing the Earth, an Ecology Story’ which is a basic primer on ecology, explaining how soil, water, air and solar energy interact to create food (starches and sugars). While focusing less on the specific contributions trees make, it nonetheless is a similar fun and information-filled booklet, available without a Teacher’s Guide (single copy, $.75; 2-99, $.25 ea.; 100-499, $.18 ea.). Contact SCSA for a free brochure of other available publications.

Key Descriptors: Appreciation/ Benefits/ Importance, Chemistry (oxygen production/ photosynthesis/ carbon cycle), Products/ Human Use/ Industry, Urban Forestry/ Trees

Resource Provider: Soil and Water Conservation Society, 7515 NE Ankeny Road, Ankeny, IA 50021 USA Ph. 515-289-2331
PAPER MAKING KIT

Type of Material: Teacher's Packet or Kit
Intended for: 3-Adult

Language: English

Description: This papermaking kit includes a sample of wood chips, the first stage of fiber separation and a bag of pulp. The contents of the kit also include directions that show how to complete the papermaking process in the classroom. There is enough wood pulp to make about 30 sheets of 4 to 5 inch squares of paper. There are also directions for making recycled paper.

Key Descriptors: Products/ Human Use/ Industry

Resource Provider: Minnesota Forest Industries, Inc., M.R. Allen, - Executive V.P., 208 Phoenix Bldg., 333 West Superior St., Duluth, MN 55802 USA Ph. 218-722-5013

POSTER SERIES

Type of Material: Poster
Intended for: K-Adult

Language: English
Length: 1 page

Description: These large colorful posters on animal, plant and insect identification display the diversity of living things dependent on National Forests with a subtle Smokey Bear fire prevention message. Useful to brighten a room and raise awareness in preparing for Arbor Day.

May also be available from the nearest U.S. Forest Service office (see appendix).

Key Descriptors: Arbor Day, Diversity/ Interdependence, Protection-Fire/ Insects/ Disease, Tree/Plant Identification Conceptual Categories: 1, 9, 34, 35

Resource Provider: USDA - Forest Service, P.O. Box 96090, Rm. 3232, P.O. Box 96090, Washington, DC 20090 USA Ph. 202-447-3957

Address to use to obtain material: Available from nearest U.S. Forest Service office.
POSTER SET

Type of Material: Poster
Language: English
Free: Yes

Description: A set of six posters illustrating the life, death and rebirth of trees, also how to help trees.

Key Descriptors: Life Cycle, Propagation/ Care

Resource Provider: USDA - Forest Service, Northeast Forest Experiment Station, Thomas Baucom, - Information Services, 370 Reed Road, Broomall, PA 19008 USA Ph. 215-690-3104

POSTERS

Type of Material: Poster
Intended for: K-Adult
Language: English Purchase: $5.00 ea. (includes shipping).

Description: Five beautiful redwood posters (18 x 24 inches) are available which depict the beauty and grandeur of California's coast redwoods.

Posters available: 1) Help Save the redwoods - The World's Greatest Forest (sunlight streams through this magnificent redwood forest in Jedediah Smith redwoods State Park); 2) Coast redwoods (the morning fog drifts through these huge virgin redwoods in Prairie Creek Redwoods State Park); 3) Greig Grove - Humboldt Redwoods State Park (giant redwoods loom over this lush green understory); 4) California Federation of Womens Clubs Grove - Humboldt Redwoods State Park (a narrow road winds through this dense redwood forest in this horizontal poster); and 5) Big Basin Redwoods (massive redwood trees share the forest floor with a dense bed of ferns).

Key Descriptors: Amenity/ Cultural Values, Appreciation/ Benefits/ Importance, Ethics/ Social Values/ Sociology, Redwoods

Resource Provider: Save-the-Redwoods League, John B. Dewitt, - Secretary, 114 Sansome St., Rm. 605, San Francisco, CA 94104 USA Ph. 415-362-2352
POPEYE IN THE WOODS/SFA 009

Type of Material: Film (color, 16mm, sound)
Intended for: K-7

Date: 1961
Language: English
Loan: Borrowers pay return mailing cost using the same method for return as that used to receive the film.
Length: 7 minutes

Description: An animated forest fire prevention film.

Key Descriptors: Protection/Fire/Insects/Disease
Conceptual Categories: 49

Resource Provider: USDA - Forest Service Film Library,
Instructional Materials Service, - Montana Committee for
the Humanities, University of Montana, Missoula, MT
59812 USA Ph. 406-243-5976, 243-4070

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QUESTIONS AND ANSWERS ABOUT FORESTS/ED.

Type of Material: Pamphlet
Intended for: 4-Adult

Language: English
Free: Yes

Description: Useful in celebrating Arbor Day.

Key Descriptors: Appreciation/Benefits/Importance, Arbor Day, General

Resource Provider: Cooperative Extension, Mississippi State University, - Leader, Extension Forestry, P.O. Box 5446, Mississippi State, MS 39762 USA Ph. 601-325-3150

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REDWOODS: THE WORLD'S LARGEST TREES

Type of Material: Book
Intended for: 5-Adult

Author: Hewes
Copyright: Yes Language: English Purchase: $12.98 + $2.25 shipping

Key Descriptors: Redwoods

Resource Provider: Redwood Natural History Assoc.,
Business Manager, 1111 Second Street, Crescent City, CA
95531 USA Ph. 707-464-9150

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SAVE THE REDWOODS

Type of Material: Videotape (VHS, color)
Intended for: 4-Adult

Date: 1987  Author: Don Briggs
Copyright: Yes  Language: English Purchase: $19.95 plus $3.00 postage and handling
Length: 6 minutes

Description: This beautifully photographed video shows the logging of majestic old-growth redwoods. Conversation with the tree faller provides information about the falling process along with his views of the controversy surrounding the logging of old-growth redwoods.

A voice-over poem points out how human greed and lack of concern for the environment feeds the continuing destruction of this unique habitat.

Key Descriptors: Ethics/ Social Values/ Sociology, Harvesting/ Logging, Redwoods
Conceptual Categories: 7, 36, 44, 49, 50

Resource Provider: Save-the-Redwoods League, John B. Dewitt, - Secretary, 114 Sansome St., Rm. 605, San Francisco, CA 94104 USA Ph. 415-362-2352

SAVING THE REDWOODS

Type of Material: Magazine
Intended for: 6-Adult

Date: 1920
Language: English Purchase: $19.00

Description: A National Geographic magazine article appearing in the June 1920 issue. Price is for an original copy of the issue.

Key Descriptors: History, Redwoods

Resource Provider: National Geographic Society, Rogers, - Promotion and Educational Services Dept., 17th & M Streets, Washington, DC 20036 USA Ph. 800-368-2728
SEED CONES AND REFORESTATION (PART 6 - SPECIAL FOREST PRODUCTS SERIES)

Type of Material: Film, Videotape
Intended for: S-Adult

Author: Martin Moyer
Copyright: Yes Language: English Purchase: $375.00
Length: 22 minutes

Description: (Older film.) This film illustrates the need for reforestation, and shows all the steps used today to speed the development of new forests, including how seed cones are collected and stored, how seedlings are started, various planting techniques and rules, selective cross-breeding, and grafting. Special emphasis is placed on the many career opportunities in the forest industries.

Other concepts illustrated include how cones are stored and identified, how they are dried, and how the seed is extracted and separated from debris. A forest nursery and a seed orchard are shown, as well as special techniques for obtaining superior tree shoots, or scions, and a detailed example of how such a scion is grafted onto the top of a young established tree of the same species, or rootstock.

The film shows how the people concerned about the development of future forests have learned how to cut the natural 're-cycling' time nearly in half and create many new jobs at the same time.

Key Descriptors:Careers/Occupations. Propagation/ Care
Conceptual Categories: 20, 46, 47

Resource Provider: Martin Moyer Productions. - Educa-
tion Coordinator. 900 Federal Ave., East, Seattle, WA 98102 USA Ph. 206-322-9308
Address to use to obtain material: For videos, contact Vid-
eo-SIG, 1030 E. Duane Ave., Suite C, Sunnyvale, CA 94086.

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SEED TO SEEDLING

Type of Material: Curriculum
Intended for: K-6

Date: 1986 Author: Sacramento Tree Foundation
Copyright: Yes Language: English Purchase: $10.00
Length: 10 lessons

Description: This ten-lesson curriculum presents learning activities designed to develop the knowledge and skills needed to successfully grow, care for and plant an oak tree, using the native oaks of the Sacramento region as a model. A second goal is to instill in children attitudes of appreciation and concern for trees that can be passed on to future generations.

This curriculum is designed for use by classroom teachers and youth group leaders during September to June. Each lesson plan/activity includes Objectives, Method, Materials, Background, Activity Procedure, Extensions (additional activities), Evaluation, and References. The $10 fee is waived for those attending a free annual fall workshop.

The activity titles are: Learning to Identify Central Valley Native Oaks; Collecting and Storing Acorns; What Do Young Trees Need to Grow?; Caring for Maturing Oak Trees; Planting Acorns; Nurturing New Oak Trees; Evaluating and Appreciating Our Heritage Oaks; Planting Young Oak Trees; Caring for Young Oak Trees; and Oaks and the Urban Forest.

Key Descriptors: Appreciation/ Benefits/ Importance, Propagation/ Care, Tree/Plant Identification, Urban Forestry/ Trees
Conceptual Categories: 1, 5, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 23, 28, 30, 35, 44, 46, 47, 49, 50

Resource Provider: Sacramento Tree Foundation, Education Coordinator, 1540 River Park Dr., Suite 201, Sacramento, CA 95815 USA Ph. 916-924-8733
SEED OF A TREE, THE

Type of Material: Poster
Intended for: K-6

Date: 1980
Language: English Purchase: $2.00

Description: Animated 6-panel wall chart for primary school children. Includes suggestions for class projects.

Key Descriptors: Global Forestry, Tree Growth/ Anatomy/ Physiology

Resource Provider: Manitoba Department of Natural Resources - Forestry Branch, Communications Coordinator, 300-530 Kenaston Blvd., Winnipeg, Manitoba, R3N 1Z4 Canada Ph. 204-945-8238
Address to use to obtain material: CFA of British Columbia, 410-1200 W. Pender St., Vancouver, BC V6E 2S9.

SEEING THROUGH THE TREES

Type of Material: Book
Intended for: 4-7

Date: 1977
Copyright: Yes Language: English Purchase: $5.50 (Canadian dollars)
Length: 50 pages

Description: This unit is designed to add a further dimension to the interaction between children and trees. The activities included in this book provide a rich series of experiments which lead to an indepth understanding of many aspects of tree ecology, measurement, anatomy, growth behavior, and an introduction to the classification of trees.

Key Descriptors: Tree Growth/ Anatomy/ Physiology, Tree/Plant Identification
Conceptual Categories: 17, 22

Resource Provider: Pacific Educational Press, C.J. Anastasiou, Executive Director, Faculty of Education, The University of British Columbia, Vancouver, British Columbia, V8T 1Z5 Canada Ph. 604-228-5383

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SEEING THROUGH THE TREES

Type of Material: Book
Intended for: 4-7

Date: 1977
Language: English Purchase: $5.00 (Canadian) A 20 percent educational discount is available.

Description: Activities for developing a comprehensive understanding of trees and their interaction with plants and animals in the environment.

Key Descriptors: Ecosystems/ Ecology/ Plant Communities, Habitat-Plant and Wildlife
Conceptual Categories: 35, 37, 38, 39

Resource Provider: University of British Columbia, Western Education Development Group, Vancouver, BC V6T 1W5 Canada

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SEQUOIA

Type of Material: Film (color, 16mm), Videotape (VHS, Beta, 3/4, color)
Intended for: 1-Adult

Date: 1984 Author: Brainard H. Miller
Copyright: Yes Language: English Purchase: $224.00 (film), $30.00 (VHS & Beta)
Rent: $40.00 (film)
Length: 14 minutes

Description: To acquaint the viewer with the beauty and the history of the Giant Sequoia trees in Sequoia and Kings Canyon National Parks, California.

Key Descriptors: Amenity/ Cultural Values, Appreciation/ Benefits/ Importance, History, Redwoods
Conceptual Categories: 1, 11, 23, 28, 34, 49

Resource Provider: Point Lobos Productions, Brainard H. Miller, 20417 Califa St., Woodland Hills, CA 91367 USA Ph. 818-340-4201

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SIMPLY SEEING/FSS 108

Type of Material: Slide Show (audio tape, color)
Intended for: 4-Adult

Language: English
Loan: Borrowers pay return mailing cost using the same method for return as that used to receive the slide show.
Length: 30 minutes 160 frames

Description: A visual awareness program dealing with ecology. No narration, musical accompaniment.

Key Descriptors: Appreciation/ Benefits/ Importance, General

Resource Provider: USDA - Forest Service Film Library, Instructional Materials Service, - Montana Committee for the Humanities, University of Montana, Missoula, MT 59812 USA Ph. 406-243-5976, 243-4070

SINGING TREE, THE

Type of Material: Film (color, 16mm, sound)
Intended for: K-6

Language: English
Loan: Yes
Length: 20 minutes

Description: One hundred school children participate in the film with singer Billy B. Songs teaching scientific concepts about the growth and function of trees - such as photosynthesis, absorption of soil nutrients and water by roots and the protective role of the bark.

Key Descriptors: Chemistry (oxygen production/ photosynthesis/ carbon cycle), Tree Growth/ Anatomy/ Physiology
Conceptual Categories: 18, 19

Resource Provider: California Association of Nurserymen, Stacy Flynn, 1419 21st St, Sacramento, CA 95814 USA Ph. 916-448-2881
TAXONOMY OF REPRESENTATIVE TREES#222

Type of Material: Slide Show (script, color)
Intended for: 6-Adult

Date: 1981 Author: Richard V. Kowles, Ph.D.
Copyright: Yes Language: English Purchase: $37.95
Length: 20 frames

Description: Each transparency in this set shows two images. One gives a full view of the leaves, and the other a close-up of one or more of the salient identifying characteristics of the species. This is a series of common species from 20 different genera.

Accompanied by a detailed printed text 8-12 pages long, keyed to individual pictures. Also includes wordlist, suggested projects and supplemental references. It is not intended that every word of text be used, rather that teachers use what is appropriate for the grade level they are teaching.

Key Descriptors: Diversity/ Interdependence, Tree Growth/ Anatomy/ Physiology, Tree/Plant Identification
Conceptual Categories: 5, 9, 10, 11

Resource Provider: Educational Images Ltd., P.O. Box 3456, West Side Station, Elmira, NY 14905 USA Ph. 607-732-1090, 800-527-4264

TEACHER'S GUIDE FOR ARBOR DAY

Type of Material: Curriculum, Booklet
Intended for: 3

Date: 1988 Copyright: No Language: English
Length: 10 pages

Description: This material was developed for third grade teachers with the cooperation of the Maryland State Department of Education, to be used as supplemental resource material. Each year the Maryland Forest Park and Wildlife Service gives pine seedlings to Maryland public school students as an Arbor Day gift. The booklet provides teachers planting instructions and four activities that can help make Arbor Day more meaningful. Two of the activities have been adapted, with permission, from Project Learning Tree.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Water
Conceptual Categories: 23

Resource Provider: Maryland Department of Natural Resources, Barbara Rice, - Forest, Park and Wildlife Service, Tawes State Office Building, Annapolis, MD 21201 USA Ph. 301-974-3776
TEACHING WITH TREES

Type of Material: Lesson Plan
Intended for: K-6

Language: English
Free: Single copy
Length: 30 pages

Description: Illustrated sample lesson plans for elementary school teachers.

Key Descriptors: Appreciation/ Benefits/ Importance, General, Global Forestry

Resource Provider: Manitoba Department of Natural Resources - Forestry Branch, Communications Coordinator, 300-530 Kenaston Blvd., Winnipeg, Manitoba, R3N 1Z4 Canada Ph. 204-945-8238

Address to use to obtain material: Nova Scotia Lands & Forests, P.O. Box 68, Truro, N.S. B2N 5B8.

TERRIFIC TREES

Type of Material: Curriculum
Intended for: 3-5

Date: 1985 Author: Cris Fleming
Copyright: Yes Language: English
Length: 10 pages 14 hours

Description: 'Terrific Trees' is a curriculum on trees for children aged 8-10, prepared and given at the Audubon Naturalist Society in Chevy Chase, Maryland. It contains seven two-hour sessions of activities, games, books, projects, worksheets, and discussions in a coherent curriculum that is designed to encourage children to appreciate trees.

Key Descriptors: Appreciation/ Benefits/ Importance, Habitat-Plant and Wildlife, Life Cycle, Tree/Plant Identification

Conceptual Categories: 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 21, 23, 24, 25, 26, 27, 28, 30

Resource Provider: Audubon Naturalist Society, Cris Fleming, 8940 Jones Mill Road, Chevy Chase, MD 20815 USA Ph. 301-652-5964
THINK LIKE A MOUNTAIN
Type of Material: Film (color, 16mm, sound)
Intended for: 5-Adult

Date: 1972
Language: English
Loan: To California and Hawaii residents
Length: 28 minutes

Description: This is a picture dealing with rare and endangered species of wildlife. It shows the concern of the U.S. Forest Service, and the management practices used to help prevent extinction of certain species. Primarily, it is a message to everyone to be concerned about our wildlife. Cleared for television.

Key Descriptors: Habitat-Plant and Wildlife, National Forests (Including Wilderness)
Conceptual Categories: 34

Resource Provider: USDA - Forest Service, Region 5 Film Library, - Audience Planners, Inc., 5107 Douglas Fir Dr., Calabasas, CA 91302 USA Ph. 818-884-3100

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THEY'RE ATTACKING MY TREE FORT/08302

Type of Material: Film (color, 16mm, sound)
Intended for: 4-6

Date: 1972
Copyright: Yes Language: English
Rent: $12.00
Length: 18 minutes

Description: Uses a story built around the treehouse of two young boys to show how lumbering can be ecologically sound under certain conditions. Shows the beautiful forests of the state of Oregon as company officials, forest rangers and the boys work out their problems. (Xerox)

Key Descriptors: Ethics/ Social Values/ Sociology, Harvesting/ Logging, Products/ Human Use/ Industry
Conceptual Categories: 20, 35, 46, 47, 49

Resource Provider: University of Wisconsin - Extension, Bureau of Audio Visual Instruction, P.O. Box 2093, Madison, WI 53701 USA Ph. 608-262-3902, 800-362-6888 (WI only)
THINK TREES BROCHURE

Type of Material: Brochure
Intended for: 4-Adult

Date: 1986
Copyright: No Language: English Purchase: $6.00/1,000 brochures
Free: Single copy
Length: 4 pages

Description: This brochure speaks of the importance of trees to our lives. Discussion of their environmental and aesthetic values and the importance of our care for trees occurs in this brief brochure.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Economics, Urban Forestry/ Trees

Resource Provider: International Society of Arboriculture, Headquarters, - Coordinator, Member Services, Leal Park, 303 W. University Ave., P.O. Box 71, Urbana, IL 61801 USA Ph. 217-328-2032

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THIS VITAL EARTH (PART 2 OF LIVING EARTH SERIES)/SFC 005

Type of Material: Film (black & white, 16mm, sound)
Intended for: 4-Adult

Date: 1948
Language: English
Loan: Borrowers pay return mailing cost using the same method for return as that used to receive the film.
Length: 10 minutes

Description: Relation of life to its environment is shown through the balance of plants and animals. Explains that plant and animal interrelationships are essential to survival.

Key Descriptors: Diversity/ Interdependence, Ecosystems/ Ecology/ Plant Communities
Conceptual Categories: 34, 35, 46, 49

Resource Provider: USDA - Forest Service Film Library, Instructional Materials Service, - Montana Committee for the Humanities, University of Montana, Missoula, MT 59812 USA Ph. 406-243-5976, 243-4070

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TOUCH A TREE

Type of Material: Book
Intended for: K-3

Date: 1983
Copyright: Yes Language: English Purchase: $8.00 (Canadian)
Length: 35 pages

Description: This teacher’s guide provides a good background in forestry as well as many classroom forestry activities. An awareness of the forest is fostered through a number of indoor activities, experiments and games coordinated with outdoor activities. An emphasis on the use of senses is used to introduce new concepts.

Key Descriptors: Appreciation/ Benefits/ Importance
Conceptual Categories: 14, 23

Resource Provider: Pacific Educational Press, C.J. Anastasiou, Executive Director, Faculty of Education, The University of British Columbia, Vancouver, British Columbia, V8T 1Z5 Canada Ph. 604-228-5385

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TREE

Type of Material: Film (color, 16mm, sound)
Intended for: 4-7

Date: 1968
Copyright: Yes Language: English
Loan: Yes
Length: 10 minutes

Description: By observing a tree, we discover an important concept: living things depend on each other. A film that suggests the beauty of trees while introducing simple ideas of ecology.

Key Descriptors: Appreciation/ Benefits/ Importance, Ecosystems/ Ecology/ Plant Communities, Life Cycle

Resource Provider: Sacramento County Office of Education, 9738 Lincoln Village Dr., Sacramento, CA 95827 USA Ph. 916-366-2571

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TREE (2ND EDITION)/05014

Type of Material: Film (color, 16mm, sound)
Intended for: K-6

Date: 1977
Copyright: Yes Language: English
Rent: $10.00
Length: 14 minutes

Description: Portrays the ecosystem of a tree and a forest: earth, leaves, birds, insects, rain, water. Good inquiry film with the sound turned off.

Key Descriptors: Appreciation/Benefits/Importance, Diversity/Interdependence, Habitat-Plant and Wildlife
Conceptual Categories: 11, 34, 35

Resource Provider: University of Wisconsin - Extension, Bureau of Audio Visual Instruction, P.O. Box 2093, Madison, WI 53701 USA Ph. 608-262-3902, 800-362-6888 (WI only)

TREE CHEERS

Type of Material: Booklet
Intended for: K-6

Language: English, French
Length: 12 pages

Description: A forest fable that teaches children through story-telling how a tree grows and the parts of a tree. It ends with a celebration of trees in a declaration of National Forest week where every day is a Silva-Fest...a festival for trees. Colorful illustrations illuminate the characters in this delightful story.

Key Descriptors: Arbor Day, Global Forestry, Tree Growth/Anatomy/Physiology

Resource Provider: Canadian Forestry Service, G. R. Barth, 101 - 15th St., E., Prince Albert, Saskatchewan, S6V 1G1 Canada Ph. 306-764-5627
**TREE CHEERS**

*Type of Material: Book*
*Intended for: 3-5*

*Language: English, French*

*Description: A story set in a kingdom where people find out the wonderful things trees can be used for and ways to look after them.*

*Key Descriptors: Appreciation/ Benefits/ Importance, Propagation/ Care*

*Resource Provider: Department of Natural Resources, Dawn Watson, Information Officer, P.O. Box 6000, Fredericton, NB E3A 4P4 Canada*

**TREE CHEERS ACTIVITY BOOK**

*Type of Material: Booklet*
*Intended for: 2-6*

*Date: 1986*
*Language: English, French*
*Length: 20 pages*

*Description: Discover why forests are important, how different parts of trees are used and much more in this booklet full of puzzles, science projects and experiments.*

*Key Descriptors: Appreciation/ Benefits/ Importance, Global Forestry*

*Resource Provider: Canadian Forestry Service, G. R. Barth, 101 - 15th St. E., Prince Albert, Saskatchewan, S6V 1G1 Canada Ph. 306-764-5627*

**TREE CHEERS ACTIVITY BOOK**

*Type of Material: Book*
*Intended for: 4*

*Language: English, French*

*Description: Contains 'weird' forest facts, drawing exercises, wood products, forest types, identification exercises, planting instructions and word games.*

*Key Descriptors: Products/ Human Use/ Industry, Propagation/ Care, Tree/Plant Identification*

*Resource Provider: Department of Natural Resources, Dawn Watson, Information Officer, P.O. Box 6000, Fredericton, NB E3A 4P4 Canada*
TREE FARM, THE

Type of Material: Film (color, 16mm, sound)
Intended for: 4-Adult

Language: English
Rent: $5.00
Length: 13 minutes

Description: Explains the tree farm program with emphasis on multiple use and better forests through management. Shows good points of managed forests comparing a tree farmer and regular farmer.

Key Descriptors: Management Practices/ Silviculture, Multiple Use, Propagation/ Care, Woodlands/ Small Landowners/ Tree Farmers

Resource Provider: World Forestry Center, Carol Smart, Director of Education, 4033 S.W, Canyon Road, Portland, OR 97221 USA Ph. 503-228-1367

TREE FINDER

Type of Material: Book
Intended for: 3-Adult

Date: 1985 Author: May Theilgaard Watts
Copyright: Yes Language: English Purchase: $2.00
Length: 58 pages

Description: Tree Finder is a pocket-sized book containing a key for the identification of all native and introduced trees of eastern North America. Illustrated with line drawings that show the details necessary for identification. It is used in elementary and high school classes, college classes, and by adults.

Key Descriptors: Tree/Plant Identification
Conceptual Categories: 1, 5, 6, 7, 8, 9, 10

Resource Provider: Nature Study Guild Publishers, Education Coordinator, Box 972, Berkeley, CA 94701 USA
TREE GIANTS, THE

Type of Material: Book
Intended for: 2-6

Date: 1988 Author: Falcon Press
Copyright: Yes Language: English Purchase: $4.95 including postage

Key Descriptors: Amenity/ Cultural Values, Redwoods

Resource Provider: Save-the-Redwoods League, John B. Dewitt, Secretary, 114 Sansome Street, Rm. 605, San Francisco, CA 94104 USA Ph. 415-362-2352

TREE IS A LIVING THING, A

Type of Material: Film (color, 16mm, sound)
Intended for: K-3

Date: 1964
Language: English Purchase: Outside the U.S., call or contact for price quote and shipping fees.
Rent: $14.00
Length: 11 minutes

Description: A boy discovers that a tree, like a plant, grows from a single seed. Children will learn how and why a tree's life cycle changes through the seasons, how a tree's age is determined, and how a tree is fed through photosynthesis.

Key Descriptors: Chemistry (oxygen production/ photosynthesis/ carbon cycle), Life Cycle, Tree Growth/ Anatomy/ Physiology

Resource Provider: Cornell University, Carol Doolittle, Manager Media Services Distribution Center, 7-8 Research Park, Ithaca, NY 14850 USA Ph. 607-255-7660, 607-255-2090

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TREE ON THE ROAD TO TURNTOWN/4-2453

Type of Material: Film (color, sound)
Intended for: K-3

Date: 1962
Copyright: Yes Language: English
Loan: Available to Sacramento and Yolo County School Districts which contract for the film/video service.
Length: 7 minutes

Description: The story of a large oak tree, beginning as an acorn and ending in a sawmill where it becomes lumber for building a house.

Key Descriptors: Harvesting/Logging, Life Cycle, Products/Human Use/Industry, Tree Growth/Anatomy/Physiology
Conceptual Categories: 19, 20, 46

Resource Provider: County Office of Education, Sacramento, Dr. Mary Reed, Media Director, 9738 Lincoln Village Drive, Sacramento, CA 95827 USA Ph. 916-366-4460

TREE TIPS FOR KIDS

Type of Material: Brochure, Poster
Intended for: 4-Adult

Language: English
Free: Yes

Description: This combination brochure/poster lists five easy things kids can do to help the trees in their neighborhoods. Lists the benefits of trees in neighborhoods.

Key Descriptors: Propagation/Care, Tree/Plant Identification, Urban Forestry/Trees

Resource Provider: New York Street Tree Consortium, 3 West 29th Street, New York, NY 10001 USA Ph. 212-679-4481
TREE THROUGH THE SEASONS, A#30088

Type of Material: Teacher's Packet or Kit
Intended for: K-2

Date: 1985
Copyright: Yes Language: English Purchase: $28.95 + $4.25 postage & handling

Description: See how an apple tree grows and changes throughout the year. What happens during each season. Parts of the tree and their functions...leaves that make food, roots that hold the tree in place, and fruit that protects the seeds. Each skill building kit contains 30 copies of a student booklet, activity sheets to reinforce lessons, a Teacher's Guide with background information and suggested follow-up projects, a read-along narration tape, and library catalog cards.

Key Descriptors: Tree Growth/Anatomy/Physiology

Resource Provider: National Geographic Society, Wendy Rogers, Promotion and Educational Services Dept., 17th & M Streets, Washington, DC 20036 USA Ph. 800-368-2723
Address to use to obtain material: National Geographic Society, Educ. Services, Dept. 88, Washington, DC 20036

TREEmAN'S BEST FRIEND, THE/ED.

Type of Material: Pamphlet
Intended for: Adult

Language: English
Free: Yes

Description: Useful for Arbor Day

Key Descriptors: Appreciation/Benefits/Importance, Arbor Day

Resource Provider: Cooperative Extension, Mississippi State University, Leader, Extension Forestry, P.O. Box 5446, Mississippi State, MS 39762 USA Ph. 601-325-3150
TREES - UNIT A/C0750

Type of Material: Booklet
Intended for: 4-6


Description: A 4-H Forestry Program member manual that teaches all about trees and forests.

Resource Provider: 4-H Service Department, Colson Company, 901 N. Main St., Paris, IL 61944 USA

TREES - A JOY FOREVER

Type of Material: Booklet, Politics/Law
Intended for: 4-6

Author: Ott and Kneale
Language: English
Free: Yes
Length: 11 pages

Description: This play shows how Arbor Day began as a holiday with the efforts of J. Sterling Morton in 1872. (Included in Celebrate Arbor Day! publication.)

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Ethics/ Social Values/ Sociology, History

Resource Provider: National Arbor Day Foundation, The, Celebrate Arbor Day!, 100 Arbor Avenue, Nebraska City, NE 68410 USA Ph. 402-474-5655

TREEPEOPLE'S ENVIRONMENTAL EDUCATION PROGRAM FOR SCHOOLS

Type of Material: Curriculum, Education Facility (indoor & outdoor)
Intended for: K-12

Date: 1988
Language: English Purchase: Donation
Length: 3 hours

Description: Curriculum includes 'ecotour' of nature trails and education center at TreePeople's 45-acre park headquarters, slide show, guided imagery stories and games in classroom or assembly hall setting.

Key Descriptors: Comprehensive
Conceptual Categories: 35, 44, 46

Resource Provider: TreePeople, Katie Lipkis, Development Director, 12601 Mulholland Dr., Beverly Hills, CA 90210 USA Ph. 818-769-2663
Address to use to obtain material: Bruce Flint, Education Coordinator
TREES FOR A MORE LIVABLE ENVIRONMENT

Type of Material: Pamphlet
Intended for: K-6
Language: English
Free: Single copy
Length: 16 pages

Description: An activities booklet on city trees. One copy is free to teachers.

Key Descriptors: Urban Forestry/Trees

Resource Provider: Chevron Chemical Company - Public Affairs Dept., P.O. Box 3744, San Francisco, CA 94119 USA

TREES EVERY BOY AND GIRL SHOULD KNOW

Type of Material: Book
Intended for: K-6
Language: English
Purchase: $4.50 ea. ($6.55/book for postage), $4.05 ea. AFA member, $3.40 ea. bulk

Description: Written by members of the American Forestry Association staff

Written by members of the American Forestry Association staff, this book describes and illustrates 91 of the most common American trees. The leaves or needles and fruit of each tree are pictured. With this flexible covered guide, a child will be able to identify trees and find answers to many questions about the forest.

Key Descriptors: Tree/Plant Identification

Resource Provider: American Forestry Association, Deborah Gangloff, Director of Communications, P.O. Box 2000, Washington, DC 20013 USA Ph. 202-667-3300
TREES ARE WONDERFUL

Type of Material: Chart
Intended for: K-Adult

Author: A.R. Bond
Language: English
Length: 1 page

Description: This 8-1/2 x 11 inch page, typed informational sheet lists 5 things trees and forests do for the environment. Could be used in celebrating Arbor Day.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day
Conceptual Categories: 30, 32, 35

Resource Provider: Weyerhaeuser Company, Gloria Parish, Publications, Box A-74, Tacoma, WA 98401 USA Ph. 206-924-2656

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TREES III/SET #252

Type of Material: Slide Show (script, color)
Intended for: 6-Adult

Author: Gale Koschmann Belinky and Charles R. Belinky, Ph.D.
Language: English Purchase: $37.95
Length: 20 frames

Description: Similar to Trees I and II but different trees: sycamore; sweet gum; white, yellow, paper block and gray birch; ailanthus; honey locust; black locust; sourwood.

Accompanied by a detailed printed text 8-12 pages long, keyed to individual pictures. Also includes wordlist, suggested projects and supplemental references. It is not intended that every word of text be used, rather that teachers use what is appropriate for the grade level they are teaching.

Key Descriptors: Habitat-Plant and Wildlife, Products/ Human Use/ Industry, Tree/Plant Identification
Conceptual Categories: 11, 20, 22

Resource Provider: Educational Images Ltd., P.O. Box 3456, Westside Station, Elmira, NY 14905 USA Ph. 607-732-1090, 800-527-4264

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TREES OF WESTERN NORTH AMERICA

Type of Material: Poster
Intended for: 3-12

Author: National Audubon Society
Copyright: Yes Language: English Purchase: $5.00 plus $1.25 shipping.

Description: Full-size poster illustrating trees of Western North America. Color poster includes tree silhouette, close-up of leaves, and seeds or cones. Great teaching tool.

Key Descriptors: Tree Growth/Anatomy/Physiology, Tree/Plant Identification
Conceptual Categories: 1, 10, 11, 12, 18, 22, 23, 24, 25, 26, 28, 32

Resource Provider: Audubon Society, Richardson Bay Audubon Center and Sanctuary, 376 Greenwood Cove Rd., Tiburon, CA 94920 USA Ph. 415-388-2524

TREES OF THE SOUTHWESTERN UNITED STATES/#48-2795

Type of Material: Slide Show (script, color)
Intended for: 6-Adult

Language: English Purchase: $33.40
Length: 20 frames

Description: A presentation of the more common tree species found in this large portion of the United States. The range, size and habit of each specimen are discussed.

Key Descriptors: Tree/Plant Identification
Conceptual Categories: 5, 9, 10

Resource Provider: Carolina Biological Supply Company, Robert E. Mize, Audio-Visual Developer, P.O. Box 1059, Burlington, NC 27215 USA Ph. 919-226-6000, 800-334-5551, 800-632-1231 (NC) Address to use to obtain material: 2700 York Road, Burlington, NC 27215, OR: Carolina Biological Supply Co., Box 187, Gladstone, OR 97027.
TREES SHARE ... UNSELFISHLY.

Type of Material: Pamphlet
Intended for: K-8

Date: 1986 Author: Walter E. Dages
Copyright: No Language: English
Free: Yes
Length: 6 pages

Description: A pamphlet describing the benefits of trees in a manner easily conveyed to young people. It also explores the relationships trees have with soil, water, wildlife and ecology. A vocabulary list comes with the pamphlet to aid in introducing advanced words that occur in the text.

Key Descriptors: Appreciation/ Benefits/ Importance, Tree Growth/ Anatomy/ Physiology, Urban Forestry/ Trees
Conceptual Categories: 6, 8, 20, 22, 23, 30, 32, 33, 46, 47

Resource Provider: Bartlett Tree Experts, W.E. Dages, Public Relations Director, P.O. Box 3067, Stamford, CT 06905 USA Ph. 203-323-1131

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TREES TO PAPER/6C

Type of Material: Film (color, 16mm, sound)
Intended for: 3-10

Language: English
Loan: Yes
Length: 10 minutes

Description: Steps involved in the papermaking industry from planting seedlings to actual pulpwood paper.

For use by Indiana schools and groups.

Key Descriptors: Products/ Human Use/ Industry, Propagation/ Care

Resource Provider: Indiana Department of Natural Resources, James Parham, 608 State Capitol Bldg., Indianapolis, IN 46204 USA Ph. 317-232-4200

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UP WITH TREES

Type of Material: Book
Intended for: 4-6

Date: 1988 Author: New York City Department of Parks
Copyright: No Language: English Purchase: $.50 ea., or 35 for $14.00, or 100 for $30.00

Description: Description of urban trees for young readers or teachers' lesson.

Key Descriptors: Appreciation/ Benefits/ Importance, Habitat-Plant and Wildlife, Tree/Plant Identification, Urban Forestry/Trees

Resource Provider: City of New York Department of Parks and Recreation, Gordon Helman, The Arsenal, 830 5th Avenue, Rm. 203, New York, NY 10021 USA
Address to use to obtain material: Address correspondence to either 1) Horticulture, 2) Forestry, or 3) Natural Resources Group.

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UPLAND DEVELOPMENT PROGRAM

Type of Material: Brochure
Intended for: K-Adult

Language: English

Description: A primer of the upland program of the Forest Management Bureau. It is intended for students of all ages.

Key Descriptors: Appreciation/ Benefits/ Importance, General, Management Practices/ Silviculture
Conceptual Categories: 34, 35, 36, 37, 38, 40

Resource Provider: Bureau of Forest Development, Cirilo B. Serna, Ministry of Natural Resource, Diliman Quezon City, Philippines

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WALK IN THE WOODS, A/08752

Type of Material: Film (color, 16mm, sound)
Intended for: K-6

Date: 1972
Copyright: Yes Language: English
Rent: $6.00
Length: 5 minutes

Description: Accompanies a young boy as he walks in a woods and encounters signs of litter, pollution, and scars left behind by man. Shows facial expressions for feelings the boy has and his satisfaction when he plants some acorns in a final sequence (Coronet).

Key Descriptors: Amenity/ Cultural Values, Appreciation/ Benefits/ Importance, Ethics/ Social Values/ Sociology, Hardwoods
Conceptual Categories: 7, 19, 20, 44, 45, 47, 49

Resource Provider: University of Wisconsin - Extension, Bureau of Audio Visual Instruction, P.O. Box 2093, Madison, WI 53701 USA Ph. 608-262-3902, 800-362-6888 (WI only)

WE ALL NEED TREES/TREE TRIVIA

Type of Material: Poster
Intended for: K-Adult

Language: English
Length: 2 pages

Description: One side of this 17 x 22 inch poster is brightly colored and shows many products that come from the forest. The other side is Tree Trivia which lists 23 little known facts related to trees and forests with cartoon drawings demonstrating some key facts. Could be used to brighten a classroom in celebration of Arbor Day.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day, Products/ Human Use/ Industry
Conceptual Categories: 2, 6, 46

Resource Provider: Weyerhaeuser Company, Gloria Parish, - Publications, Box A-74, Tacoma, WA 98401 USA Ph. 206-924-2656
WHAT AM I BID FOR THE TREE

Type of Material: Film (color, 16mm, sound), Videotape (VHS, color)
Intended for: 4-Adult.

Copyright: Yes Language: English Purchase: $210.00 (Australian) for film + postage/air freight, $126.00 (Australian) for VHS + postage/air freight
Length: 11 minutes

Description: A highly delightful and original piece in which a cantankerous old auctioneer uses every approach he can think of to interest his clients in the tree. Played by veteran actor James Bailey, the auctioneer becomes in turn a magician, a school teacher, a spiv, an architect, a gardener, a counsel for defense and a gentleman from a past age. It is both entertaining and enlightening.

Key Descriptors: Appreciation/ Benefits/ Importance, Ethics/ Social Values/ Sociology

Resource Provider: M.B. Oldfield & Sons, 3 Over Avenue, Lesmurdie 6076, Western Australia Ph. (09) 291-6619
Address to use to obtain material: Or Marketing Division, Tasmanian Film Corp., Suite 302, 107 Walker St., North Sydney, NSW 2060, Ph. (02) 922-7761 or 922-7692.

WHAT IS A FOREST/FS 1004

Type of Material: Film Strip (audio tape, color), Videotape
Intended for: K-6

Copyright: Yes Language: English Purchase: $44.95 filmstrip, $49.95 videocassette
Length: 74 frames

Description: A poetic presentation, beautifully photographed, that introduces the elementary student to the variety of experiences to be enjoyed in a forest. Helps develop both an aesthetic appreciation of forests at various seasons and an increased awareness of many details of forest life. Could be used to show an appreciation for trees in preparing for Arbor Day.

Includes 13-page Teacher's Guide.

Key Descriptors: Amenity/ Cultural Values, Arbor Day, Appreciation/ Benefits/ Importance, Life Cycle
Conceptual Categories: 38, 47

Resource Provider: Educational Images Ltd., P.O. Box 3456, Westside Station, Elmira, NY 14905 USA Ph. 607-732-1090, 800-527-4264
WHAT IS A TREE? (QU’EST-CE QU’UN ARBRE?)

Type of Material: Poster
Intended for: K-Adult

Date: 1975
Language: English, French
Free: Yes

Description: An 8-1/2 x 11 inch poster, stylized tree form made up by a list of the various products and uses for trees.

Key Descriptors: Global Forestry, Products/ Human Use/ Industry

Resource Provider: Manitoba Department of Natural Resources - Forestry Branch, Communications Coordinator, 300-530 Kenaston Blvd., Winnipeg, Manitoba, R3N 1Z4 Canada Ph. 204-945-8238
Address to use to obtain material: Canadian Forestry Assoc., 185 Somerset St. W., Ottawa, Ontario K2P 0J2.

WHAT IS A TREE?: 4-1867

Type of Material: Film (color, sound)
Intended for: K-3

Date: 1968
Copyright: Yes Language: English
Loan: Available to Sacramento and Yolo County School Districts which contract for the film/video service.
Length: 7 minutes

Description: A verbal and visual poem. Peter, a young boy who lives in Connecticut, observes the various trees of his neighborhood in winter, spring, summer, and autumn, and learns that they are an endless source of products useful to people. Shows the beauty of trees through the four seasons.

Key Descriptors: Appreciation/ Benefits/ Importance, Climate, Products/ Human Use/ Industry, Urban Forestry/ Trees
Conceptual Categories: 9, 46, 47

Resource Provider: County Office of Education, Sacramento, Dr. Mary Reed, Media Director, 9738 Lincoln Village Drive, Sacramento, CA 95827 USA Ph. 916-366-4460
YOUR FABULOUS FRIEND/ED.

Type of Material: Pamphlet
Intended for: 4-Adult

Language: English
Free: Yes

Description: Useful for Arbor Day.

Key Descriptors: Appreciation/ Benefits/ Importance, Arbor Day

Resource Provider: Cooperative Extension, Mississippi State University, Extension Forestry, P.O. Box 5446, Mississippi State, MS 39762 USA Ph. 601-325-3150

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YOUR ENVIRONMENT - YOUR LIFE

Type of Material: Booklet
Intended for: 6-Adult

Language: English

Description: Explains the importance of caring for the environment in which we all live for the basic needs of air, water, food and shelter. Included is a 2-panel drawing of a tree asking 'What is in a tree?' and 'You can do something!'

Key Descriptors: Ethics/ Social Values/ Sociology, General, Global Forestry

Resource Provider: Volunteer Resources, Steve Hobbs, Director, 5L Hemlock Cres S.W., Calgary, Alberta T3C 2Z2 Canada
Address to use to obtain material: Uganda Red Cross Society, P.O. Box 494, Kampala, Uganda, East Africa, Tel. 258701/2.

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