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MINNESOTA EXTENSION SERVICE



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1989

UNIVERSITY OF MINNESOTA
4-H YOUTH DEVELOPMENT

Forest Resources Project Beginning Level

UNIVERSITY OF MINNESOTA
DOCUMENTS
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Member Record and Activity Book

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CREDITS

Consulting Educator..... Mel Baughman, Extension Forester
4-H Reviewer.....Larry Karels, 4-H Youth Educator
Product Manager/Editor.....Evelyn Anderson
Designer/Artist.....Jan Nord

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INTRODUCTION

Hi! Welcome to the Minnesota 4-H Forest Resources Project. This exciting natural resources opportunity is designed to let you explore the world of our beautiful forests. By reading, touching, feeling, smelling and actually doing, you will learn about our forests and what comes from them.

The Forest Resource project can be led by an adult or junior leader, or you can use it on your own. You may advance through the units at your own interest level and your own pace. The important thing is that you learn about trees, about nature and how all things tie together in our very fragile environment.

You will learn and experience many opportunities in this project. It is our hope that you will advance from interest to positive action and interaction with our delicate forest environment. The future of our forest's eco-system lies in your hands.

This project is divided into three levels Beginner (ages 9-11): Intermediate (ages 11-15) and advanced (ages 15-19). Each of these levels includes units that offer opportunity and challenge. Go through them at your own pace, learning individually or with your assigned group. We wish you the best of luck in the Forest Resources Project and challenge you to the action necessary to make a difference.

Beginning Level Units (workbook format)

Adopt A Tree
Products From the Forest

Intermediate Level Units (manual, record format)

Forestry and You
(An Introduction)

Name Calling
(Tree Identification)

Finding Your Way
(Orienteering and Mapping)

Measuring the Forest
(Forest Inventory)

What's Going On in There?
(Tree Growth)

Fire, Bugs and Disease

Advanced Level Units (manual, record format)

The Changing Forest (Ecology)

Managing the Forest
(Silviculture--Harvesting--Marketing)

So That's What You Can Make
With This Stuff (Forest Products)

Multiple Uses
(Varied Forest Uses)

Self-Determined Projects

GOALS

Develop an understanding of the many uses and economic importance of our forests.

Develop an understanding of forest resource conservation and management principles.

Appreciate non-consumptive uses of forests.

Develop an awareness of the importance of trees in urban environments.

Develop an awareness of forest resources/natural resources management as a possible career.

Develop an awareness of the environment in which we live.



**Minnesota 4-H Youth Development
Forest Resources Project**

ADOPT-A-TREE

BEGINNING LEVEL (AGES 9-11 YEARS)



Department of Forest Resources and
Minnesota 4-H Youth Development
Minnesota Extension Service
University of Minnesota
St Paul, Minnesota

Get Ready...

Trees are a very special part of our environment. They do a lot of good things for people and other living creatures. This project will help you get to know trees in a special way.

In the Beginning Level Adopt-A-Tree project*, you will pick one tree you would like to get to know. By visiting your tree often, you will get to know it very well. Like a good friend, you will help it when it is in trouble. You can even share secrets with it -- a tree is a good listener and never tells!

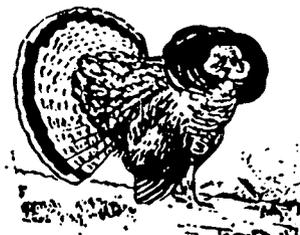


Get Set...

To do this project, you will need to:

- Find a tree to adopt
- Fill out the adoption form
- Complete at least four seasons of records in your Adopt-A-Tree activity book

In this activity book, you will write about the special things that happen in the life of your special tree.



Go!

Find a tree you would like to adopt. It may be any kind of tree, little or big, young or old. Be sure to pick a tree that you can get to easily, because you'll want to visit it often. To adopt your tree, fill in the blanks on the Application for Adoption and give it to your leader for approval.

*The Adopt-A-Tree concept was first proposed by The American Forest Institute as part of "Project Learning Tree."

APPLICATION FOR ADOPTION

Name of person applying (adopter) _____
Name of tree (adoptee) _____ Scientific Name _____ (look this up)
Date of adoption _____ Age of tree at time of adoption _____ (estimate)
date-month-year

Description: check proper boxes below

LEAVES

- broadleaf or
- needle-like

- evergreen or
- deciduous

- simple or
- compound; number of leaflets

BARK

- smooth
- ridged
- platey
- peely (exfoliating)
- knobby

- other

BRANCH PATTERN

- alternate
- opposite

BUDS

- terminal (at very end of
of twig)
- not terminal (pseudo-
terminal)

Diameter of trunk at 4-1/2 feet above ground (Measure around the trunk with a tape measure and divide by 3.14, or use a diameter tape.) This measurement is known as the Diameter at Breast Height, or DBH. _____

Place of birth (location) _____
Country of origin _____

Is adoptee a parent to the best of your knowledge? (has it seeded?) _____
If so, what evidence do you have to support this claim? _____

Person to contact in case of emergency (owner, arborist, or local forester) _____

Name _____

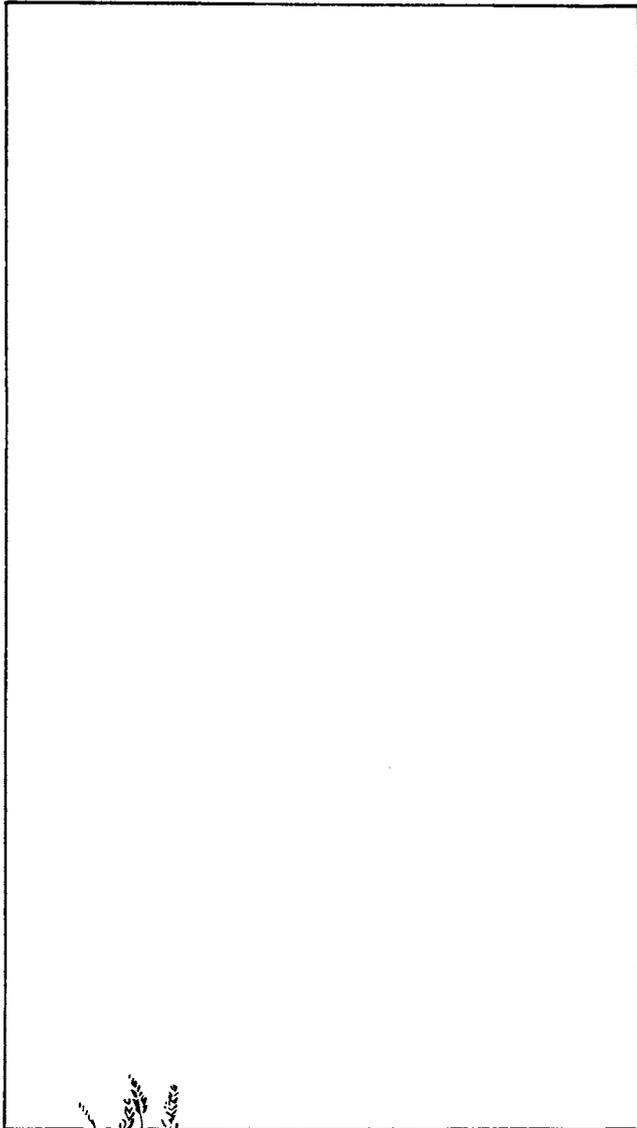
Address _____

Phone # _____

Cut along dotted line and frame your certificate!

Draw a picture or take a photograph of your tree to put in this album. Try to include some of the other plants and animals you find around your tree. Also, draw a picture of what your tree looked like when it was a seed.

MY TREE PHOTO



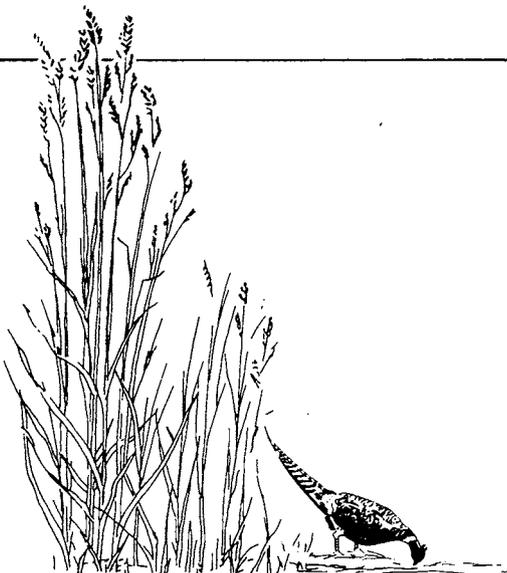
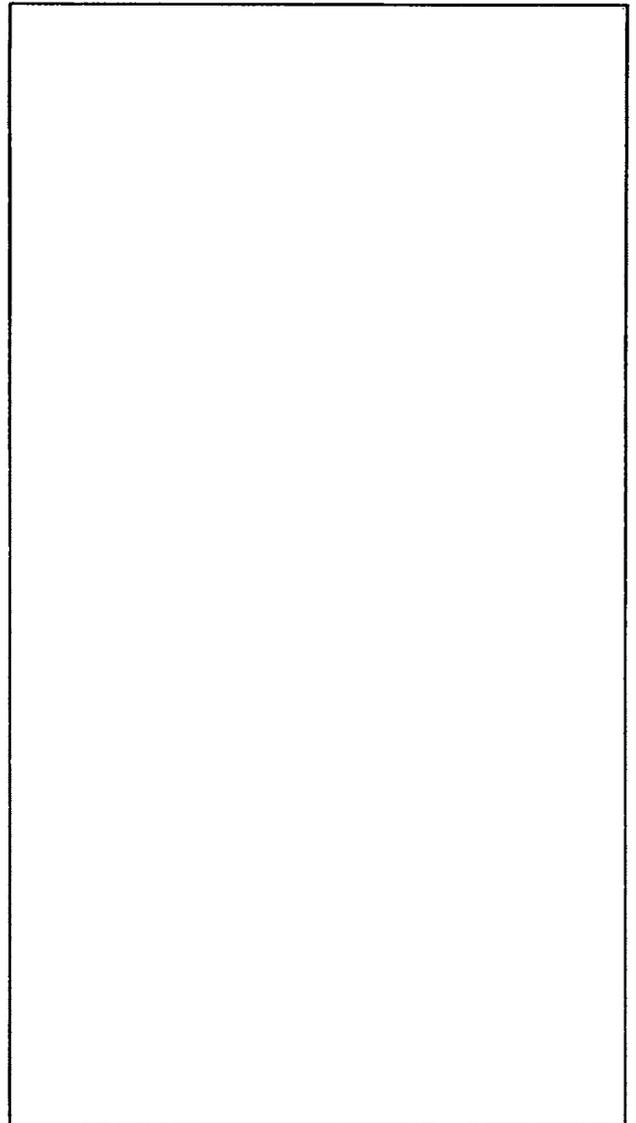
I Decided to Adopt This Tree Because:

My Tree On My First Visit:

Date _____

Weather _____

MY TREE WHEN IT WAS A SEED

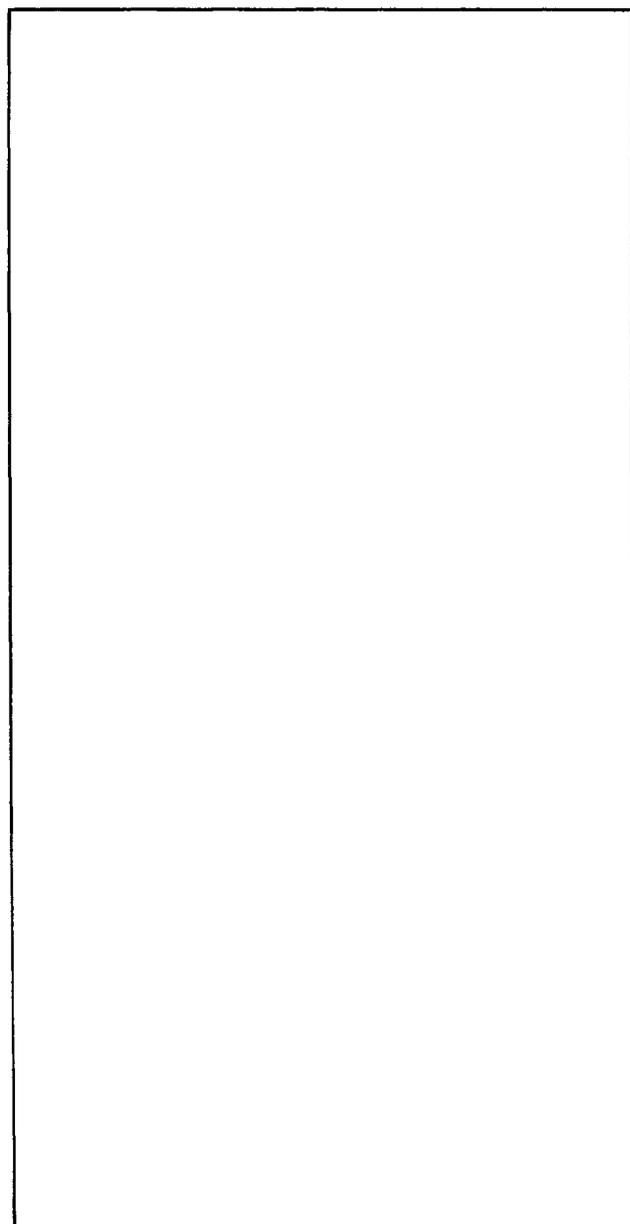


Is your tree evergreen or deciduous? If it is evergreen, it will keep its green leaves (needles) through the winter. (Tamarack will lose its leaves/needles in the fall, but it is related to evergreens.) If it is deciduous, the leaves will lose their green color in autumn and fall off the tree before next year's leaves begin to grow.



Here are two ways to make a print of one of your tree's leaves:

1. Place a leaf bottom-side-up on an ink stamp pad. Cover the leaf with a piece of paper and press down to cover it with ink. Remove the paper and put the leaf on the rectangle below, labeled "First Leaf Print." Put a clean sheet of paper on the leaf and press down. Remove the leaf carefully and throw it away. The ink print will be left on the page. Attach to this box.
2. Lay the leaf bottom-side-up on a hard surface, such as a tabletop. Cover it with a thin sheet of paper (typing paper will work). Rub gently over the paper with a crayon or soft pencil. Where there are ridges in the leaf, the color will be darker. Cut the print to fit in the rectangle below labeled "First Leaf Print." Tape or glue it neatly in place.



FIRST LEAF PRINT

Date _____

The leaves are _____ inches long

The leaves are _____ inches wide

Make a bark rubbing of your tree by holding a sheet of thin paper against the bark and gently rubbing the side of a crayon over the paper. If your tree has very rough bark, you will need to be careful not to tear the paper. Cut out your bark rubbing and mount it below.

BARK RUBBING

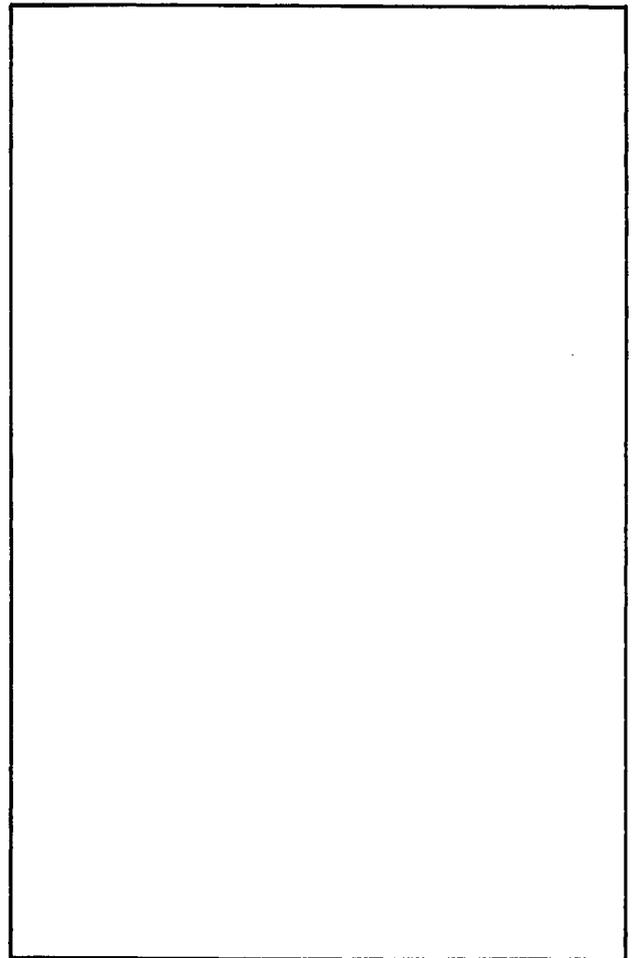


The bark looks like:

The bark feels like:

TWIGS

Draw a picture of one of the twigs on your tree:



Is there a bud or leaf at the end (terminal) of each twig? _____ Or is it off to the side (pseudo-terminal)? _____(yes/no)



Kinds of trees

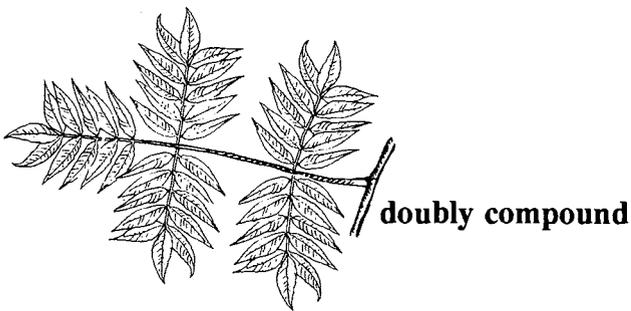
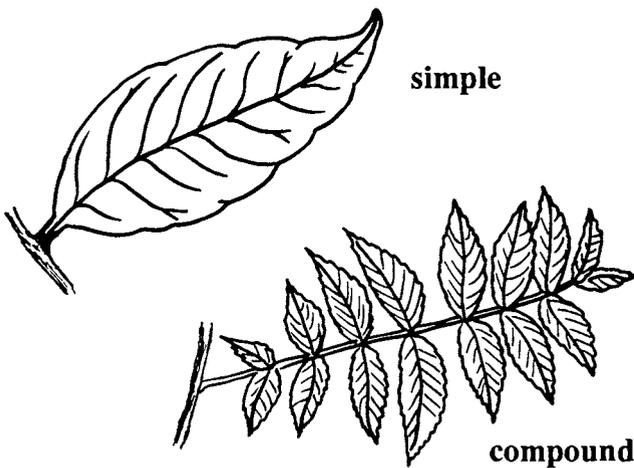
There are two basic kinds of trees, **deciduous** and **coniferous**.

DECIDUOUS TREES

Deciduous trees usually have broad leaves. They drop their leaves each fall and grow new ones each spring.

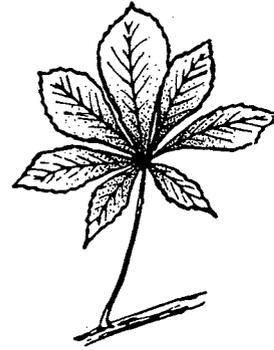
Forms of deciduous leaves

The form of the leaves may be **simple**, **compound**, or **doubly compound**.



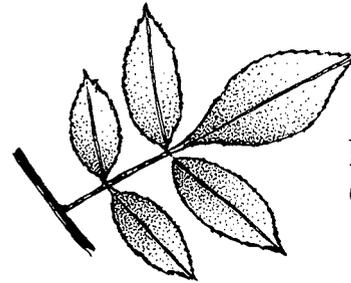
To find out whether a leaf is simple or compound, look for the bud at the base of the stem, where the leaf is attached to the twig. If a single leaf comes from that bud, it is a **simple** leaf. If several leaves come from the bud, it is a **compound** leaf.

If a compound leaf has leaflets attached to the tips of its leaf stem, it is **palmately compound**.



**PALMATELY
COMPOUND**

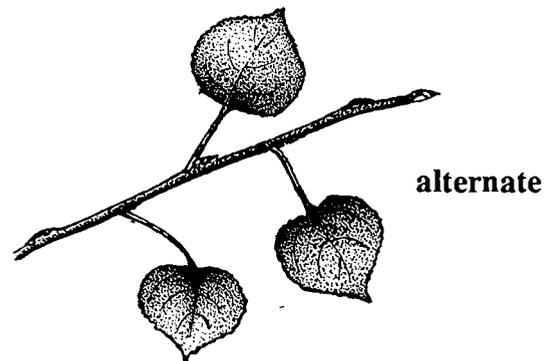
If a compound leaf has leaflets attached in rows along the leaf stem, it is **pinnately compound**.



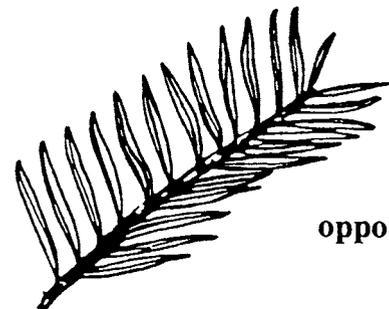
**PINNATELY
COMPOUND**

Types of leaf attachments

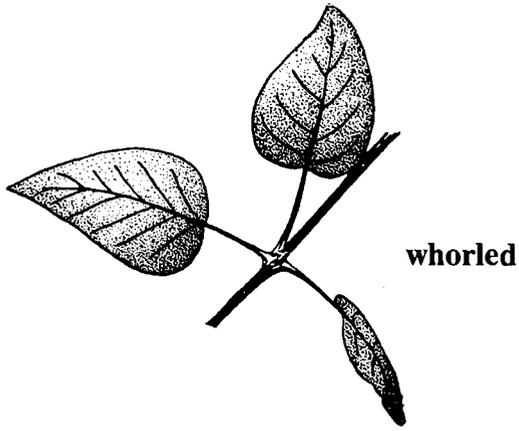
Leaves may be attached to the twig in any of three patterns: **alternate**, **opposite**, or **whorled**.



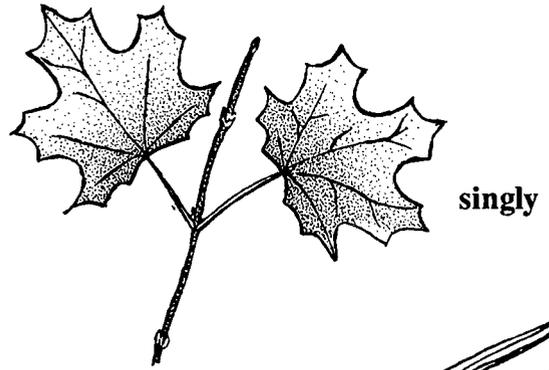
alternate



opposite



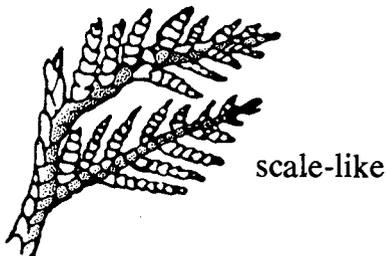
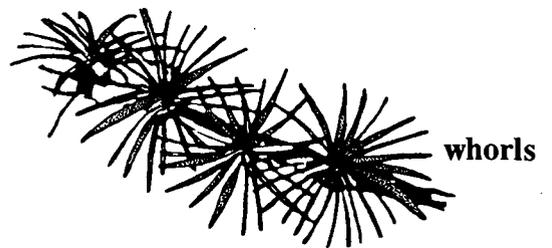
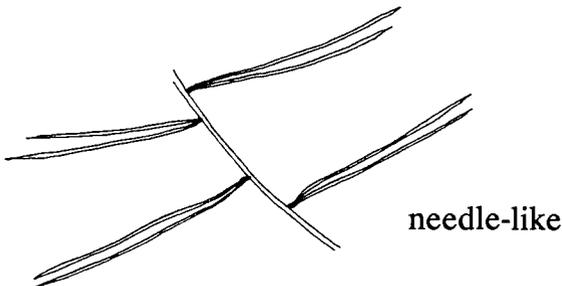
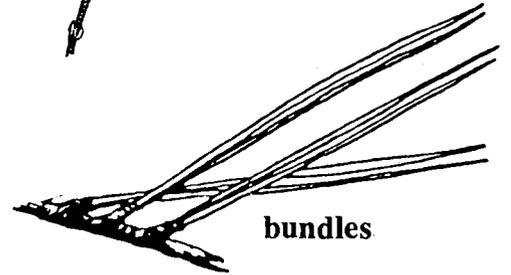
The leaves may be attached to the twig singly, in bundles, or in whorls.



CONIFEROUS TREES

Coniferous trees usually have narrow leaves (needles) that stay green and remain on the tree year-round. A few species, such as larch (tamarack), drop their leaves in the fall.

Their leaves may be shaped like needles or may be scale-like:



Look carefully at your special tree. Does it have broad leaves or needles? _____
Is it a coniferous or a deciduous tree? _____

If your tree is deciduous, are the leaves simple or compound?

How are they arranged on the twig (opposite/alternate/compound)?

If your tree is coniferous, does it have needles or scale-like leaves?

_____ Are the leaves attached singly, in bundles, or in whorls? _____

Assignment: What trees do for me?

Make a list of all the things you can think of that trees do for you. Think about things made from wood, things that grow on or live in trees, and ways trees make life more fun or comfortable for you.

If your tree has strong limbs, you may want to climb it to see what the world looks like

from its point of view. Draw a picture as if you were looking down from a branch or looking up into the tree from the ground. If your tree is small, don't try to climb it. A broken tree limb heals much more slowly than a broken arm and can allow infections to weaken or even kill your tree.

WHAT TREES DO FOR ME
(write your assignment here)



White Pine

Assignment: What I can do for my tree?

Find out from parents, foresters, or tree owners, what trees need for strong and healthy growth. If your tree is growing in soil without many nutrients or in soil that is very dry, you might need to give it fertilizer and water. Trees like slow, deep watering, so you may want to let a hose trickle at the bottom of the tree for several hours.

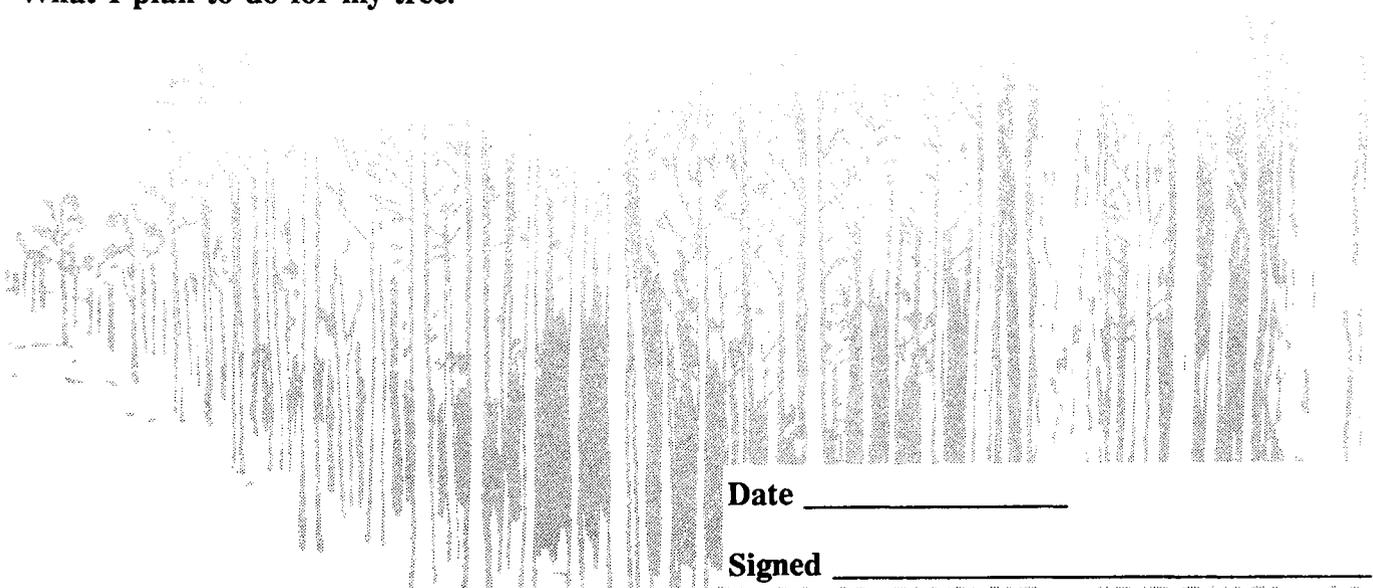
Watering during dry spells and fertilizing in late fall or early spring will keep your tree strong and help it resist diseases and insect attacks.

Does your tree need first aid for broken branches, injured bark, or illness? Talk to its owner and help arrange for first aid. Keep a record of treatments and watch the injuries heal.

WHAT I CAN DO FOR MY TREE?

(write your assignment here)

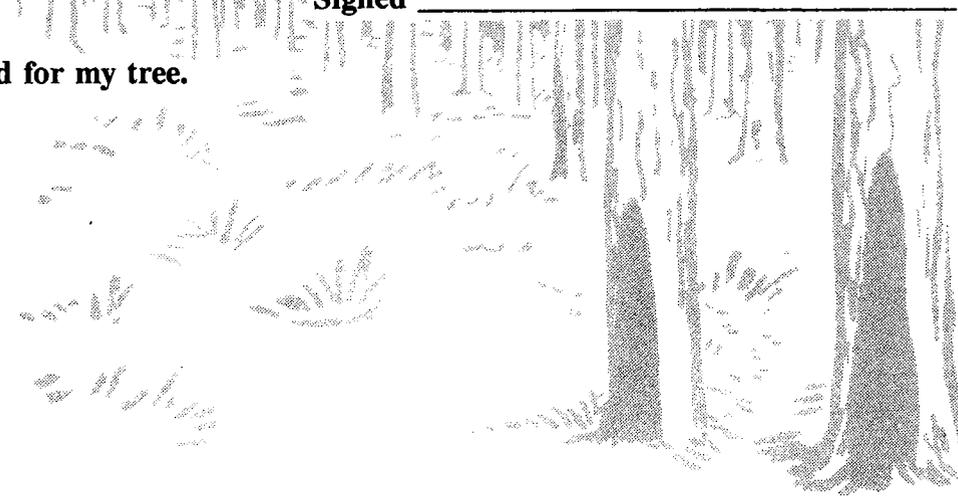
What I plan to do for my tree.



Date _____

Signed _____

Report: What I actually did for my tree.



Date _____

Signed _____

Visit your tree at least once a week year-round.
Draw a picture or take a photograph in each
season and record in the space below the
changes you see.

FALL

WINTER

The changes I see are....

The changes I see are....

SPRING

SUMMER

The changes I see are....

The changes I see are....

At least once each season, spend an hour or more visiting your tree. Notice what other animals visit your tree, what other plants grow in the area, etc. Write them in this section.

FALL VISITS

Date of first color change _____

Date of last green leaf _____

Date the first leaf fell _____

Date the last leaf fell _____



TWIG WITH NEXT YEAR'S BUDS
(after leaves have fallen)

What birds and other animals have you seen on or near your tree?

Date _____ Description _____

Other plants noticed near or around your tree:

1. _____

2. _____

3. _____

4. _____

5. _____

Paste, tape, or glue a sample of a twig from your tree with next year's buds attached.

Date the sample was taken _____

WINTER VISITS

Date of first freeze _____

What kind of animal tracks have you seen around your tree?

What birds/animals have you seen on or around your tree this winter?

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

What animal homes are now visible in your tree?

Are seeds of your tree still visible and being eaten by wildlife in the winter? _____

What birds/animals, if any, have you seen eating or storing seeds from your tree?

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

Other plants noticed:



1. _____

2. _____

3. _____

4. _____

5. _____

SEEDS OR NUTS

Tape, paste, or glue one or more seed samples here.

Date the samples were taken _____

SPRING VISITS

Date of first bud opening _____
Date your tree is in full flower _____
Date of first robin seen in or near your tree _____
Date of first nest building activity _____
Date your tree has leaves on every branch _____
Date of first picnic or book read under tree _____
Length of a leaf when first seen _____ date _____
Length of the same leaf on next visit _____ date _____
Length of the leaf in last week of school _____ date _____
Length of a bud on first day of spring _____ date _____
Length of the twig one week later _____ date _____
Length of the twig in last week of school _____ date _____
Date leaves are all dark green _____

BUDS BEGINNING TO OPEN

Tape, paste, or glue a twig from your tree with its bud beginning to open.

Date sample was taken _____

Birds/Animals seen on or under your tree:

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

What insects have you seen on your tree?

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

Other plants noticed:

1. _____

2. _____

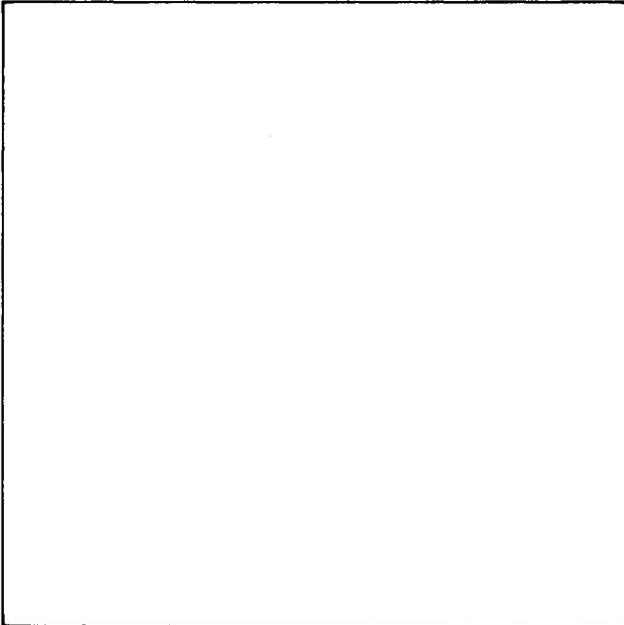
3. _____

4. _____

5. _____

FLOWERS ON TWIG

Tape, paste, or glue a sample of flowers on a twig from your tree.



Date sample was taken _____

SUMMER VISITS

Temperature in shade of your tree _____

Date _____

Temperature in the sun _____

Date _____

What did you do during your first long visit to your tree after school was out?

What animals visited your tree during your visit?

Does your tree show signs of being "thirsty?"

What signs does it show?

What did you do about it?

Look closely at several leaves. What signs of insects, if any, do you see?

Find out what insects are eating your tree and list them:

Date _____ Description _____

Date _____ Description _____

Date _____ Description _____

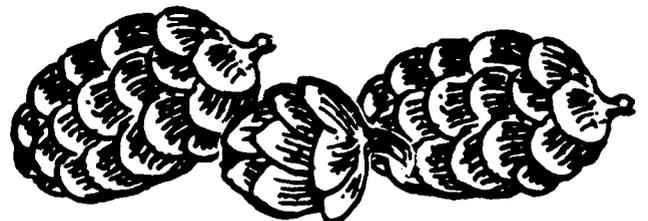
FRUITS OR SEEDS IN SUMMER

Tape, paste, or glue a sample of fruits or seeds from your tree.

Date sample was taken _____

What sounds do you hear when you lie under your tree?

Is it more comfortable to read a book in the shade or sunlight? Why?



Beginning Level Fair Projects

1. You can use the Adopt-A-Tree album, entirely completed, as a fair/achievement day project at the county level.
2. Collect six leaves (or needles) with twigs and identify with their common name. Leaves (with twigs) should be mounted on stiff backing. The display should include a title and your name.
3. Check your County Fair Premium list or talk with your leader for many more ideas for exhibiting.



Your name _____

Your Club _____

Date You Began Album _____

Years in 4-H _____ Your Age _____

Years in the Forest Resources Project _____



4-H CLUB PLEDGE

I pledge

my head to clearer thinking,
my heart to greater loyalty,
my hands to larger service,
my health to better living for

my family,
my club,
my community
my country and
my world.



Prepared by Nancy A. Pywell, Natural Resources Education Specialist, University of Florida

Adapted to Minnesota by Robert S. Hansen, Assistant Extension Specialist, University of Minnesota

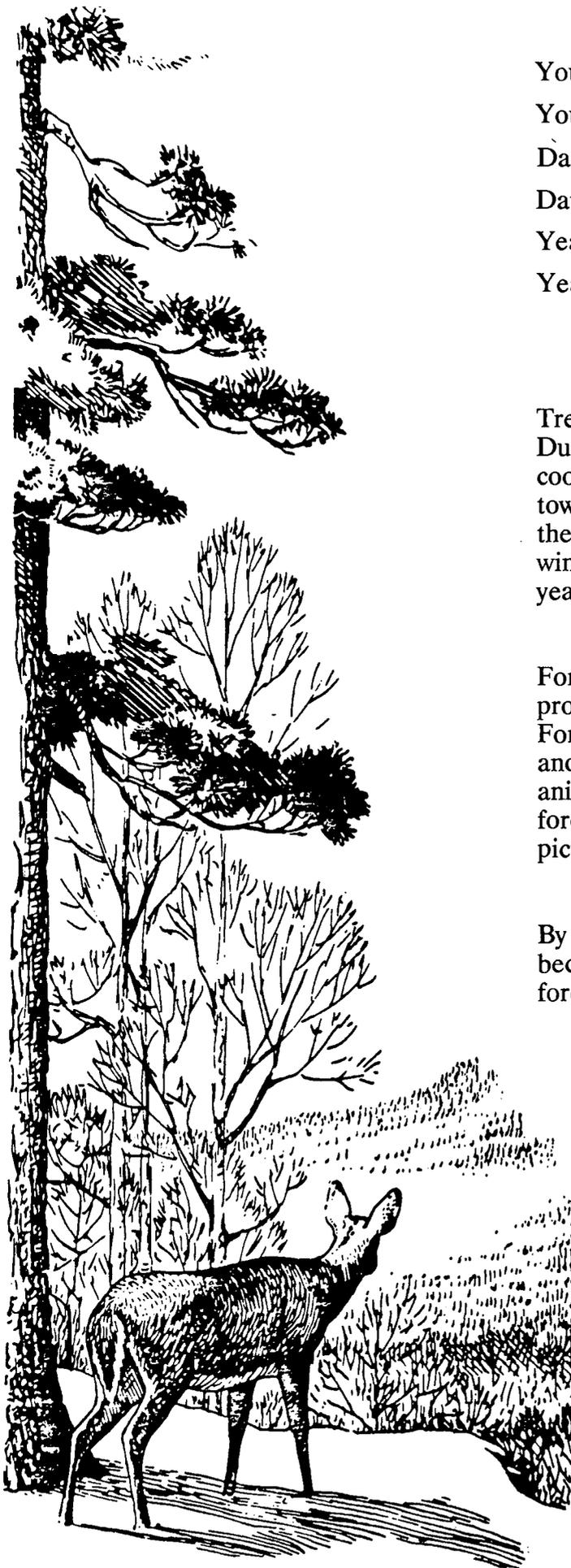
Minnesota 4-H Youth Development
Forest Resources Project

PRODUCTS FROM THE FOREST

BEGINNING LEVEL (AGES 9-11 YEARS)



Department of Forest Resources and
Minnesota 4-H Youth Development
Minnesota Extension Service
University of Minnesota
St Paul, Minnesota



Your Name _____

Your Club _____

Date You Began Activity Book _____

Date You Completed Activity Book _____

Years In 4-H _____ Your Age _____

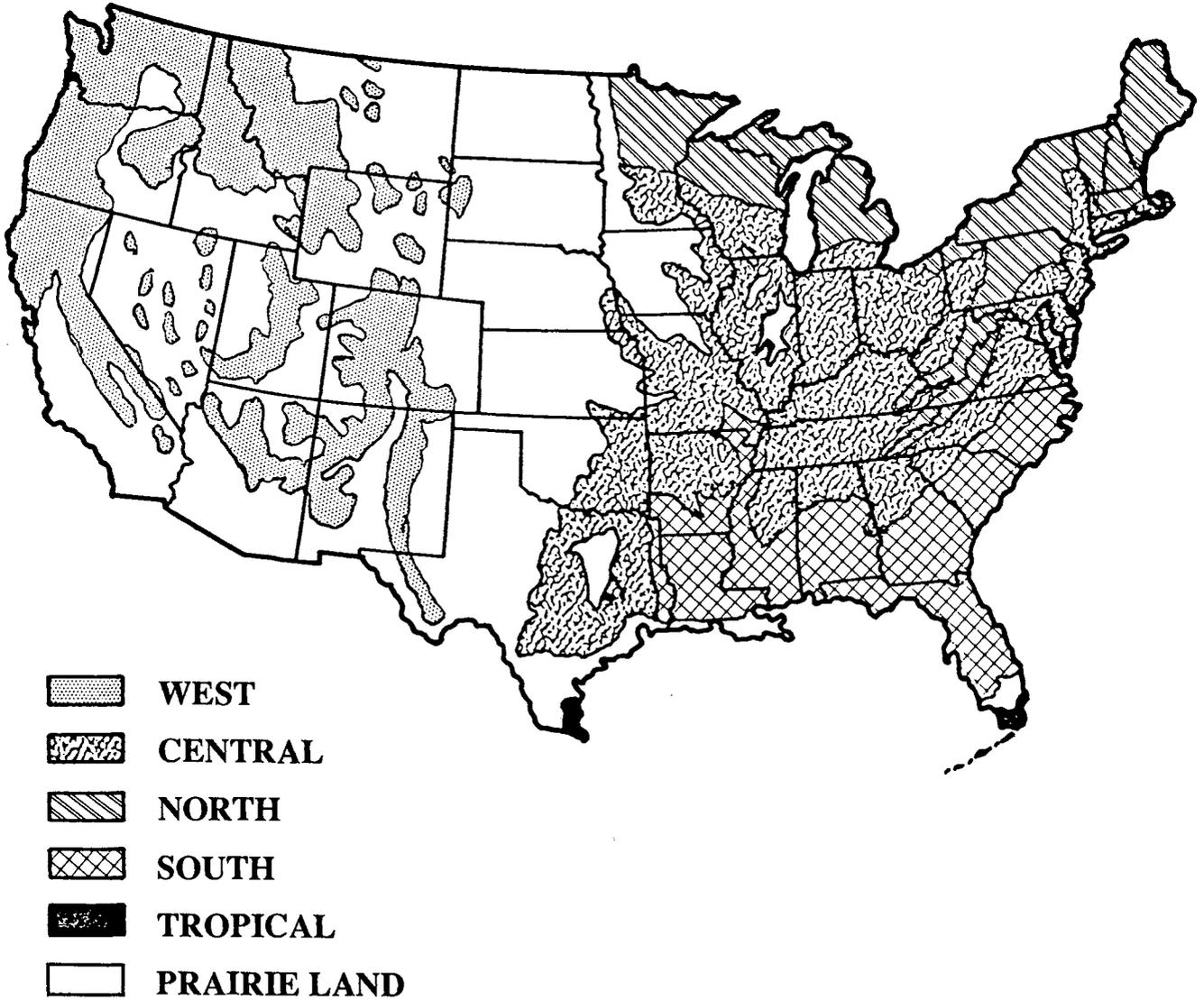
Years in the Forest Resources Project _____

Trees and forests serve many purposes. During the hot summer, trees supply us with cool shade. They help make our cities, towns, and yards prettier places to live. In the winter, they help decrease cold and wind. They protect soil from erosion all year long.

Forests provide us with many useful products, some of which we use every day. Forests are often the source for clean water and are homes for many different kinds of animals. We can also enjoy activities in the forest such as fishing, camping, hiking, and picnicking.

By completing this activity book, you will become more familiar with the many uses of forests.

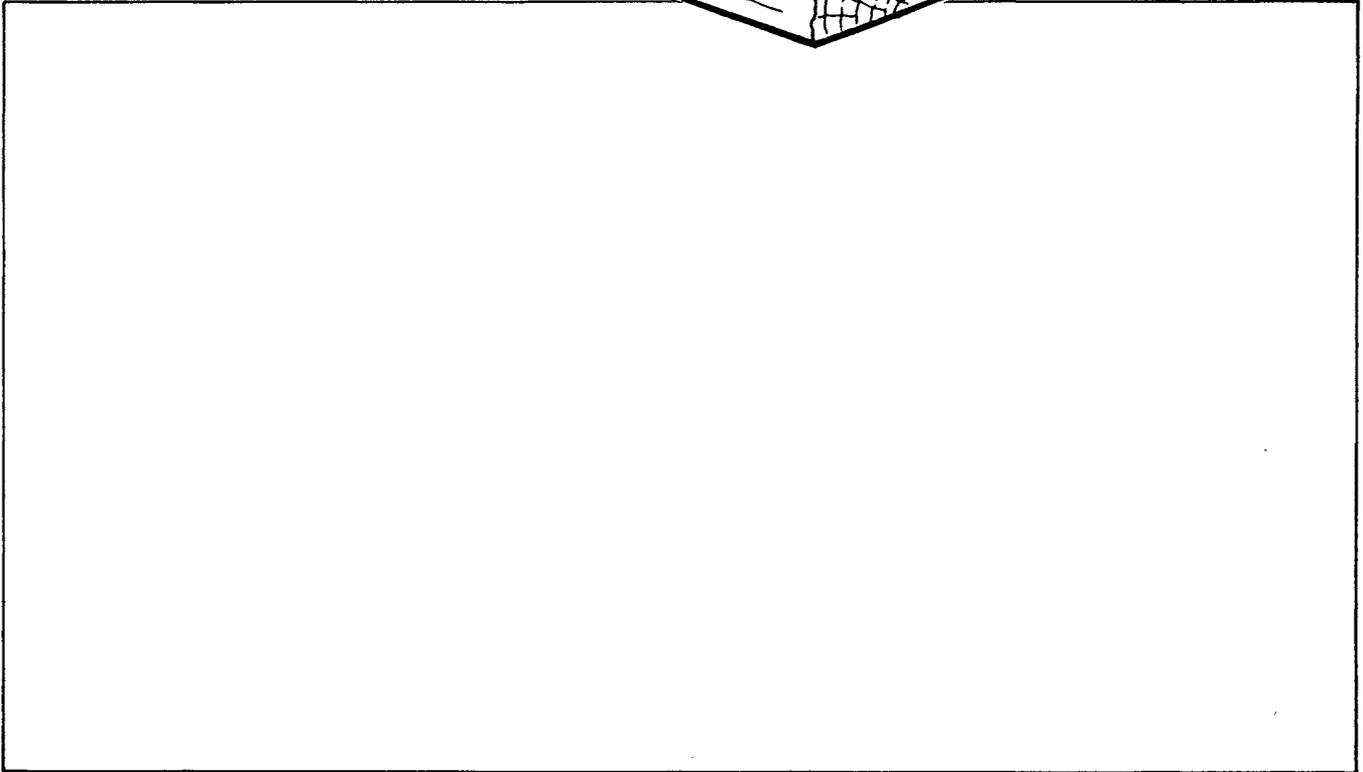
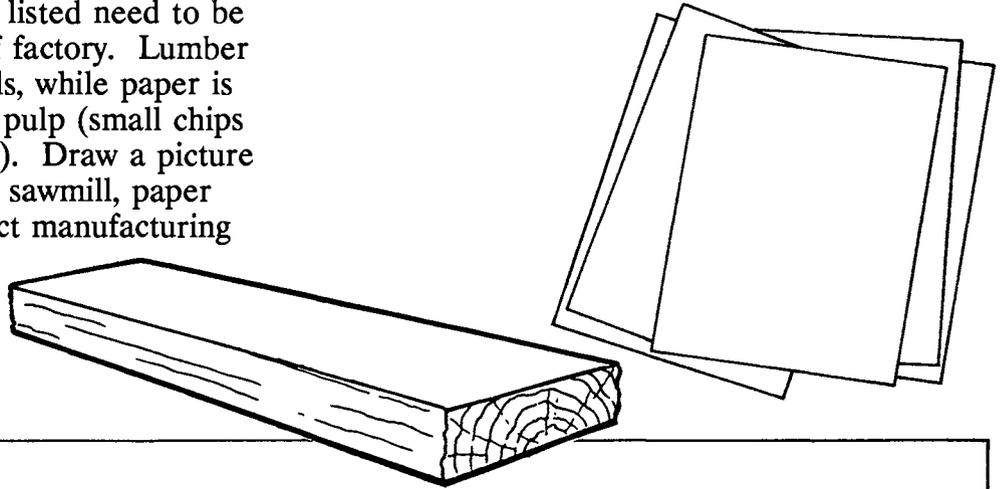
WHERE ARE OUR FORESTS?



Find Minnesota on the map above. Draw a small "x" on the map where you live. What "forest" do you live in or near?

If you have a friend or relative who lives outside of Minnesota, draw a small circle where they live. Do they live in a forest area? ___ If so, which one? ___

Many of the products you listed need to be processed in some kind of factory. Lumber is cut from logs in sawmills, while paper is made in paper mills from pulp (small chips of wood mixed with water). Draw a picture or take a photograph of a sawmill, paper mill or other forest product manufacturing plant you have seen:



Describe your picture:

Other products such as Christmas trees or fuel wood need no processing. Christmas trees are often raised on farms where the grower works hard in shaping and caring for trees before they are harvested and sold.

Have you ever been to a Christmas tree farm? _____

Where was it? _____

What kind of tree did it have? _____

USES

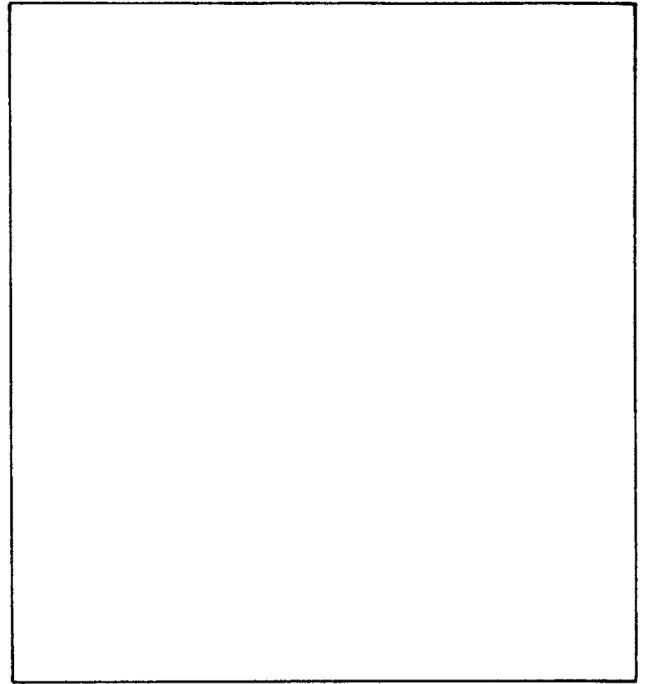
In addition to wood products, the forest has many other uses. A healthy forest supplies food, water, space and shelter for many types of wildlife. Many of our rivers and streams originate in forest areas.

Forests are popular recreation areas for camping, hunting, fishing, hiking, canoeing, and other activities. Valuable minerals are often found beneath the earth in forests.

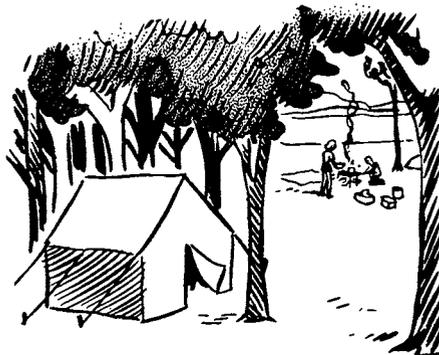
Draw two pictures or take two photographs of something you saw or did while using the forest:



Picture of _____



Picture of _____



PROTECTING OUR FORESTS

Many things can damage our forests by killing trees or slowing their growth. Unscramble these letters to see what can damage forests:

efir _____

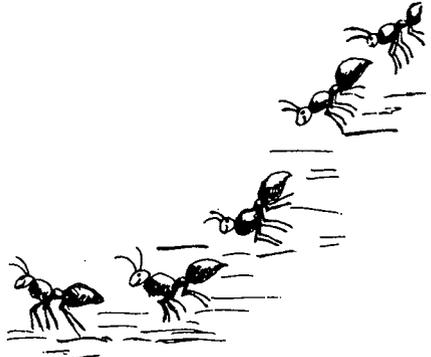
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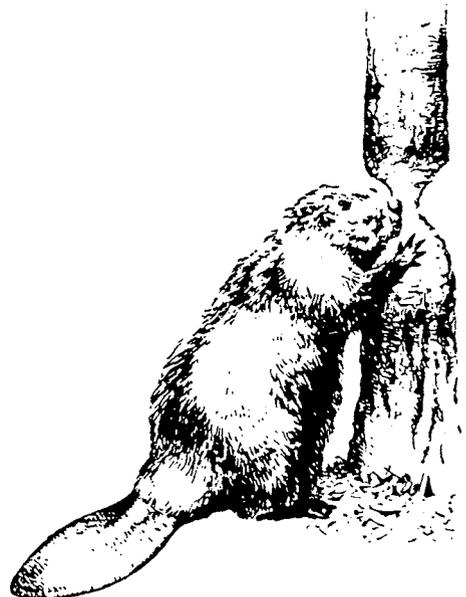
raetw ultiopnl _____

trouhgd _____

	
Problem: _____	How You Helped _____

Draw a picture or take a photograph of yourself doing something to protect our forests from one of the above problems:

What are you doing in the picture:



Draw a picture or take a photograph of your favorite place to be in a healthy forest you know:

Photo/Drawing	How can you tell this forest is healthy and happy? _____ _____ _____ _____ _____ _____ _____ _____ _____
---------------	---

Beginning Level Fair Projects

1. Use this "Products From the Forest Activity Book," entirely completed, as a fair/achievement day project at the county fair.
2. Display photographs of six products or uses from the forest. This display can include pictures of lumber, paper products, Christmas trees, maple syrup, etc, as well as water, wildlife, mining, windbreaks, or recreational activities.
3. Check your county fair premium list or talk to your leader for many more ideas on exhibiting.



Prepared by:

Robert S. Hansen
Assistant Extension Specialist
University of Minnesota

UNIVERSITY OF MINNESOTA



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