REVISION of 4-H CLUB
FORESTRY DIVISIONS
I and II
in
OREGON
by
Lyle H. Seymour

A Thesis
Presented to the Faculty
of the
School of Forestry

In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science
March 1948

Approved:
Professor of Forestry
PREFACE

I feel that the Oregon 4-H Club Forestry Programs for Divisions I and II should be revised to more fully fill the requirements of the present 4-H club members. It is my belief that the present programs are now obsolete. The terms and information that the 4-H club members are now required to understand are too technical for boys of ten to twelve years of age. The required projects in the present programs are neither comprehensive enough to teach the boys all they should know, nor are they interesting enough to hold the boys' attention. The present programs were developed many years ago, and since that time new methods of instructing and presenting educational material to children have been developed. In this report, in partial fulfillment of the degree for Bachelor of Science, I am endeavoring to make a revision of the 4-H club programs for Divisions I and II.

The history of 4-H club work does more than tell us how 4-H clubs have developed; it indicates the value of 4-H club work which endeavors to teach our children to be self-sufficient, well integrated adults.

A definite time for the beginning of 4-H club work has never been established. 4-H club work probably began in 1899 when William B. Otwell of Macoupin County, Illinois, gave each of the boys in his school packages of corn to plant. Although the corn grown was exhibited the following fall, no records of the time spent or the personal achievements of each boy was kept. This work was not recognized as club work.
In 1902 A. B. Graham of Springfield Township, Ohio, with the cooperation of the experiment station at Wooster, Ohio, sent out two varieties of corn to the boys in his community. Each boy was required to plant a quarter-acre of land. He also enrolled several boys and girls in garden work and followed along these lines in 1903 and 1904. In 1904 he took 100 boys and girls and their parents to the Ohio State University to spend a day on the campus. This was probably the beginning of such tours which are now so common.

In 1904 a school superintendent in Wright County, Iowa, Mr. O. H. Benson, originated the idea of the emblem, the 4-leaf clover with the 4-H upon it. Mr. Benson followed up the idea of the emblem by holding exhibits and county fairs in different communities.

In Oregon, in 1905 and 1906, three county school superintendents, L. R. Alderman of Yamhill County, C. L. Starr of Polk County, and George Denman of Benton County, became interested in similar work with the boys and girls of their schools and held juvenile fairs in their counties. This was the beginning of 4-H club work in Oregon.

In 1914 Congress passed the Smith-Lever Act and club work became an organized part of the land-grant colleges of all states.

At the present time club work is being conducted in every state in the union. In Oregon the work is being conducted in every county.
The valuation of all club work conducted by club members in the state of Oregon for the year 1944 was $547,578.50 at a total cost of $331,616.68, making for these club members a profit of $215,961.82.

I wish to thank Charles Ross, Extension Forester, Oregon State College, for his active cooperation; H. C. Seymour, former State 4-H Club Leader, for the information regarding the historical background of 4-H work; and the following men for their suggestions and comments:

Cal Munroe--Assistant State 4-H Club Leader, Oregon State College

Noel Sommer--Assistant County Agent, Gresham, Oregon

Turner Bond--County Agent, Lincoln County, Oregon

Gael Cox--Assistant County Agent, Washington County, Oregon

J. K. Beeson--Assistant County Agent, Coos County, Oregon

Clifford Jenkins--Assistant County Agent, Josephine County, Oregon

I am also indebted to The Book for Junior Woodsmen by Bernard S. Manson for the instructional material on "The Care and Use of an Ax."
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REVISION OF 4-H CLUB FORESTRY
DIVISIONS I and II in OREGON

INTRODUCTION

This report covers the revision, as proposed by the author, of 4-H Club Forestry Divisions I and II in Oregon. The revision simplifies technical terms and information required by the 4-H member. It offers additional information and more interesting projects which are now lacking. The educational material in the revised programs is presented in a manner now thought by educators to be more effective than the impersonal approach used in the present programs. The revision covers all phases of 4-H club work in these divisions. The phases of the report are as follows:

1. Record Books
2. Required projects
3. Optional problems.

The report tells what revisions were made in the present club programs and the reasons for these changes. A copy of the present program and of the proposed program can be located in the Appendix of this report.

The material for this revision was gathered by interviewing numerous personnel employed in 4-H work and then consolidating their comments. The instructional material for the optional problems is an integration of the author's knowledge and material from numerous government and extension service pamphlets.
SUMMARY

Record Books

Division I. The tree identification characteristics in the Division I record books were simplified. Technical terms were omitted and simple terms substituted. The instructions in the record book were changed so as to have more appeal for the individual boy. The instructions were made less technical, more personal, and more interesting. Some of the current required projects were either omitted or made more interesting. New projects were added to take the place of projects omitted.

Division II. The tree identification characteristics were simplified in the same manner in the Division II record books as in the Division I record books. The current projects were either omitted or changed to give additional or more advanced information.

Optional Problems

A new project was set up to give the 4-H member some choice of subject material in the 4-H program. This project is entitled "Optional Problems." Division I members are required to choose and complete two of the optional problems, and Division II members are required to choose and complete three optional problems. Each problem has a complete set of directions which may be obtained from the county agents' office after the 4-H member has chosen a problem to complete.

RECORD BOOKS

The first phase to be dealt with in the revision of the
4-H club program was the record book. The purpose of the revision was the simplification and elimination of technical terms for identifying trees. It was felt that the terms were too technical for boys of ten to twelve years of age to understand and had to be put on a more personal basis. The language that a boy best understands consists of pronouns used in the first and second person, not those used in the third person.

Following this revision, the same record books will be used for both divisions.

Coniferous trees

The first section in the record book to be revised was the section on coniferous trees. It was revised as follows:

**Scientific name.** The term, "Scientific Name," was eliminated entirely. Adults have trouble pronouncing and remembering the scientific name of a tree; therefore, it seems reasonable that ten-year-old boys could not pronounce or remember the names.

**Number of seeds.** The term, "Number of Seeds," as pertaining to the number of seeds in a cone, was omitted. In its place, a space was left blank for the 4-H member to draw the outline of a cone. It is believed that the number of seeds in a cone is immaterial and irrelevant to the identification of a tree, and that drawing an outline of a cone will make a more lasting impression on the mind of a boy.

**Needles.** Under the identification characteristic "Needles," the only change needed was the addition of three
simple drawings showing three general needle shapes. A drawing or picture seems to be remembered more easily than a description.

**Size of trees.** Under the identification characteristic, "Size of Trees," the current record book has the terms "Height" and "Diameter" listed. These terms were omitted and the phrases, "A full-grown or mature tree?" "A half-grown tree?", and "A sapling?" were substituted. In most cases, these characteristics will have to be pointed out by the 4-H leader, but once they are pointed out it is believed that the 4-H member will be better able to visualize and remember the appearance of a tree in different stages of growth than a couple of figures.

**Bark.** Under the identification characteristic "Bark," the term, "Thickness in inches," was changed to "Thick or Thin." The 4-H member is cautioned not to cut into a live tree; therefore, the member would not be able actually to measure the thickness of the bark. If a 4-H boy can get an idea as to the relative thickness of the bark of one tree as compared to the bark of a tree of another species, then it is believed that the terms will have accomplished their purpose.

**Wood.** The identification characteristic, "Wood," was omitted from this part of the record book. The wood of a live tree cannot be directly observed by a 4-H member; therefore, the questions under this term could not be answered. This characteristic is dealt with later in this report under
the subheading, "Projects."

Remarks, Importance and use. The terms, "Remarks" and "Importance and Use," in the current record book were omitted, and the sentence "To know this tree, what do I look for first?" was substituted. The basis for this change was to make it of a more personal nature. It is believed that this personal sentence will strike a boy's eye quicker than the more formal term, "Remarks".

Deciduous trees

The next section in the record book to be revised was the section on deciduous trees. The same procedure was followed as was used in the preceding section. The changes were as follows:

Scientific name. As in the section under coniferous trees, and for the same reason, the term "Scientific Name" was omitted.

Fruit. The identification characteristic, "Fruit," was not changed. The terms under this characteristic seemed to be adequate and as simple as any other terms that might be substituted.

Leaves. Under the identification characteristic, "Leaves," the tree-leaf drawings, as shown in the current record book, were omitted, and a blank space was left where the 4-H member could draw an outline of a leaf. It is believed that the impression a freehand drawing leaves with a boy will last longer than the simple act of checking a drawing already present.
Remainder of section. The remainder of the section on deciduous trees was revised in exactly the same manner as the section on conifers.

Directions

The next section needing revision was "Directions for Filling Out the Record Book". The only changes indicated were the simplification of a few terms and the elimination of, or addition of, directions as indicated by the changes that were made in the record book.

REQUIRED PROJECTS

It is believed by the author that the existing projects do not provide enough work and are not comprehensive enough to hold the interest of a 4-H member. Therefore, the projects were changed to alleviate this situation. All of the required projects are not alike for both divisions.

Tree planting

The tree planting project was not changed. It was believed that planting trees, while hard work, is educational and interesting enough to be appreciated by the 4-H members. This project is required for Division I members only.

Field trip

The field trip was not changed. It was believed that this project is the most interesting of the projects for the 4-H members and that it could not be improved. This project is required for Division I and II members.

Seed collection and Seed planting

The "Seed Collection" and "Seed Planting" projects were
omitted. It was found by many of the club leaders that it
was impossible, in many cases, to collect the seed at the
right time, to prepare the seed to plant, and to have the 4-H
member prepare and maintain a seed bed.

Study of a fresh-cut stump or log

A new project was added entitled "Study of a Fresh-cut
Stump or Log." This project was made up to take the place of
the identification characteristic, "Wood," in the current re-
cord book. It is believed that it would be much easier and
more educational for the 4-H members, while on their field
trip, to study the top of a stump or the end-cut of a log and
see how the wood, annual rings, and bark actually appear. It
is believed that the impression gained by the 4-H member from
seeing a stump or the end of a log will be more lasting than
a description by the club leader. This project is required
for Division I and II members.

Wildlife study

The project entitled "Wildlife Study" was omitted. It
is believed that the first two years of the 4-H club program
should be devoted to tree appreciation and that a wildlife
study would not integrate itself with this theory.

Number of trees and shrubs to be identified

The project "Number of Trees and Shrubs to be Identified"
was changed. The current 4-H program requires the members to
identify five trees and five shrubs. The number of trees to
be identified was raised from five to fifteen. Ten of the
trees are to be a review of what the 4-H member learned in
Division I and five of the trees are to be species that have not already been studied. The number of shrubs to be identified was increased from five to ten. It seems that, although the identification of more trees and shrubs involves more work, the work will be educational enough to hold the interest of 4-H members. This project is required for Division II members only.

To Read and Understand the Forestry, Fish, and Game Laws of Oregon

A new project entitled "To Read and Understand the Forestry, Fish, and Game Laws of Oregon" was added to the required projects. A group of questions, very simple and of a general nature, was made up to cover the points that a 4-H member should understand. This project should be interesting and educational. It is hoped that the 4-H member will exhibit interest in the laws of Oregon. This project is required for Division II members only.

OPTIONAL PROBLEMS

A new project, entitled "Optional Problems," was added to the programs of both divisions. The objective of this project is to create more interest on the part of the 4-H club member in club work. It is believed that, with a variety of subjects to choose from, the 4-H member will be able to choose and complete problems that will be of more interest than a restricted list of required projects. Division I members will be required to choose and complete two of the optional problems, and Division II members will be required to
choose and complete three of the optional problems in addition to those completed in Division I work.

**Subject material**

The subject material consists of twenty-one optional problems covering a large variety of subjects.

A brief summary of what will be required for the completion of each project is included with each optional problem in the record book.

**Instructional material**

County agents will be provided with complete and detailed instructions for each subject in the optional problems. The member will choose an optional problem. The 4-H club leader will then be able to draw instructional material from the county agent for the particular subject that the 4-H member has chosen. With a complete set of instructions, the 4-H member should have little difficulty finishing the optional problem that is chosen.

**CONCLUSIONS**

**Record books**

It is believed that the 4-H members will have no difficulty in understanding and remembering the terms and information in the revised record book.

**Required projects**

It is felt that the required projects will be personal, interesting, and more educational than the projects in the current record books.

**Optional problems**
The optional problem project will cover a variety of subjects, and it is assumed that the 4-H member will choose the subjects that will be of the most interest to him. With a complete set of instructions for each subject, it is believed that the 4-H member will have little difficulty in completing the problem that is chosen.
Current
Record-Books
BOYS' AND GIRLS' 4-H CLUBS

Cooperative Extension Work in Agriculture and Home Economics
Oregon State Agricultural College, United States Department of Agriculture and
State Department of Education, Cooperating
Printed and distributed in furtherance of the Acts of Congress of
May 8 and June 30, 1914

4-H FORESTRY PROJECT RECORD BOOK

Name ___________________________ Age ___________________________

Town __________________________ RFD or Street ___________________________

County __________________________ School District No. ___________________________

Club No. __________________________ Local Leader ___________________________
DIRECTIONS

1. Write or print your name, address, school district number, club number, leader's name, and county in the place provided on the front cover.

2. Write carefully and keep the record book neat. Use a No. 3 pencil.

3. For each tree you identify, fill in the blanks for one specimen. If you wish to say more about the tree, write it on the lines following the word "Remarks". Fill in the lines following the words "Importance and Uses", by telling anything that the tree is used for. Examples - lumber, shade, boxes, furniture, pencils, toys, and anything else you know or can find out that is important.

4. The three blanks under the part labeled "Conifers", are to be filled out if your tree specimens have cones and needles. One extra blank is provided. The blanks labeled "Broad-leaf Trees" are to be filled out with those specimens.

5. Sheets for broad-leaf trees and shrubs have sections labeled "leaves". In these sections are drawn the outlines of the more common leaf shapes. Mark with an (x) the leaf shape which resembles the leaves on the tree which you have found.

6. Each year you will receive a new book.

7. Mature trees (the larger trees) should be used as specimens.

8. In the section for birds, fill in the blanks which you know are right and leave the others blank. If you have learned something about the bird for which there is not a blank, then write it in the lines following the word "Remarks."

9. GOOD FORESTERS DO NOT CHOP CHUNKS OUT OF LIVING TREES. Get your bark specimens from a down tree in the forest, logging camp, or sawmill.

10. If you can't answer a question, look in your instruction sheets or directions, or ask your leader.

11. If you have snapshots or other pictures of your specimens you may paste them on another sheet of paper and insert the paper in your record book.

12. Your record book will be returned after it has been checked and exhibited. A GOOD FORESTER'S RECORD BOOK SHOULD BE NEAT. It is suggested that each club member make a cardboard cover for his record book.

13. As soon as you finish a part, (tree identification or bird study, etc.), write your story about that part. When your project is finished combine the stories.
**CONIFEROUS TREES**

Specimen No.________________

Common Name________________________________

Scientific Name________________________________

**Distinguishing Characteristics of Mature Trees:**

<table>
<thead>
<tr>
<th>Cone</th>
<th>Needles</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (Inches)</td>
<td>No. in each bundle</td>
<td>Height (Feet)</td>
<td>Thickness</td>
</tr>
<tr>
<td>Diameter (Inches)</td>
<td>Length (Inches)</td>
<td>Diameter of Trunk</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Color</td>
<td></td>
<td>Rough or smooth</td>
</tr>
<tr>
<td>No. of seeds</td>
<td>Points (Sharp, Notched)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wood</th>
<th>Sapwood</th>
<th>Heartwood</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness (In.)</td>
<td>Weight (Heavier than oak)</td>
<td>(Lighter than oak)</td>
<td></td>
</tr>
<tr>
<td>Thickness of annual ring (Inches)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Importance and use

Specimen No.________________

Common Name________________________________

Scientific Name________________________________

**Distinguishing Characteristics of Mature Trees:**

<table>
<thead>
<tr>
<th>Cone</th>
<th>Needles</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (Inches)</td>
<td>No. in each bundle</td>
<td>Height (Feet)</td>
<td>Thickness</td>
</tr>
<tr>
<td>Diameter (Inches)</td>
<td>Length (Inches)</td>
<td>Diameter of Trunk</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of seeds</td>
<td>Points (Sharp, Notched)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wood</th>
<th>Sapwood</th>
<th>Heartwood</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness (In.)</td>
<td>Weight (Heavier than oak)</td>
<td>(Lighter than oak)</td>
<td></td>
</tr>
<tr>
<td>Thickness of annual ring (Inches)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Importance and Use

*Mark with an (x)*
**BROAD-LEAF TREES**

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Distinguishing Characteristics of Mature Trees:**

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Leaves</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Nut)</td>
<td>Shape (Mark one like your leaf)</td>
<td>Height</td>
<td>Thickness</td>
</tr>
<tr>
<td>*(Berry)</td>
<td>with (x)</td>
<td>Diameter of</td>
<td>Trunk</td>
</tr>
<tr>
<td>(Winged)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td></td>
<td>Branching</td>
<td>Smooth or Rough</td>
</tr>
<tr>
<td>No. Seed</td>
<td>Size</td>
<td>Width</td>
<td>Length</td>
</tr>
</tbody>
</table>

**Wood**

| | Sapwood | Heartwood |
| | Color | Color |
| | Thickness (In.) | *Weight* (Oak) |
| | | Lighter than (Oak) |
| | | Thickness of Annual Ring (Inches) |

**Remarks:**

| | Sapwood | Heartwood |
| | Color | Color |
| | Thickness (In.) | *Weight* (Oak) |
| | | Lighter than (Oak) |
| | | Thickness of Annual Ring (Inches) |

**Importance and Uses**

Mark with an (x) whichever one the tree has.
<table>
<thead>
<tr>
<th>Kind of cones collected</th>
<th>Number of cones collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind of seeds collected</td>
<td>Number of seeds collected</td>
</tr>
<tr>
<td>Kind of seed collected</td>
<td>DATE collected</td>
</tr>
</tbody>
</table>

**SEED COLLECTION**

**RECORD FOR PLANTING SEED**

Variety Planted

Date planted Did they grow?

Size of seedlings

**TREE PLANTING RECORD**

No. trees planted

Kind of trees planted

Where planted

Date planted

Age of trees when planted

Date of first rain or watering
FIELD TRIP

Date of trip______________________________________________

Where did You go?________________________________________

How long did you stay?____________________________________

Did you observe the Rules of the Forest?____________________

Did you enjoy the trip?____________________________________

Did you write a story about your trip soon after you returned home?

________________________________________________________

CERTIFICATE

I hereby certify that this report is complete and correct and that I have answered all the questions to the best of my ability.

Signed______________________
Club Member

STATEMENT BY COMMITTEE

We hereby certify that we have inspected this report and believe it to be true and correct. We also certify that we are not relatives of this club member.

Date__________ Name______________________ Occupation________

Date__________ Name______________________ Occupation________
Story of my Work
The 4-H Forestry Club project is designed to interest and instruct boys and girls, both rural and urban, in identifying, propagation, planting, preserving, and the uses of trees and shrubs. The project is related not only to forests but also to the farm wood lot, wind break, roadside and public ground plantings.

It is the expectation that a four or five year project will be developed. The following is the outline of minimum requirements for the first two years:

First Year, Division I

1. Identify three coniferous and two broadleaf trees. Collect specimens of trunk bark, foliage, and cones or other fruit. Use mature trees for specimens.

2. Plant 10 trees or more. Trees will be provided through County Extension Agents free, from the Oregon Forest Nursery at Corvallis, supervised by the State Board of Forestry.

3. Collect 10 cones containing seed. Note: In regions where cones are not available, 100 or more seeds from broadleaf trees can be collected.

4. Forest trip. At least one overnight trip to the forest for instructions and practice in building camp fires, in camp fire control, and in camp sanitation.

5. Record book. Keep records of all activities of the year; write a complete story and hand record book in at the end of the year.

Exhibit. The exhibit shall consist of the mounted specimens of trunk bark, cones or other fruit, and foliage from 5 kinds of forest trees, and the record book. Size of Forestry Division I Exhibit Board 20" x 30".

Second Year, Division II

1. Plant seed collected first year and care for seedlings throughout the year. Care for trees planted first year and replace any not growing.

2. Identify 5 kinds of forest trees valuable for lumber. Collect specimens of both flat and vertical grain lumber, trunk bark, foliage, cones or other fruit, and seed.

3. Identify 5 kinds of native shrubs. Collect specimens of wood with bark and foliage of each. Where possible flowers and seed can be collected also.

4. Plant 25 trees or more. Recommend 50 or more where possible. Trees will be provided through County Extension Agents free, from the Oregon Forest Nursery at Corvallis, a project supervised by the State Board of Forestry.

5. Wild Life Study. Name 5 wild animals and 5 species of birds common to your region, giving characteristics of each, such as color, size, habits and food.

6. Forest trip - Forest manners. At least one overnight trip to the forest for instructions and practices in forest manners.

7. Record Book. Keep records of all activities of the year; write a complete story and hand record book in at the end of the year.

Exhibit. The exhibit shall consist of the mounted specimens of lumber, both flat and vertical grain, trunk bark, foliage, cone or other fruit, and seed from 5 kinds of forest trees; mounted specimens of wood with bark and foliage from 5 kinds of native shrubs, and the Record Book. Size of Forestry Div. II Ex. Bd. 20" x 30"
BOYS' AND GIRLS' 4-H CLUBS

Cooperative Extension Work in Agriculture and Home Economics
Oregon State Agricultural College, United States Department of Agriculture,
and State Department of Education cooperating
Printed and distributed in furtherance of the Acts of Congress of
May 8 and June 30, 1914.

4-H FORESTRY PROJECT RECORD BOOK

Name __________________________ R.F.D. or Age ______
Town __________________________ Street Address __________________
County __________________________ School District No. __________________
Club No. __________________________ Local Leader __________________
1. Write or print your name, address, school district number, club number, leader's name, and county in the place provided on the front cover.

2. Write carefully and keep the record book neat. Use a No. 3 pencil.

3. For each tree you identify, fill in the blanks for one specimen. If you wish to say more about the tree, write it on the lines following the word "Remarks". Fill in the lines following the words "Importance and Uses", by telling anything that the tree is used for. Examples - lumber, shade, boxes, furniture, pencils, toys, and anything else you know or can find out that is important.

4. The three blanks under the part labeled "Conifers", are to be filled out if your tree specimens have cones and needles. One extra blank is provided. The blanks labeled "Broad-leaf Trees" are to be filled out with those specimens.

5. Sheets for broad-leaf trees and shrubs have sections labeled "leaves". In these sections are drawn the outlines of the more common leaf shapes. Mark with an (x) the leaf shape which resembles the leaves on the tree which you have found.

6. Each year you will receive a new book.

7. Mature trees (the larger trees) should be used as specimens.

8. In the section for birds, fill in the blanks which you know are right and leave the others blank. If you have learned something about the bird for which there is not a blank, then write it in the lines following the word "Remarks."

9. GOOD FORESTERS DO NOT CHOP CHUNKS OUT OF LIVING TREES. Get your bark specimens from a down tree in the forest, logging camp, or sawmill.

10. If you can't answer a question, look in your instruction sheets or directions, or ask your leader.

11. If you have snapshots or other pictures of your specimens you may paste them on another sheet of paper and insert the paper in your record book.

12. Your record book will be returned after it has been checked and exhibited. A GOOD FORESTER'S RECORD BOOK SHOULD BE NEAT. It is suggested that each club member make a cardboard cover for his record book.

13. As soon as you finish a part, (tree identification or bird study, etc.), write your story about that part. When your project is finished combine the stories.
### Coniferous Trees

#### Specimen No._____________

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
</table>

#### Distinguishing Characteristics of Mature Trees:

<table>
<thead>
<tr>
<th>Cone</th>
<th>Needles</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Length (Inches)</th>
<th>No. in each bundle</th>
<th>Height (Feet)</th>
<th>Thickness</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Length (Inches)</th>
<th>Diameter of Trunk</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Color</th>
<th>Rough or smooth</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>No. of seeds</th>
<th>Points (Sharp, Notched)</th>
<th></th>
</tr>
</thead>
</table>

**Wood**

<table>
<thead>
<tr>
<th>Sapwood</th>
<th>Heartwood</th>
<th>Remarks</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Color</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Thickness (In.)</th>
<th>Weight</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Importance and use</th>
</tr>
</thead>
</table>

**Specimen No._____________

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
</table>

#### Distinguishing Characteristics of Mature Trees:

<table>
<thead>
<tr>
<th>Cone</th>
<th>Needles</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Length (Inches)</th>
<th>No. in each bundle</th>
<th>Height (Feet)</th>
<th>Thickness</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Length (Inches)</th>
<th>Diameter of Trunk</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Color</th>
<th>Color</th>
<th>Color</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>No. of seeds</th>
<th>Points (Sharp, Notched)</th>
</tr>
</thead>
</table>

**Wood**

<table>
<thead>
<tr>
<th>Sapwood</th>
<th>Heartwood</th>
<th>Remarks</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Color</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Thickness (In.)</th>
<th>Weight</th>
</tr>
</thead>
</table>

**Thickness of annual ring (Inches):**

**Importance and Use**

*Mark with an (x)*
**BROAD-LEAF TREES**

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Distinguishing Characteristics of Mature Trees:**

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Leaves</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Nut)</td>
<td>Shape (Mark one like your leaf)</td>
<td>Height</td>
<td>Thickness</td>
</tr>
<tr>
<td><em>(Berry</em></td>
<td>with (x)</td>
<td>Diameter of</td>
<td></td>
</tr>
<tr>
<td><em>(Winged</em></td>
<td></td>
<td>Trunk</td>
<td>Color</td>
</tr>
<tr>
<td>Size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td></td>
<td>Branching</td>
<td>Smooth or Rough</td>
</tr>
<tr>
<td>No. Seed</td>
<td>Size: Width</td>
<td>Alternate</td>
<td>Opposite</td>
</tr>
</tbody>
</table>

**Wood**

<table>
<thead>
<tr>
<th>Remarks</th>
<th>Sapwood</th>
<th>Heartwood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Color</td>
<td>Color</td>
</tr>
<tr>
<td></td>
<td>Thickness (In.)</td>
<td>*(Heavier than Oak)</td>
</tr>
<tr>
<td></td>
<td>*Weight (Oak)</td>
<td>*(Lighter than Oak)</td>
</tr>
<tr>
<td></td>
<td>Thickness of Annual Ring (Inches)</td>
<td></td>
</tr>
</tbody>
</table>

**Importance and Uses**

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mark with an (x) whichever one the tree has.**
## SHRUB IDENTIFICATION

### Specimen No.

### Common Name

### Scientific Name

## Distinguishing Characteristics of Shrub:

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Leaves</th>
<th>Size</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Nut</td>
<td>Shape</td>
<td>Size</td>
<td>Bark</td>
</tr>
<tr>
<td>*(Berry with (x)</td>
<td>Height</td>
<td>Thickness</td>
<td></td>
</tr>
<tr>
<td>(Winged</td>
<td>Diameter of</td>
<td>Stem</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Branching</td>
<td>Alternate</td>
<td>Smooth or Rough</td>
</tr>
<tr>
<td>No. Seed</td>
<td>Size: Width</td>
<td>Length</td>
<td></td>
</tr>
</tbody>
</table>

### Flowers

*Appear Singly, In Clusters* : Remarks:

<table>
<thead>
<tr>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size:</td>
</tr>
<tr>
<td>Width (Inches)</td>
</tr>
<tr>
<td>Length with stem (Inches)</td>
</tr>
</tbody>
</table>

### Importance and Uses

### Specimen No.

### Common Name

### Scientific Name

## Distinguishing Characteristics of Shrub:

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Leaves</th>
<th>Size</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Nut</td>
<td>Shape</td>
<td>Size</td>
<td>Bark</td>
</tr>
<tr>
<td>*(Berry with (x)</td>
<td>Height</td>
<td>Thickness</td>
<td></td>
</tr>
<tr>
<td>(Winged</td>
<td>Diameter of</td>
<td>Stem</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Branching</td>
<td>Alternate</td>
<td>Smooth or Rough</td>
</tr>
<tr>
<td>No. Seed</td>
<td>Size: Width</td>
<td>Length</td>
<td></td>
</tr>
</tbody>
</table>

### Flowers

*Appear Singly, In Clusters* : Remarks:

<table>
<thead>
<tr>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size:</td>
</tr>
<tr>
<td>Width (Inches)</td>
</tr>
<tr>
<td>Length with stem (Inches)</td>
</tr>
</tbody>
</table>

### Importance and Uses

Mark with an (x) whichever one the shrub has.
### Birds

<table>
<thead>
<tr>
<th>Name of bird</th>
<th>Specimen No. 1</th>
<th>Specimen No. 2</th>
<th>Specimen No. 3</th>
<th>Specimen No. 4</th>
<th>Specimen No. 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>See note at bottom of page.</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>Size:</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Larger than a crow?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Smaller than a crow?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) Larger than a robin?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(d) Smaller than a robin?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(e) Larger than a sparrow?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(f) Smaller than a sparrow?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>Outline of Bird:</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Short and chunky?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Slender and graceful?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>Markings on Wings</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(Describe)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>Does it:</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Have a top-knot?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Ex. - Coast Jay</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Have a collar across the breast? Ex. - Meadowlark</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) Have a ring around the eye? Ex. - Wood Duck</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tail:</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Forked Ex. - Swallow</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Wedge Shape Ex. - Kingbird</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) Straight Ex. - Robin</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(d) Color</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(e) Length</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>Does it:</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Live on the water?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Wade in the water?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) Live in the trees?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(d) Live on the ground?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(e) Live in the brush?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>What Does the Bird Eat?</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(List)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>Shape of Bird's Bill</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Examples (Curved, short and thick, straight and long, etc.)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td><strong>Remarks:</strong></td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
</tbody>
</table>

**Note:** Mark the space which is correct with an (x). Leave the spaces which are wrong blank. Do all marking and writing in the column under the number of the specimen.
<table>
<thead>
<tr>
<th>Name of Animal</th>
<th>Specimen No. 1</th>
<th>Specimen No. 2</th>
<th>Specimen No. 3</th>
<th>Specimen No. 4</th>
<th>Specimen No. 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Note at Bottom of page.</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Size:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Height from ground to top of back (inches)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Length from tip of nose to the base of tail (in.)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Color: (Write the color)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) General</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Spots</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) Where are the spots?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Tail:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Bushy Ex. Fox</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) With hair - not bushy</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) Without hair</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(d) Length (inches)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Feet:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Length (inches)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Width (inches)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(d) Hoofs</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Ex. Deer, Antelope</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(d) Pads</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Ex. Rodents, Coyote</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Horns:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) Branched Ex. Deer</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) Single Ex. Mountain Goat</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) Length (inches)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>What does the animal eat?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(List)</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Does it Live?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(a) In the Forest?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(b) On the open Prairie?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>(c) In burrows under Ground?</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>Remarks</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
</tbody>
</table>

Note: Use full grown animals as specimens. Unless otherwise indicated, mark the space which is correct with an (x). Leave the spaces which are wrong blank. Do all the marking and writing in the column under the number of specimen.
SEED COLLECTION

Number of cones collected
Kind of cones collected
Number of seed collected
Kind of seed collected
Date collected

RECORD FOR PLANTING SEED

Variety Planted
Date Planted Did they grow?
Size of seedlings

TREE PLANTING RECORD

No. trees planted
Kind of trees planted
Where planted
Date planted
Age of trees when planted
Date of first rain or watering
FIELD TRIP

Date of trip__________________________________________

Where did you go?____________________________________

How long did you stay?________________________________

Did you observe the Rules of the Forest?________________

Did you enjoy the trip?________________________________

Did you write a story about your trip soon after you returned home?
____________________________________________________

CERTIFICATE

I hereby certify that this report is complete and correct and that I have answered all the questions to the best of my ability.

Signed____________________________________ Club Member

STATEMENT BY COMMITTEE

We hereby certify that we have inspected this report and believe it to be true and correct. We also certify that we are not relatives of this club member.

Date____ Name__________________________ Occupation________

Date____ Name__________________________ Occupation________
Proposed

Record-Books
BOYS' AND GIRLS' 4-H CLUBS

Cooperative Extension Work in Agriculture and Home Economics
Oregon State Agricultural College, United States Department of Agriculture and
State Department of Education, Cooperating
Printed and distributed in furtherance of the Acts of Congress of
May 8 and June 30, 1914

4-H FORESTRY PROJECT
RECORD BOOK

Name ____________________________ Age ____________________________

Town ____________________________ RFD or Street ____________________________

County ____________________________ School District No. ____________________________

Club No. ____________________________ Local Leader ____________________________
**DIRECTIONS**

1. Write or print your name, address, school district number, club number, leader's name and county in the place provided on the front cover.

2. Write carefully and keep your record book neat. Use a No. 3 pencil.

3. For each tree you identify, fill in the blanks for one tree. Fill in the lines following the words, "How is this tree useful?" by telling anything that the tree is used for. Example--lumber, shade, boxes, furniture, pencils, toys, and anything else you know or can find out that is important.

4. Each year you will receive a new book.

5. Mature trees (the larger trees) should be used as specimens.

6. GOOD FORESTERS DO NOT CHOP CHUNKS OUT OF LIVING TREES. Get your bark specimens from a down tree in the forest, logging camp or sawmill.

7. If you can't answer a question, look in your instruction sheets or directions, or ask your leader.

8. If you have snapshots or other pictures of your specimens, you may paste them on another sheet of paper and insert the paper in your record book.

9. Your record book will be returned after it has been checked and exhibited. A GOOD FORESTER'S RECORD BOOK SHOULD BE NEAT. It is suggested that each club member make a cardboard cover for his record book.

10. As soon as you finish a part, (tree identification or shrub identification, etc.) write your story about that part. When your project is finished combine the stories.

11. Don't forget about your OPTIONAL Problems. The members of Division I are required to finish two optional problems.

The members of Division II are required to finish three optional problems different from your Division I problems.
# NEEDLE-LEAFED TREES (Conifers)

<table>
<thead>
<tr>
<th>Cone:</th>
<th>Needles</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (inches):</td>
<td></td>
<td>Is this:</td>
<td>Thick or thin?</td>
</tr>
<tr>
<td>Diameter (inches):</td>
<td></td>
<td>1. A full grown or mature tree?</td>
<td></td>
</tr>
<tr>
<td>Draw an outline of cone.</td>
<td></td>
<td>2. A half grown tree</td>
<td>Rough or smooth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. A Sapling</td>
<td>Color?</td>
</tr>
<tr>
<td></td>
<td>Type (check one)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Needles Stand Alone</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Needles Have Bundles,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Give number</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Needles Have Scales</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To know this tree, what do I look for first?

How is this tree useful:

---

**How to Tell This Tree From Others:**

- Cone:
  - Length (inches):
  - Diameter (inches):
  - Draw an outline of cone.

- Needles:
  - Length (inches)
  - Shape (Flat, Rounded)
  - Points (Sharp, notched)

- Size of Tree:
  - Is this:
    - 1. A full grown or mature tree?
    - 2. A half grown tree
    - 3. A Sapling

- Bark:
  - Thick or thin?
  - Rough or smooth
  - Color?

**Tree Number**

**Common Name**
Tree number________________________
Common Name_______________________

How to Tell This Tree From Others

<table>
<thead>
<tr>
<th>Fruit:</th>
<th>Leaves</th>
<th>Size of Tree</th>
<th>Bark</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Nut *(Berry</td>
<td>Draw an outline of</td>
<td>Is this:</td>
<td>Thick or Thin?</td>
</tr>
<tr>
<td>Winged Size</td>
<td>your leaf</td>
<td>1. A full grown or mature tree?</td>
<td>Thick or Thin?</td>
</tr>
<tr>
<td>Color</td>
<td></td>
<td>2. A half grown tree?</td>
<td>Rough or Smooth?</td>
</tr>
<tr>
<td>No. seed</td>
<td>Width</td>
<td></td>
<td>Color?</td>
</tr>
<tr>
<td></td>
<td>Length</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How is this tree useful?___________ To know this tree, what do I look for first?__________

* Mark with an (x) whichever one the tree has.
FOREST AND GAME LAWS
(To be answered by 2nd year 4-H foresters only)

1. Should every fair minded person support our forest laws? The Oregon legislature began enacting forest laws 40 years ago. Our lawmakers have been guided by one main idea. Check the one.

(a) Forest laws help keep out fire and keep the mountains beautiful.
(b) Forest laws help wildlife.
(c) Forest laws aim to keep our forests growing full crops of timber, not only while we live, but forever. It is our great duty to see that Americans who come after us will also have timber, water, and woodland recreation.

2. In relation to fire, what are the Permit Law and the Closed Season Law?

3. Write in very few words what the Forest Laws say about--

(a) Building campfires.
(b) Throwing away tobacco or matches.

4. The Conservation Act was passed in 1941. What does it say loggers must do when they cut timber? (On land that will remain timberland)?

5. Always we have problems. When people tackle their problems they become strong. What is our big forest problem? Many foresters think it is our 2 million acres of burned and tree-barren lands in Oregon. These are good timberlands, but they will probably need to be planted to trees. Our Tillamook Burn is the biggest example.

What can the State of Oregon do to re-stock the Tillamook Burn and other spots like it? (Ask several people; tell about the plan you like.)

6. What is the main reason for game laws?
7. During 1946, 4 out of 10 of the man-caused forest fires in Oregon were started from campfires and smokers in the woods. What is the most important thing for the 4-H forester to remember about fire when hunting, fishing, or camping?

8. Where is it always unlawful to hunt or fish without permission?

9. What is the proper method for returning a fish to water?

10. Where is it always unlawful to fire any firearm?

11. What types of guns (not talking about caliber) may be used for each of these: fowl, large game such as deer?

12. By what method only may fish and frogs be caught?
TREE PLANTING RECORD

No. trees planted

Kind of trees planted

Where planted

Date planted

Age of trees when planted

Date of first rain or watering

STUDY OF FRESH-CUT STUMP OR LOG

NAME OF TREE

Color of Sapwood

Color of Heartwood

Thickness of Sapwood

Thickness of Heartwood

Number of Annual Rings

Thickness of Annual Rings

Thickness of Bark

Inside Coloring of Bark

FIELD TRIP

Date of trip

Where did you go?

How long did you stay?

Did you observe the Rules of the Forest?

Did you enjoy the trip?

Did you write a story about your trip soon after you returned home?
CERTIFICATE

I hereby certify that this report is complete and correct and that I have answered all the questions to the best of my ability.

Signed__________________________
Club Member

STATEMENT BY COMMITTEE

We hereby certify that we have inspected this report and believe it to be true and correct. We also certify that we are not relatives of this club member.

Date__________Name____________________Occupation__________

Date__________Name____________________Occupation__________
STORY OF MY WORK
The 4-H Club Forestry project helps boys and girls to learn more about our trees and forests. The trees of Oregon's great forests, and the many shrubs too, are interesting, beautiful, and useful. If you become a 4-H forester, you will study a number of trees. You will learn how trees grow, how they are planted, and how forests are protected and improved by the work of the forester. You will learn how trees are useful, not only for things like lumber, paper, and fence posts, but also for shade, for attractive grounds, and for windbreaks. Wild creatures of our fields and forests will interest you as a 4-H forester. One aim of the project will be to learn good camping methods.

A four year project is being developed. The work for the first two years is described below:

First Year, Division I

1. Tree Study
   You must learn the approved common names and be able to identify 10 trees. Have at least 3 conifers and 3 broad leaves, including the important ones in your county. Several of the more common shade trees of your community may be included.

2. Planting
   You must plant 10 trees or more. The trees will be provided through county extension agents free from the Oregon Forest Nursery at Corvallis. The State Board of Forestry operates this Nursery and gives the trees to us.
3. **Forest Trip**

You will make at least one overnight trip to the forest for instruction and practice in woodsmanship. This will include identification of trees, building campfires, campfire control, camp sanitation, and camp safety.

4. **Record Book**

You must keep your record book complete.

5. **Exhibit**

Each member will have an exhibit. You collect specimens of foliage, trunk bark, and cone or other fruit from 5 kinds of forest trees, and mount them upon a board. Your exhibit board is to have at least 2 conifers and 2 broadleaves. All of your specimens are to come from mature trees. Your record book is part of the exhibit too.

6. **Optionals**

Each member in Division I is expected to finish the five activities above. Along with them, you must choose 2 of the problems listed under "OPTIONALS" (on another page).

**Second Year, Division II**

1. **Tree Study**

You will learn the approved common names and be able to identify 15 trees.

(What you do here is to learn 5 new trees and brush up on the 10 you learned in Division I. You record only the five new trees in your Division II record book).

2. **Shrub Study**
You will learn the approved common names and be able to identify 10 native shrubs.

3. **Tour**

As a club activity, arrange one of these tours and write a one-page story about it.

(1) Visit a lookout tower with a forest ranger or fire warden.

(2) Visit a timber manufacturing plant such as sawmill, pulpmill, plywood plant, veneer plant, etc. with a suitable guide.

(3) Visit several farms having good windbreaks and note features that you like.

4. **Forest and game laws**

You will study the forest, fish and game laws of Oregon. Then answer the questions in the record book. Information as to Oregon Forestry laws is obtained from the booklet "Oregon Forest Laws." Leaders can get one or two copies free by writing the State Board of Forestry, Salem, Oregon. The Oregon State Game Commission issues pocket-size booklets describing the game laws for each year. Each 4-H forester can get copies from hardware or sporting goods stores. The club leader may specify the parts of these manuals that should be read by 4-H foresters.

5. **Forest Trip**

You will make at least one overnight trip to the forest for instructions and practice in forest manners.
6. **Record Book**
You will complete your record book and hand it in at the end of the year.

7. **Exhibit**
Each member will have an exhibit. You collect specimens of the foliage, trunk bark, and cone or other fruit from 5 kinds of forest trees (different from the ones you had the year before) and from 5 shrubs.
Here are a list of suggested reference books and magazines that might interest you and give you more information about trees and wildlife.

1. Peavy, G. M., "Oregons Commercial Forests."
2. "Forest Trees of the Pacific Slope."
3. Rogers, "Pocket Tree Guide."
8. Magazine, "Field and Stream."

**Libraries**

Go to your library to get your reference books. In communities in which traveling libraries are available, ask that books on trees and forestry be included in your library.

**ALL REFERENCE MATERIAL FURNISHED YOU IS TO BE CONSIDERED AS A LOAN. BE CAREFUL WITH IT.**
Optional Problems
OPTIONAL PROBLEMS

An optional problem is one you choose yourself, because you like something and want to do it. 4-H foresters will be expected each to select and complete a certain number of optional problems from the list given here. Look it over and see how interesting the problems are; every 4-H member will find things he likes to do.

OPTIONAL PROBLEM NO. 1

Make and Use a Hypsometer

A hypsometer is made with a piece of fish string and a small piece of plywood about the size of a scratch pad. It is used to measure the height of trees or other objects. The forester needs to learn the height of the trees when he cruises timber, and also to study the growth of trees. Besides the fishing line and the plywood, materials include one 3/4 inch screw and two 2/3 inch finishing nails, shellaced or varnished, a little sinker of similar weight. To put the hypsometer together, a few tools such as hammer and screw driver are needed. Directions for making the hypsometer and for using it will be obtainable from the 4-H club agent. The directions will include a drawing, or dial, which has to be transferred accurately to the plywood board.

OPTIONAL PROBLEM NO. 2

Make and Use a Tree Caliper

One of the important things a forester does is to measure timber trees. This is called cruising. He does
this work to learn how many board feet or how many cords of fuel wood there are in certain trees. The first thing that is needed in cruising is to know the diameter of the tree. The forester uses a tree caliper to find out the diameter. The tree caliper is made on the order of a carpenter's scale with a sliding arm. It is simple to make from the drawings that will be furnished. Directions for making and using the tree caliper will be obtainable from the 4-H club agent. There will be drawings to explain them completely to you.

OPTIONAL PROBLEM NO. 3
Describe 5 Birds and Learn Their Names, Habits and Calls

To complete this problem you will have to watch, quite skillfully, several birds around your yard or fields. You may even have to climb several trees to find all the information you want. You will pick out 5 different birds among the many kinds that come around your home and observe a number of things about these birds. The 4-H club agent will have a chart to guide you in making your observations. The main thing is to make a record of the days when the birds are seen, where they were seen, to make notes about their size and color, to locate their nests, and if possible to get a look at the eggs in the nest. If you can be as sharp as a good hunter you will learn quite a lot about our interesting feathered friends in this problem.
OPTIONAL PROBLEM NO. 4

Make a Plant Press for Preserving Leaves, Flowers, Grasses, and Herbs

If you have a plant press, it opens the door to some interesting studies. Usually it is hard to keep flowers and leaves because they wither and cannot be handled. The plant press is easy to make and easy to use. If you have one, you can press the plants that you collect and keep them afterward by taping them to cardboard sheets.

Here are the materials needed for making a plant press:

1. Four pieces of wood 18 inches long, 1\(\frac{1}{8}\) inches wide, and about 3/8 inches thick (the wood pieces can be obtained from apple boxes or other crates).
2. Sixteen pieces of wood 12 inches long, 1 inch wide, and about \(\frac{1}{4}\) inch thick.
3. Thirty-two small nails and small \(\frac{1}{2}\) inch screws.
4. Two straps of rope about 4 feet long.
5. Several pieces of cardboard 12 inches by 18 inches in size.
6. About 20 sheets of ordinary newspaper.

Directions for putting together the plant press and using it will be obtainable from the 4-H club agent.

OPTIONAL PROBLEM NO. 5

Make a 4-H Club Sign to Promote Forest and Range Fire Protection
Forest and range fires cause a lot of damage in all parts of Oregon. There will always be danger of these fires, because people are naturally careless. Carelessness starts most of the fires. Therefore, 4-H members can help to prevent these fires by reminding people to be careful with fire. One way to accomplish this is to make, post, and maintain a fire-protection sign. Drawings obtainable from the 4-H club agents will give desirable dimensions for a sign and will suggest slogans such as "PREVENT FOREST FIRES". The sign should be posted near a tree or woods. It should be neat and well painted, otherwise the impression might not be favorable.

If they wish, members of a forestry club can build the sign together as a club problem with each member helping. If it is handled as a club problem, the sign should be a fairly large one.

OPTIONAL PROBLEM NO. 6
Make Photographs of Foliage and Cones or Fruits from 10 Different Trees

Some 4-H members are interested in photography. A good way to learn trees is through collecting photographs of their leaves and fruit. It is suggested that specimens from two different trees be included in each photograph. A white sheet can be used for the background. Photographs should be taken close enough to bring out the small features of leaves and cones. It might be well, too, to have a sign with the name of the tree printed on
it. This can be photographed with the specimens so the names will appear in the picture. The photographs will be mounted on cards or in a notebook. The photographs would make an interesting exhibit.

OPTIONAL PROBLEM NO. 7

Complete 5 Leaf Prints

Leaf prints are prepared according to directions that can be obtained from the 4-H club agent. One of three possible methods can be used. There is the smoke method, the outlining and tracing method, and blue printing.

To make leaf prints by the smoke method is easy and they can be kept for a long time. Girls have found they can transfer leaf prints to such things as tablecloths, handkerchiefs, and other articles, so it is an interesting method to know. To make leaf prints, you need sheets of paper or cloth for final leaf prints, a quantity of soft waste "scrap paper", a large wax candle, and a bit of lard the size of a pea for each leaf. Most 4-H members would prefer the smoke method.

OPTIONAL PROBLEM NO. 8

Make Transplantings of Native Trees and Shrubs

Here is a chance to make the home grounds more attractive. The 4-H member can find attractive shrubs or trees in the woods. These can be dug up in the proper season (usually in the late winter or early spring) and brought home to be set out there. The plants will need
care after planting; such as weeding, protection from extreme sun and wind, and, in many cases, water. Tools needed for transplanting are: shovel, ax, sacks or boxes, water, rope, and pruning shears. The 4-H member will need to study the subject of transplanting a little, but he can get ample directions from his 4-H club agent.

OPTIONAL PROBLEM NO. 9

Collect at Least Two Sacks of Cones to be Sold to a Nursery

During the last half of August and the first half of September, the State Board of Forestry collects nearly ripe cones from Douglas fir trees and sometimes from other conifers. It has been found in the past that the best place to get these cones is from the yard or field trees which are bushy and often not very tall. Boys can climb the trees and pick the cones. The State Board of Forestry will usually send a truck to get them and they are paid for by the sack. Before attempting to pick any cones, the 4-H member should see the nearest firewarden to get instructions. Commercial nurseries will often buy certain tree or shrub seeds. If he desires, the 4-H member can visit a commercial nursery and arrange to collect seed for it. Collecting other seed will count on this problem too.

OPTIONAL PROBLEM NO. 10

Color Cones for the Fireplace

At certain times of the year a fire in the fireplace
is not only pleasing to watch but brightens the family circle. It is possible to add to the attractiveness of a fireplace fire by having cones that have been chemically treated. A few cones are thrown on the coals. A colored flame is given out, burning until the cones are consumed.

4-H members might be able to treat cones, although the cost of the chemicals is something to think about. After treatment, cones can be placed in red, tarlatan (cotton mesh) bags and sold or given away for Xmas presents.

The following chemicals are used:

Red colored flames -------------- Strontium nitrate
Green colored flames ----------- Copper chloride
Blue colored flames ----------- Copper sulphate or Barium nitrate
Orange colored flames --------- Calcium chloride
Purple colored flames --------- Lithium chloride

The first two chemicals are reported most successful, while the last may be expensive. Chemicals may be obtained from chemical concerns in the large cities. Costs run from 20¢ to about 75¢ per pound. Wooden pails, wooden tubs, or earthen crocks must be used for treating. Chemicals are dissolved in the proportion of one pound to the gallon of water, and then cones are dipped, drained, and allowed to dry. Another method is to dissolve one tablespoon of glue in a gallon of boiling water. The cones are dipped in this solution and, while still hot
and wet, are sprinkled with the chemical. A salt shaker with large holes in the top is used to sprinkle the chemical. It is suggested that the club members may do this together in order to cut down individual expense.

OPTIONAL PROBLEM NO. 11

Demonstrate the Correct Methods of Building and Extinguishing a Camp-fire

Club members choosing this problem will practice the ways they have been instructed in building camp fires. A sheet of instructions and diagrams will also be available from the 4-H club agent. The boy scout handbook will also provide camp-fire building instructions.

On the club field trip, members choosing this problem will be prepared to demonstrate the correct steps as given below:

1. Have a hand ax, shovel, and bucket.
2. Choose a suitable spot for a campfire.
3. Clean off a 10-foot circle down to soil.
4. File your wood ready to use.
5. Demonstrate the tepee, or pyramid type of camp-fire.
6. Demonstrate the log-cabin type of camp-fire.
7. Prepare a crotch-sling to hang cooking utensils upon.
8. Demonstrate the correct method of extinguishing a camp-fire.

OPTIONAL PROBLEM NO. 12
Learn, Collect, Press, and Mount

Five Poisonous Range Plants

Your club agent can help you to get instructional material describing poisonous range plants. After pressing, the plant specimens are mounted on white cardboard sheets the size of notebook paper. An effort should be made to collect the parts of each plant that are most poisonous as well as the identifying parts. On the mounting card, give the names and poisonous conditions of the plant. Include the class of livestock poisoned and the season of the year the plant is most poisonous.

OPTIONAL PROBLEM NO. 13
Learn and Demonstrate How to Sharpen an Ax and Use it Safely

A sheet of instructions will be obtainable from the 4-H club agent. The club member will practice the steps and be prepared to demonstrate them at a suitable outdoor meeting of his club.

OPTIONAL PROBLEM NO. 14
Build and Mount a Bird House

Birds are important in reducing the numbers of injurious insects; they also feed on weed seeds. Because of this, most birds are welcome visitors on the farm. On this problem the 4-H member will keep notes of his success, telling what types of bird houses were built, how and where it was mounted, and the use that birds make of it. Some information about bird houses will be available from club leaders.
OPTIONAL PROBLEM NO. 15

Collect One of the Following Woods Products
for Sale: Cascara Bark, Cedar Boughs, Huckleberry boughs, Sword fern, Digitalis seed.

Directions will have to be obtained from one of the commercial dealers buying these products. Naturally, the club member will demonstrate good citizenship by respecting property rights. He will collect only on lands where he has permission. In collecting cascara bark and tree foliage, methods should be used that encourage future production and do not harm timber trees.

OPTIONAL PROBLEM NO. 16

Learning How to Pace

A good forester should know how to measure the distance between two known points on the ground. The quickest and easiest way to do this is by pacing. (Pacing means measuring distance by stepping off distance on the ground).

Pacing is quickly and easily learned. Accurately measure off on the ground three courses of one chain each. One chain is equal to 66 feet. The first course should be on level ground, the second course on a medium (10%-25%) slope, and the third course on a steep slope. Walk along each course in a natural manner, and count the number of paces taken. One pace is equal to two steps. Pace each course several times until you know exactly how many paces are equal to one chain on level ground and each type of slope.

You are now ready to pace in the woods, but remember to
adjust your pace to the type of slope you are going to cover.

OPTIONAL PROBLEM NO. 17

Assembling a Scrapbook

This is a good problem for anyone who likes to use a camera. Your problem is to assemble a scrapbook of cut-out pictures and snapshots of all forms of Oregon Wildlife, trees, and shrubs. Include pictures of wildlife habitats and printed articles concerning wildlife, trees, and anything concerning the shrubs of Oregon. You will find that you will enjoy your problem more if you actually use a camera and take your own pictures. Be neat in your work.

OPTIONAL PROBLEM NO. 18

Labeling Trees and Shrubs

The labeling of trees and shrubs is an interesting problem. It would be of interest to many of your school friends to know the names of the trees and shrubs near your school. Also your parents and many of the town people would like to know the names of the trees and shrubs in your town park.

Consult your club leader or the county agent for instructions for labeling the trees and shrubs.

OPTIONAL PROBLEM NO. 19

Learn the Name and Characteristics of the Oregon State Tree, Flower, and Bird

Each state has a tree, a flower, and a bird of which it is proud. Do you know those in Oregon? If not, here is a good chance to find out what they are. Your problem is to write a report about each one of these in Oregon. Include
the outstanding features of each, also any pictures that you have taken or can take. Be accurate in your work. A Forester has to be accurate to be a good Forester.
Instructional Material

For Optional Problems
HOW TO MAKE AND USE A HYPSOMETER

A hypsometer is an instrument used for measuring the height of trees or other vertical distances. The height measurements of trees are needed in computing their contents in board or cubic feet of lumber and also in studying the growth of trees.

Materials Needed for Construction:

1. One piece of \( \frac{1}{2} \)" plywood or other satisfactory, unwarped board 8" by 10" in size.
2. One 3/4" screw and two 3/4" brads or finishing nails.
3. A 12" length of heavy thread or strong light...
string.

4. A pencil, hammer, carpenter's square, ruler, screw driver, and shellac or varnish.

5. A \( \frac{1}{2} \) pound lead sinker or similar weight.

Instructions For Making the Hypsometer.

The required dimensions for your hypsometer are given on the accompanying drawing. Use great care in laying off right angles, making scales, and measuring all distances; the accuracy of your instrument depends on this work. Mark the scales with pencil (ink will blur). Also write the instructions and scale, as shown on the sample drawing, on your board. Then varnish or shellac the board. If you use varnish, be sure it is a light varnish so that you can read the scale and instructions. Attach the string to the upper brad, then attach the lead weight or sinker to the other end of the string.

How to Use Your Hypsometer.

1. Measure back 25, 50, or 100 feet from the center of any straight tree.

2. Stand directly over this point, sight through the groove of the screw, and line up the brad with the top of the tree. Allow the weighted pendulum to swing free.

3. Read your hypsometer.

4. In the same manner, sight at the base of the tree.

5. Read your hypsometer.

6. When you look straight ahead, if your eye line
is above the base of the tree, the pendulum will swing to the left of the "0" mark. In this case add the reading you got when you sighted at the base of the tree to your first reading (for the top of the tree). If your eye line is below the base of the tree, the pendulum will swing to the right of the "0" mark. In this case, subtract the reading for the base of the tree from the reading for the top of the tree. This will give you the true height of the tree. If your final reading is 100, that means your tree is 100 feet tall.
HOW TO MAKE AND USE A TREE CALIPER

The tree caliper is made on the order of a carpenter's scale with a sliding arm. It is simple to make. The forester uses a tree caliper to find out the diameter of a tree.

Materials Necessary to Make Tree Caliper.

1. 5, 3/8" by 1 1/4" screws with nuts and washers.
2. 10, 3/8" by 1 3/4" screws with nuts and washers.
3. 1 straight board 1/2" thick, 2" wide, and 4'2" long.
4. 1 straight board 1/2" thick, 2" wide, and 2'2"
5. 1 straight board $\frac{1}{2}"$ thick, 2" wide, and 2'5\(\frac{1}{2}\)" long.

6. 2 boards 1" thick, 2" wide, and 6" long.


8. Screw driver.


11. Varnish or shellac and brush.

**Directions for Making the Tree Caliper.**

1. Take the board that is 2'2" long and taper as shown in the diagram. Be sure to begin your taper 2" from one end of the board and taper to 1" at the other end. This tapering must be done on one side of the board only.

2. Fasten this board flush with the end of the board that is 4'2" long with 5 screws as shown in the diagram.

3. Take the board that is 2'5\(\frac{1}{2}\)" long and taper as shown in the diagram. Be sure to begin your taper 7" from one end of the board and taper it to 1" at the other end. This tapering must be done on one edge of board only.

4. Take the two 6" boards and make a $\frac{1}{2}"$ groove along one edge of each board, as shown in the little diagram above and to the right of the tree-caliper diagram. This groove should be the entire length of each board. You must be very
careful while making these grooves, as they must be straight. Take the 2'5\(\frac{1}{2}\)" board and, with the straight edge on your left, fasten one of the 6" boards flush with the 2" end, groove upward, as shown here.  

Be sure to fasten the 6" board on the back side of the long board when you are holding the long board with the straight edge on your left. Take the other 6" board and fasten it on the same side of the long board as you did your first 6" board. This time the groove will be down. Fasten this board so that there will be 2" between the bottoms of the grooves of the two boards.  

Use 5, 3/8" by 1 3/4" screws on each of the 6" boards to fasten them to the long board.  

5. Sand all boards and edges. Sand the grooves and also along the edges of the 4'2" board in order to permit free sliding of the moveable upright.  

6. You are now ready to mark your caliper's with measurements. Mark the top edge of the horizontal longstick (the 4'2" board). The markings will be one inch apart. There will be eleven short marks for the one inch markings and then the twelfth mark will be longer to indicate the one-foot mark. Mark your board as shown in the
tree-caliper diagram.

7. Varnish or shellac both pieces of your caliper. If you use varnish, make sure it is the kind of varnish that will not cover up your markings so that you can't read the caliper.

8. When the varnish or shellac is completely dry, slide the movable upright along the horizontal longstick, as shown in the diagram. The grooved boards will hold the upright in position.

9. You now have a tree caliper. You should remember that wood will warp. If you allow your calipers to warp they will become inaccurate, so keep them in a dry place. Use only seasoned wood in constructing the calipers.

How to Use Your Tree Caliper.

Place the stationary upright against one side of a tree, approximately 4 1/2 feet above the ground. Then slide the movable upright until it touches the other side of the tree. Remove the calipers, holding the movable upright in position. Read the scale where the straight side of the movable upright crosses the horizontal longstick. This reading will be the diameter of your tree.
DESCRIBE FIVE BIRDS AND LEARN THEIR NAMES, HABITS, AND CALLS

This will be a very interesting problem to complete if you are a good hunter. You must not only be able to hunt and find your specimens, you must observe them closely. This may mean lying quietly for long periods of time and even climbing trees to get your information. You may select any five birds. These birds may be found in the woods, your own yard, or some other place, but they may not be caged birds such as the canaries some of you have in your homes.

Fill out the accompanying chart. This will serve as a guide, although there will be other things which you will learn about your birds which may be included in the report of your discoveries and your story about your activities in connection with this project.

Find out the birds' mating habits and the materials used in building their nests. Does the bird return to the same nest year after year? Will the bird use a nest built by another bird? What methods are used by the parent birds in raising their young? What do the young birds eat? What do the grown birds eat? What type of natural protection do the birds select for nesting? Are the birds migratory? Describe the birds' eggs. Describe the coloring of the male and female adult birds. Describe the coloring of the young birds. Describe any distinctive markings the birds may have.
Learn to identify and describe the birds' calls, and to imitate them if possible.

Make a record of the time and date every time you watch each bird. This will be included in your report on this project.

When you have completed your project, write a story of your personal adventures and a report on your birds. Include everything you can find out about your birds, the dates and the times when you observed them, and the chart. If you wish you may include pictures, and you may go to a library to find out additional information about your bird such as where they go when they migrate. You may make a cover for your story and report.
<table>
<thead>
<tr>
<th>Name of bird.</th>
<th>Specimen #1</th>
<th>Specimen #2</th>
<th>Specimen #3</th>
<th>Specimen #4</th>
<th>Specimen #5</th>
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</thead>
<tbody>
<tr>
<td>Outline of bird:</td>
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<td>Short and chunky?</td>
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<td>Slender and graceful?</td>
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<td>Does it have:</td>
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<tr>
<td>A Topknot? (Ex.-Coast Jay)</td>
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<tr>
<td>Collar around the breast? (Meadow lark)</td>
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<tr>
<td>Ring around Eye? (Wood duck)</td>
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<td>Tail:</td>
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<td>Forked? (Swallow)</td>
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<td>Wedged-shape? (Kingbird)</td>
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<tr>
<td>Straight? (Robin)</td>
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<td>Color?</td>
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<td>Length?</td>
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<td>Does it:</td>
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<tr>
<td>Live on the water?</td>
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<tr>
<td>Wade in the water?</td>
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<tr>
<td>Live in the trees?</td>
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<tr>
<td>Live on the ground?</td>
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<tr>
<td>What does the bird eat?</td>
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<tr>
<td>(List)</td>
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<tr>
<td>Shape of bird's Bill?</td>
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<tr>
<td>(Ex.-Curved, Short and thick, Straight and long, etc.)</td>
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ADDITIONAL INFORMATION
MAKE A PLANT PRESS FOR PRESERVING LEAVES, FLOWERS, GRASSES, AND HERBS

A substantial wooden plant press of the standard size (12" x 18") may easily be constructed from strips of wood cut out of an apple box or any similar wooden box.

Materials needed:

1. Four pieces of wood 18" long, 1\(\frac{1}{2}\)" wide, and about 3/8" thick.
2. Sixteen pieces of wood 12" long, 1" wide, and about \(\frac{1}{4}\)" thick.
3. 32 small nails or \(\frac{1}{2}\)" screws.
5. Screw driver.
7. Two straps or ropes about 4 feet long.
8. About 20 ordinary sheets of newspaper for holding specimens.
9. Two or four pieces of cardboard 12" x 18" in size.

Assembling the frames.

Take one-half of your wood (strips) and assemble two frames as shown in the following drawing.

![Diagram of plant press frames]

- 12"
- 18"
- \(\frac{3}{8}\)"
- \(\frac{1}{4}\)"
Use of the Plant Press.

Using the plant press is quite simple. You may already have figured it out for yourself.

1. Lay one of the frames on the ground.
2. Lay a sheet of newspaper on the frame.
3. Put your specimen on the newspaper.
4. Lay another sheet of newspaper on the specimen.
5. Continue this process until you have used up all of your specimens.
6. About every fifth layer, insert a piece of cardboard. Be sure there is a piece of newspaper between your specimen and the cardboard. The cardboard will help keep the press rigid.
7. Last of all, place your second wooden frame on top of your specimens.
8. Using the straps or ropes, bind the press. Pull your straps up good and tight. The tighter they are, the better will be the pressing.
MAKE A 4-H CLUB SIGN TO PROMOTE FOREST AND RANGE FIRE PROTECTION

There will always be danger of forest and range fires in all parts of Oregon because carelessness starts most of these fires, and people are naturally careless. These fires cause a great deal of damage every year, and you, by selecting this project can help prevent fires by reminding people to be careful. Posting signs is one way of reminding people that their camp fires can destroy valuable forests and range land. This project can be easily completed by you alone, or by a group. We have listed the directions and some suggestions for making your sign.

Dimensions:

If you make this sign by yourself, the sign will be at least as large as the dimensions given in the accompanying drawing. However you may make your sign as much larger as you wish. If the sign is to be a club project, it should be at least 3 feet by 4 feet on a 7 foot stake, inserted 2 feet into the ground. The letters on your sign should be as large as possible, but small enough to be neat and easy to read.

Materials:

Your sign should be made of fiberboard, plywood, or any other suitable material. You will need two colors of paint that will be easy to see, and look nice together such as black and white, green and white, brown and orange, black and red, or any other two colors you think
would go well together. Aluminum paint is very easy to see. One coat of aluminum paint will lengthen the life of your sign. If you don't want an aluminum colored sign, you may place another color over the aluminum. The aluminum paint is not a requirement, just a suggestion, for making your sign last longer, and warn more people of the danger of fire. The third thing that you need for your sign is a post large enough to support it.
Further instructions:

If your post is well seasoned swabbing around the ground line with hot creosote will lengthen its life.

Place the 4-H insignia or the club name on your sign, but make your letters smaller than the ones which warn people of the danger of fire. The wording on your sign should be short, simple, and easy to see. It must refer to fire prevention. Use your own judgment. Here are some suggestions which you may use if you wish.

THINK OF THE FUTURE—PREVENT WOODS FIRES
YOU NEED TREES AND WILD LIFE—PROTECT THEM
KEEP FIRE OUT OF THE WOODS
EVERYBODY LOSES WHEN FORESTS BURN
PREVENT FOREST FIRES—IT PAYS
BE A FRIEND TO WILD LIFE
HAVE I THE RIGHT TO BURN OFF YOUR LAND?
FIRE SWEEPS WHERE CARELESSNESS CREEPS
WILL WOODS BURN WITHOUT MAN?
LOOK WHAT FIRE DID HERE
PINES ARE PROFITABLE—PROTECT THEM

When your sign is complete, put it in a place where as many people as possible will see it, or where you think it will do the most good. If you have put your sign to work, write a report about your work, and exhibit the report instead of the sign.
A good way to remember leaves is to make a leaf print of them. There are three different ways to make leaf prints. The instructions for these methods are given below.

Candle method.

Equipment needed.

1. A piece of glossy-finished cardboard, the size of a sheet of paper.
2. Vaseline.
3. A candle.
4. Plenty of white paper. It should be good paper.

Rub a quantity of vaseline on the piece of cardboard. Hold the cardboard over a lighted candle until the cardboard is well blackened with soot. Place the leaf on the blackened area, cover with a sheet of paper, and rub with your fingers so that all parts of the leaf are well covered with soot. Now remove the leaf and place it on a clean sheet of paper. Cover the leaf with another piece of paper and rub again. The result is a print of the leaf which will not smudge. Be careful to get the leaf well blackened or an inferior print will result.

Printers Ink Method.

Equipment needed.

1. A piece of heavy glass approximately 12" X 14". 
2. Green printers' ink.

3. A photographers' or printers' roller.

4. Quantity of good grade of white paper.

Place a small quantity of ink on the glass. Roll the ink out to spread it all over the glass. Place the leaf in the ink. Then cover it with a sheet of paper and roll. Remove the leaf to a clean sheet of paper. Roll again. The result is a green print showing the marginal outline and the veins of the leaf. This is the most popular method.

Blue-print method.

Equipment needed.

1. A 5" X 7" holder such as is used in making blue-prints.

2. Two dozen sheets of blue-print paper.

Place the leaf in the holder against the glass. Place a sheet of blue-print paper on the leaf. Make sure the colored side is against the leaf. The cover is then placed in the holder and clamped down. Then the holder is placed in the sun for about five minutes. Instead of a holder, you can place the leaf on a smooth board, cover with the blue-print paper, colored side against the leaf, then cover the paper with a piece of glass. Then place this in the sun.

The next step is to remove the paper and place in a basin of clear water and leave for a few minutes. Remove and dry. Do not leave water standing on the print as it will leave a spot. When dry, the leaf will show
white and the background blue.
MAKE TRANSPLANTINGS OF
NATIVE TREES AND SHRUBS

Here is a chance to make the home grounds more attractive. The 4-H member can find attractive shrubs or trees in the woods. These can be dug up in the proper season (usually in the late winter or early spring) and brought home to be set out there.

By selecting this option, you will not only gain knowledge that will always be useful to you, but you will be able to make your own yard more beautiful or your farm more productive. If you read these instructions and spend a little time studying all of them, you will have far more success with your plants than you will if you are not completely prepared and informed before you begin.

Tools needed.

1. Pruning shears.
2. Shovel.
3. Ax.
4. Burlap sacks, old blankets, or boxes.
5. Rope.

Selection of Trees and Shrubs.

1. You should not select plants which have been growing in deep shade.
2. Your trees should not be stunted, crooked, or otherwise deformed.
3. You shouldn't select trees over three feet high.

Trees larger than this are too hard to handle.
4. Avoid sprouts. They do not have a root system.

5. Select trees and shrubs where the roots are not tangled with the roots of other trees or other obstructions.

Where to Plant.

You may plant your trees and shrubs in your own yard at home or any place where you have permission. There are many places where the planting of trees is desirable. Use your own judgment or ask your parents. A few of the more common places to plant are:

1. Woodlands that have been grazed.
2. Windbreaks.
3. Eroded hillsides.
4. In "Thin woods."
5. Around your yard.
7. Any place not suited to agriculture.

When to Plant.

Your plants should be dormant (not growing fast) when you transplant. Early spring is best, but where the plants you want are located in the high mountains and not accessible in the spring, some fall planting may be necessary. Observe this precaution: Wait until the plants are dormant. This will be after the fall frosts have begun and fall rains wet the ground.

How to Plant Conifers.

1. Do not plant in frozen soil.
2. Take as much native soil with the plant as pos-
sible. The roots should be entirely covered.

3. What is called the "root to top ratio" is important. A small tree has about the same amount of roots below the ground as it has top above the ground. Remember this when you select your tree and be careful to avoid injuring the roots. Get all of the roots. A conifer cannot be pruned without destroying its appearance.

4. Clear a one foot, or more, spot of weeds and vegetation.

5. Keep the roots moist at all times. You may wrap the roots, dirt and all, in wet burlap, an old piece of blanket, or pack them in a box. Be certain you keep the roots moist all the time the tree is out of the ground. The less time the roots are out of the ground, the better chance there is that the tree will grow.

6. Protect the tops from excessive moisture losses by shading and sheltering them from the sun and wind. Spraying the tops with water or wax will decrease loss of water from the tree.

7. Dig the holes deep enough and wide enough to take the roots in a natural position.

8. Plant the trees at the same depth that they grew.

9. Replace the soil around the tree and pack firmly around the roots, especially in the bottom of the hole. **DO NOT LEAVE ANY AIR HOLES AROUND THE ROOTS.**
10. Plant your trees or shrubs where the competition from roots of other trees is not too great. It is necessary to weed constantly to eliminate all weed competition until your plants are well started in their new location.

11. Protect your plants from the sun and wind which tend to dry out the tops.

12. Your plants should have abundant but not excessive moisture.

13. Grazing should not be allowed where you have planted your trees or shrubs.

How to Plant Broadleaf (Deciduous) Trees.

1. If the tree you select is over two feet high, dig straight down two feet from the trunk until all lateral roots are cut. Then tunnel under the roots, leaving a cone-shaped ball of dirt on the roots. This loosens the upper roots. After they are loosened, a hard pull on the stem will usually free the tree. Do not cut away more roots than absolutely necessary. If your tree is less than two feet tall, follow the same instructions, but you may dig closer to the tree than you did for the larger tree.

2. Lift the tree carefully onto a piece of burlap or onto an old blanket. Observe the same rules for keeping them from drying out as are listed for the conifers.

3. The hole in which you plant your tree should be
large enough to take the tree in a natural position. If the tree is too large for one person to hold in an upright position while filling in the hole, another person should hold it.

4. When the hole is partially full, add three or four pails of water (until the ground is well soaked).

5. Fill in with fine soil. No further packing is necessary.

6. To prevent woodborers from attacking a newly transplanted tree, it is advisable to use crepe paper, made for the purpose, or heavy wrapping paper, cut in strips six inches wide, to wrap the trunk from below the ground to the branches.

7. Pruning is necessary if part of the roots have been cut off as the tree will be out of balance as described in the "root to top ratio". Top pruning reduces the demand for moisture and enables the smaller root system to supply enough water when the tree begins to grow. If your tree is over two feet tall, it usually means that the lower half of the branches must be cut off.

8. Give your plants all the necessary care. Keep your tree well watered. Do not use so much water that it will not soak into the ground.
How your broadleaf tree should look after pruning
When to collect.

To obtain seed of the conifers, it is necessary to collect the cones before they become so ripe as to allow the scales to open and the seed to drop out. In this locality, cones should usually be collected about the first or second week of September. It is useless to collect cones after the scales have opened as they will then contain very few, if any, seed. If you are in doubt as to the ripeness of the cone, cut into it and examine the seed. If this is full, plump and white, not milky, the cone is ripe. Ripe cones are often still greenish in color or just starting to turn purple or light brown.

A number of conifers, as illustrated in jack pine and lodgepole pine, often retain their fruit for ten years or more after ripening. The seed of these keep remarkably well and may be collected at any time.

All the pines of Oregon require two years to mature their cones.

How to collect.

Cones can be picked by hand from felled trees.

To collect cones from standing trees, one may climb the tree to reach the cones or may use a ladder. Long handled pruning shears or sharp hooks may be used to advantage in cutting the cones from the trees. Rosin
on cones makes their collection a rather sticky task. Rosin can be removed from the hands, however, with kerosene.

Care of Cones.

Do not pack fresh, unopened cones close together as they are moist and will probably heat and mold and thus damage the seed.

Additional information.

For any additional information, you may see the nearest firewarden to get instructions. You may also visit a commercial nursery and arrange to sell your cones to them. They will also give you information on how and when to pick cones.
DEMONSTRATE THE CORRECT METHODS OF BUILDING AND EXTINGUISHING A CAMP FIRE

Everyone should know how to build and put out a camp fire. Good Foresters have to know how to build and put out a camp fire. Many of the worst forest fires are caused by people who do not know how to take care of a camp fire. I am sure you do not wish to start a forest fire by being careless with your camp fire. The next time you go on a hunting or fishing trip with your Dad or friends, show them how to build a good camp fire and how to really put it out.

Tepee camp fire. The tepee style of building a camp fire is the best known and most used method. Here is how you build it.

1. With a knife or ax, make a pile of shavings.

2. With the ax, chop different lengths and sizes of fuel wood. The lengths should vary from about six or eight inches to about sixteen or eighteen inches. The sizes should vary from about the size of your finger to about one-and-a-half to two inches in diameter. Put the different sizes in different piles.

3. Pick a spot to build your camp fire. Clear the spot down to bare soil for a distance of five feet in all directions from the center. Use your shovel for this work.

4. Now place the shavings in the very center of the cleared spot.
5. Now the small fuel wood is placed over the shavings in a tepee style. Increase the size of the fuel wood as you build. When you finish, the largest pieces should be on the outside. The whole thing should look like a tepee.

6. Light the shavings at the lowest point. This will give your fire a good updraft, making it burn faster. Remember that it takes practise to do anything well.

Log-cabin camp fire. The log-cabin style of building a camp fire is not used as much as the tepee style, but it is often preferred by woodsmen, especially when they want to use the dutch-oven type of cooking. This is how you build it.

1. Prepare your shavings.

2. Prepare your fuel wood.

3. Prepare the camp-fire spot.

4. Place your shavings in the exact center of your cleared place.

5. Now take four of your large pieces of fuel wood. Place two of them on the ground, one on each side of your shavings. Take the other two pieces and place one on each end of the two on the ground to form a square. Take two more pieces and place them across the ends of the last two. Repeat this process until you have the sides of the square of sufficient height. As you build, the size of your fuel wood should become smaller,
just opposite of the way you increase the size of your tepee camp fire. After every layer in your square, lay cross-strips of small fuel-wood so that they cover the shavings.

6. Now make the roof of your cabin. Start bringing two sides of your square in by making the sticks on the other sides of your square shorter each time. When you finish, you should have what looks like a small log cabin. Make sure to put your cross strips of small fuel wood inside of your cabin while making the roof.

7. Now light the shavings at the lowest point.

The size and length of your fuel wood for any type of camp fire will depend on the size of the fire that you wish to make. While practicing and for demonstrational purposes, it is suggested that you keep your fire small. Be sure your camp fire is out. When you extinguish your camp fire, be sure that it is out. Here is how you put it out.

1. Let the fire burn down.

2. Use water to extinguish your fire. Put the water on the coals and then scatter them. Pour more water on the place where the fire was and also on any live coals that you can see are hot.

3. After you think the fire is out, lay your hand among the ashes and on individual sticks. If you feel anything that feels warm, pour more water on the coals. Don't leave your fire until
you can handle all coal and sticks. If you can't touch the coals, they are still too hot and can start a fire.

4. If you do not have water, use dirt to put out your fire. Throw dirt on the fire. Then scatter the sticks and coals. If there are any pieces still blazing throw more dirt on them and then scatter them some more. Repeat this until you think the fire is out. Then test it with your hand as already described. NEVER COVER UP A FIRE WITH DIRT AND LEAVE IT COVERED. The fire will not go out if you do not scatter the coals and dirt.
LEARN AND DEMONSTRATE HOW TO SHARPEN AN AX AND USE IT SAFELY

Sharpening an ax is easy. Keep it sharp for safety. Keep it sheathed to protect both you and your ax.

Instructions on How to Sharpen an Ax.

1. File down flat surface of the ax blade. Place the file flat on the blade at a point $\frac{1}{2}$ inch from...
the cutting edge of the ax, as shown in figure 1, and push the file directly away from the edge of the ax. Lift the file off of the ax after each stroke, filing only on the forward motion. The file should always be kept at right angles to the cutting edge of the ax.

2. The result of your filing should be the fan-shaped effect shown in figure 2. File back for a distance of 3 inches from the cutting edge of the ax at its middle point.

3. Now file the edge. Place the file on the very edge of the ax (figure 3) and make rounded strokes away from the edge to a point \( \frac{3}{4} \) inch back.

4. Next hone the ax with the round ax stone.
Grip the ax as shown in figure 4 and rub the edge of it with the stone, using a circular motion. Start with the rough side of the stone and then repeat with the fine side.

5. Hold the ax as in figure 5 and hone the other side.

The ax should now be sharp. Each time it is re-sharpened, the flat face of the blade should be filed before the cutting edge is filed. The same method is used to sharpen a double-bitted ax. The only difference is that you can sink one cutting edge of the ax into a stump or log and then file the other edge. This is easier as you do not have to hold the ax while you are
How to Use Your Ax.

Experts in the art of chopping have handled axes for years, but you will be able to use an ax well by following the instructions described here. Frequent practice also helps you learn how to use an ax.
**Holding the ax.** Grip the ax with the left hand just above the knob at the end of the handle, and support it with the right hand about 3/4 of the way up the handle. With the ax held in this way, as shown in the drawing labeled "Starting Position", you are ready to start chopping.

**The forehand swing.** The forehand swing is used to cut the right side of the notch. Raise the ax up behind the right shoulder, as shown in the drawing labeled "Forehand Swing". The hands are still in the same position as in the starting position. Now swing the ax down onto the log with a natural, easy, swinging motion, sliding the right hand toward your left hand as you do so. Both hands should be together at the end of the swing. Raise the ax again, sliding your right hand back to the original position. While chopping, your right hand slides up and down the ax handle, while your left hand remains stationary.

**The backhand swing.** The backhand swing is used to chop the other side of the notch. This side of the notch is called the left side. Raise the ax over the right shoulder as before, but lean the body well to the left, as shown in the drawing labeled "Backhand Swing", so that the ax can be brought down in line with the left side of the notch.

Chop gently. Above all, take it easy. Never drive the ax or force it. The weight of the ax is enough to do the chopping. Force is not needed. Worse, force de-
stroys your aim, and accuracy is what counts. Swing with a normal, natural motion, and watch your aim. Aim is what cuts wood, not brute force.
BUILD AND MOUNT A BIRD HOUSE

In this problem, the 4-H member will keep notes of his success, telling what type of bird house was built, how and where it was mounted, and the use that birds make of it.

Material

Bird houses are best built of wood, unplaned or slab material, stained but not painted. They can be made cheaply and easily at home or club, and will help attract birds to your home. Wood is best because it is proof against heat or cold. Use 3/4 inch material for strength and insulation. The rough surface of unplaned lumber allows the young birds to climb from the nest when full grown.

Construction

It is best to make single nest boxes. Most birds will drive away others who try to nest nearby. Robins, swallows, and phoebes build on shelves, and require wet clay for nest material. Woodpeckers, chickadees, and nuthatches use hollow limbs or holes in tree trunks. Natural limb material sawed in half length-wise, hollowed out and refastened, makes homes for these birds.

Roof coverings, or well sloped roofs to keep out rain are most important. Make the lid or base removable for cleaning. To avoid splitting the wood, drill small holes before driving nails.

Size
Boxes 4 to 6 inches square and 8 to 10 inches high are large enough. Drill 1/4 inch holes in the back, near the roof line, for ventilation. Round door holes should be made for the birds. The door holes should be 7 to 9 inches above the floor level. The size of the hole will depend on the size of the bird. You will have to figure out about what kind of bird will use your bird house and make the size of the door to fit the bird.

**Placing.**

A good location is necessary. Bird houses on the sides of buildings and 8 to 10 feet above the ground are cat proof. Most bird houses in trees are not cat proof. Houses placed on poles, within reach of a step ladder for cleaning, and with a metal cat guard on the pole are most frequently used by birds.

An example of a bird house is provided on the next page. You do not have to use this example if you do not like it. You can make your own blueprint.
LABELING TREES AND SHRUBS

Why Label Trees?

One important reason for the labeling of trees and shrubs is so that the average layman who knows little or nothing about trees may become better acquainted with them. As one walks through city parks seeing strange or unfamiliar trees he is more likely to become interested in knowing them if he discovers that they are labeled. Boys and girls attending village or rural schools pass the same trees day after day without having much of an idea whether they are oaks or maples. The older boys and girls in these schools and 4-H Clubs could render a valuable service to the younger ones by identifying and labeling trees in and near the school yard so that they might more readily know these trees. By knowing the trees in the yard some may desire to know others which only helps to broaden their knowledge and appreciation of our trees.

What Type of Labels to Use?

There are many types of labels one may use in this work of tagging trees. A linen tag is sometimes used for a temporary label. It will not generally last more than one season. A tag of this type may be used until a more permanent label can be made.

In some instances a wooden label approximately 4" x 6" may be desirable. The information is written on or burned into the wood. India ink may be used and when dry covered with a coat of varnish. Sometimes a wooden label has a
hinged cover or flap which protects the wording on the label. Such a label allows room for more wording than just the name of the tree. Related information such as tree characteristics is always interesting and instructive.

Probably the most common label is one of zinc. These are usually 1 1/8" x 4 1/2". Material for such labels comes in rolls. For information regarding source of zinc rolls, consult your County Club Agent or the author of this leaflet. A small hole is punched in one end of the label. The wording on this zinc label may be done with India ink and protected with a coat of varnish or solution made by dissolving a plastic tooth brush handle in acetone. This may be obtained at any drug store.

Before attempting to write on the zinc it must be roughened. One method of doing this is to dip the labels in a jar containing commercial hydrochloric acid for four or five minutes after which they are removed and thoroughly washed with clear water. The latest method of marking zinc is to first roughen the label with steel wool and letter with a concentrated solution of copper sulphate. This is made by dissolving copper sulphate (blue vitrol) crystals in a small quantity of water and lettering with a common pen. The solution eats into the zinc leaving a permanent record. This is the method now used by the Department of Landscape Architecture at Massachusetts State College.

What to put on the Labels

For the purpose to which we are advocating these labels
the less technical one is the better. It is suggested that for our native forest trees the common name and some outstanding characteristic is sufficient, i.e., "White Pine"--"Leaves or needles are in clusters of 5." In some cases it is interesting and educational to put on the name of the country where the tree originated, i.e., "Horse Chestnut" -- "Digitately compound, usually 7 leaflets."

GREECE

Placing Labels

It is a pretty good plan to have a definite location on the trees for fastening the labels. The north side of a tree is usually considered best because there is less chance of the sun fading the lettering on the labels. If the labels are in the same location on all trees one doesn't have to spend time looking all around the trees before finding them.

Copper roofing nails should be used in fastening the labels to the trees. These nails should never be driven all the way in but left with an inch or more exposed. This will allow for a few years growth of the tree before they need pulling and redriving. Copper nails are rust proof which makes them more satisfactory than wire nails. Labels should not be placed much over four or five feet from the ground and in school yards 3½' to 4½' might be better.

A copper wire should be used in placing labels on small shrubs, and here again, one should avoid fastening the wire too tightly about the shrub. Room must be left for woody growth.