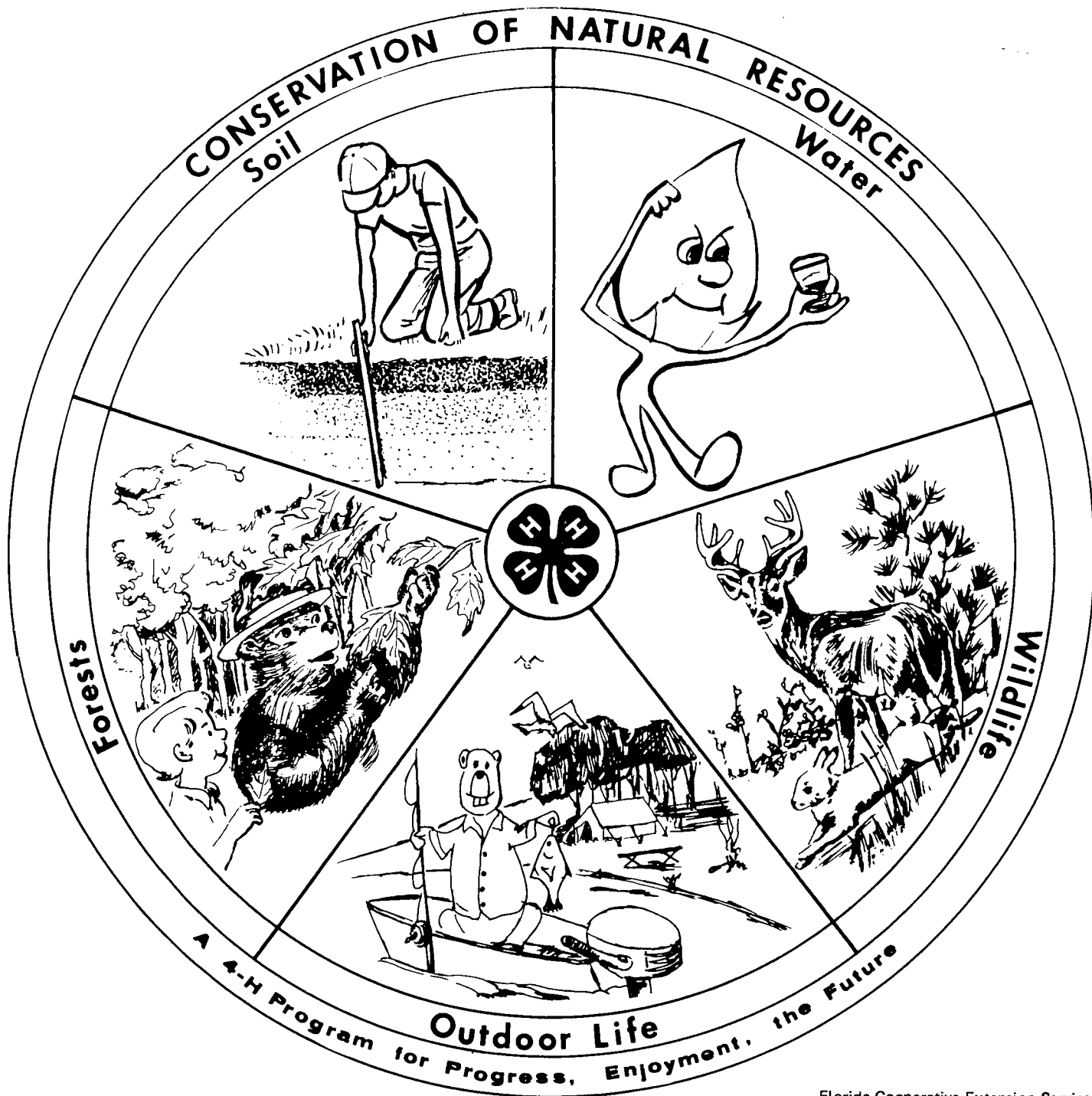


WATER: UNIT III



Florida Cooperative Extension Service  
Institute of Food and Agricultural Sciences  
University of Florida, Gainesville  
John T. Woeste, Dean for Extension

THIS BOOK BELONGS TO:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

PARENT'S NAME \_\_\_\_\_

NAME OF CLUB \_\_\_\_\_

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## CONSERVATION OF NATURAL RESOURCES

Conservation means to use wisely. It means to use, manage, and rebuild. Use things wisely, treat them well, and leave them so that others may have them as well as you.

### OBJECTIVES

1. Develop leadership talents in conservation action programs.
2. Achieve an understanding of effective citizenship in conserving natural resources today and for the future.
3. Apply the decision-making process to make natural resources yield the greatest good to the greatest number over a period of time.
4. Appreciate the social and economic values of natural resources to the individual and to the nation.
5. Learn appropriate scientific practices and methods in conservation.
6. Explore career opportunities relating to Conservation of Natural Resources.
7. Gain a cooperative spirit by working together on a conservation education program important to the community, state, and nation.

#### Minimum Project Requirements:

To complete this project, activities 1, 4, 6, 7, and 10 plus one of your choice are required. You may do them all if you wish. Additional requirements are a minimum of two field trips, one illustrated talk and one exhibit.

When you complete this unit, consider another area of the Conservation of Natural Resources project.

## INTRODUCTION

In the Middle Ages people believed that the water in rivers flowed magically from the center of the earth. Late in the 17th century Halley, the famous English astronomer, added up the amount of water flowing in rivers to the Mediterranean Sea and found that their flow is about equal to the water falling as rain and snow on the area drained by the rivers. At nearly the same time, two Frenchmen, Perrault and Marriotte, made measurements of the flow of rivers and also found their flow about equal to the amount of water falling as rain and snow. These are the earliest known instances of anyone having correctly reasoned that precipitation feeds lakes, rivers, and springs. This idea was very much advanced for the time. Now there are enough river-measuring stations to permit that kind of comparison accurately for many parts of the world.

Water is being exchanged between the earth and the atmosphere all the time. This exchange is accomplished by the heat of the sun and the pull of gravity. Water evaporates from wet ground, from the leaves of growing plants, and reservoirs. It is carried in the air as water vapor, a gas. When water vapor condenses it changes from a gas to a liquid and falls as rain. The rain feeds the rivers and lakes. Rivers carry water to the ocean. Evaporation from land and ocean puts water back in the atmosphere, and this exchange goes on continually. Water goes from earth to atmosphere to earth, around and around. For this reason the exchange of water between earth and atmosphere is called the hydrologic cycle--*hydro* means having to do with water, *loge* is a Greek word meaning knowledge of. Hydrology is the study of or knowledge of water.

Water is probably the least expensive, most valuable, and least valued resource in the State, being mined and delivered to your door for about ten cents per ton.

Contrary to the opinions that Florida's water comes from as far away as the Great Lakes and the Appalachians, our water resources are derived entirely from precipitation (rain, dew, sleet, hail, snow).

Our primary source of water is that which falls as rain on the state. However, in the north and northwest parts of the state, additional water is available from ground and surface water inflow from southern Alabama and southern Georgia.

There is no way to increase the earth's total supply of fresh water except by desalting sea water, a process which at the present time is too expensive for practical use in most areas.

Because our water resources are both renewable and mobile, the available supply at any one place is continually changing like a flow of traffic along a system of highways. This moving, changing resource is measured in terms of amounts of rain and snow, of the rising and falling flow of streams and rivers, of the vapor which the sun draws up and plants transpire, and of changing quantities underground. Water is on the move, and conserving it mostly involves controlling and diverting its natural movement over the landscape as well as storing it for periods. Consumption of water does not *use up* the overall supply significantly--although such use certainly does reduce temporarily the amount available at various points in the system, often causing serious "shortage" problems. As with other resources, we have to consider *supply* and *demand*. From natural causes the *supply* varies from place to place and time to time. *Demand* varies likewise.

There is a lot to be known about water.

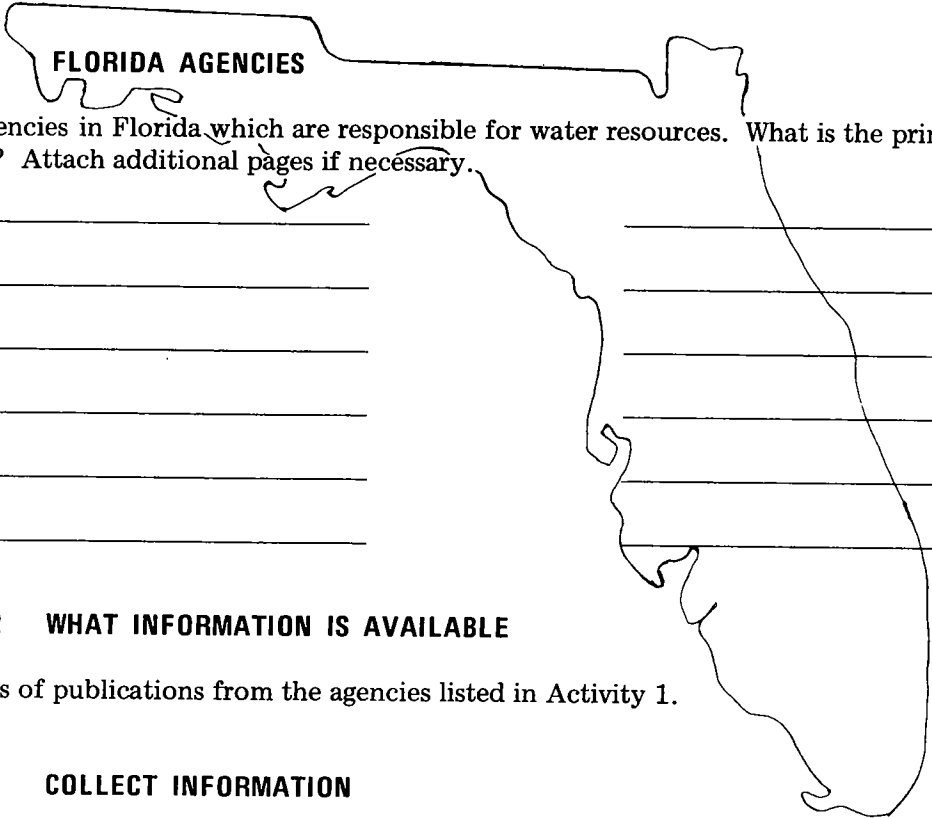
We see and feel rain, snow, dew, fog. We use water for drinking and washing. We irrigate our lawns and fields. We talk about the weather and complain when it is too wet or too dry. Most of us are conscious of the importance of water in our lives.

Learning more about water; its importance, the amounts we need, where it comes from and what happens to it; will help us use it wisely and better understand the need for water conservation programs.

**WATER: UNIT III**

**ACTIVITY 1 FLORIDA AGENCIES**

List the agencies in Florida which are responsible for water resources. What is the primary responsibility of each? Attach additional pages if necessary.



A large outline map of Florida is positioned on the right side of the page. To the left of the map, there are two columns of horizontal lines for writing. The left column has seven lines, and the right column has six lines.

**ACTIVITY 2 WHAT INFORMATION IS AVAILABLE**

Request lists of publications from the agencies listed in Activity 1.

**ACTIVITY 3 COLLECT INFORMATION**

From the appropriate agency, obtain materials describing Florida's water supply. Using these materials prepare and present an illustrated talk on the subject to your club, other groups, or on television. You might consider holding a club debate.

**ACTIVITY 4 RECHARGE?**

Is Florida's water supply being replaced as fast as it is being used? Explain.

**ACTIVITY 5 RECHARGE!**

Explore and describe ways the recharge rate can be increased.

**ACTIVITY 6 WATERSHEDS**

What is a watershed? What are the approximate boundaries of the one in which you live? Attach on a separate page a description or a map.

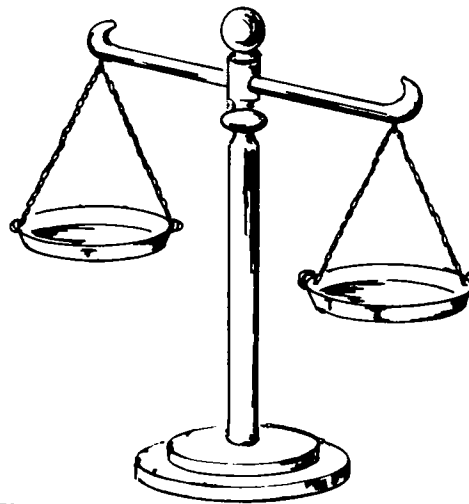
## **ACTIVITY 7 SOIL AND WATER CONSERVATION DISTRICTS**

Where is the Soil and Water Conservation District office in your county? Visit the local Soil and Water Conservation District office and ask about opportunities to participate in watershed management activities.

Location \_\_\_\_\_

## **ACTIVITY 8 CAREERS**

Explore career opportunities in water resource management. Write a paragraph describing each one. Attach to your record.



## **ACTIVITY 9 LEGISLATION**

Write your legislator for material on water legislation. Include as a part of your record, a copy of your letter, and the reply you receive.

## **ACTIVITY 10 DESALINIZATION**

Secure information on desalination as a supplemental water source. Indicate the information secured and its source.



## ACTIVITY 12 CONSUMPTION VS NONCONSUMPTION

Differentiate between, and give several examples of, consumptive and nonconsumptive water use.

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## ACTIVITY 13 TAKE A FIELD TRIP



Make at least one field trip to observe either a consumptive or nonconsumptive water use. Write a paragraph describing the field trip. Attach on a separate sheet.

## ACTIVITY 14 MAKE A STUDY OUTLINE

Devise a study outline for a special interest group in one of the following areas.

1. Watershed development.
2. Recharging the ground water system.
3. Consumptive water use.
4. Nonconsumptive water use.
5. Water conservation campaign.
6. Other subjects of particular interest where you live. (Your leader will have additional suggestions.)

## ACTIVITY 15 DOCUMENTED FACTS

Make a collection of water facts or oddities. List them (with reference to a source if possible) below. Use additional pages if necessary. Find as many as you can.

### EXAMPLES:

Daily, in Florida, 110 billion gallons of water are lost by evaporation or transpiration.

(Florida Conservation News, Vol. 1, No. 1, November 1965)

Florida has 17 of the 100 first magnitude springs of the world. A first magnitude spring is one that has a flow of at least 100 cubic feet per second.

(Florida Conservation News, Vol. 1, No. 1, November 1965)

Lake Okeechobee is the second largest fresh-water lake in the United States, Lake Michigan is the largest.

(Florida Conservation News, Vol. 1, No. 3, December 1965)

1. \_\_\_\_\_  
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## ACTIVITY 16 OTHER THINGS TO DO

Help your leader think up additional activities. (You might consider getting a team of your club members to survey local water problems and writing an article for the local newspaper. Make the newspaper article part of your record.)

## REFERENCES

### BOOKS

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2. Graham, Edward H., and William R. Van Dersal, *Water for America*. 112 pp., illus. Oxford University Press, 1956.
3. Helfman, Elizabeth S., *Water for the World*. New York: McKay, 1960.
4. Leopold, Luna B., Kenneth S. Davis and the Editors of Life, *Water*. New York: Time, 1966.

### USDA YEARBOOKS

1. *Climate And Man*, Yearbook of Agriculture, 1941.
2. *Water*, Yearbook of Agriculture, 1955.
3. *A Place To Live*, Yearbook of Agriculture, 1963.
4. *Science For Better Living*, Yearbook of Agriculture, 1968.

### USDA PAMPHLETS

1. *What Is A Watershed?* USDA PA-420, 1963.
2. *Conservation And The Water Cycle*, USDA Agriculture Information Bulletin No. 326, 1967.
3. *Replenishing Underground Water Supplies On The Farm*, USDA Leaflet No. 452, 1959.
4. *Water Intake By Soil, Experiments For High School Students*, USDA Miscellaneous Publication No. 925, 1963.

## Notes



## *Conservation Pledge*

**I GIVE MY  
PLEDGE AS AN AMERICAN  
TO SAVE AND FAITHFULLY TO  
DEFEND FROM WASTE THE  
NATURAL RESOURCES OF  
MY COUNTRY — ITS SOIL  
AND MINERALS, ITS  
FORESTS, WATERS,  
AND WILDLIFE.**

This public document was promulgated at a cost of \$326.24 or 16¢ per copy to inform 4-H members about conservation of natural resources.

2M-6/77

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS  
(Acts of May 8 and June 30, 1914)  
Cooperative Extension Service, IFAS, University of Florida  
and United States Department of Agriculture, Cooperating  
K. R. Tefertiller, Director