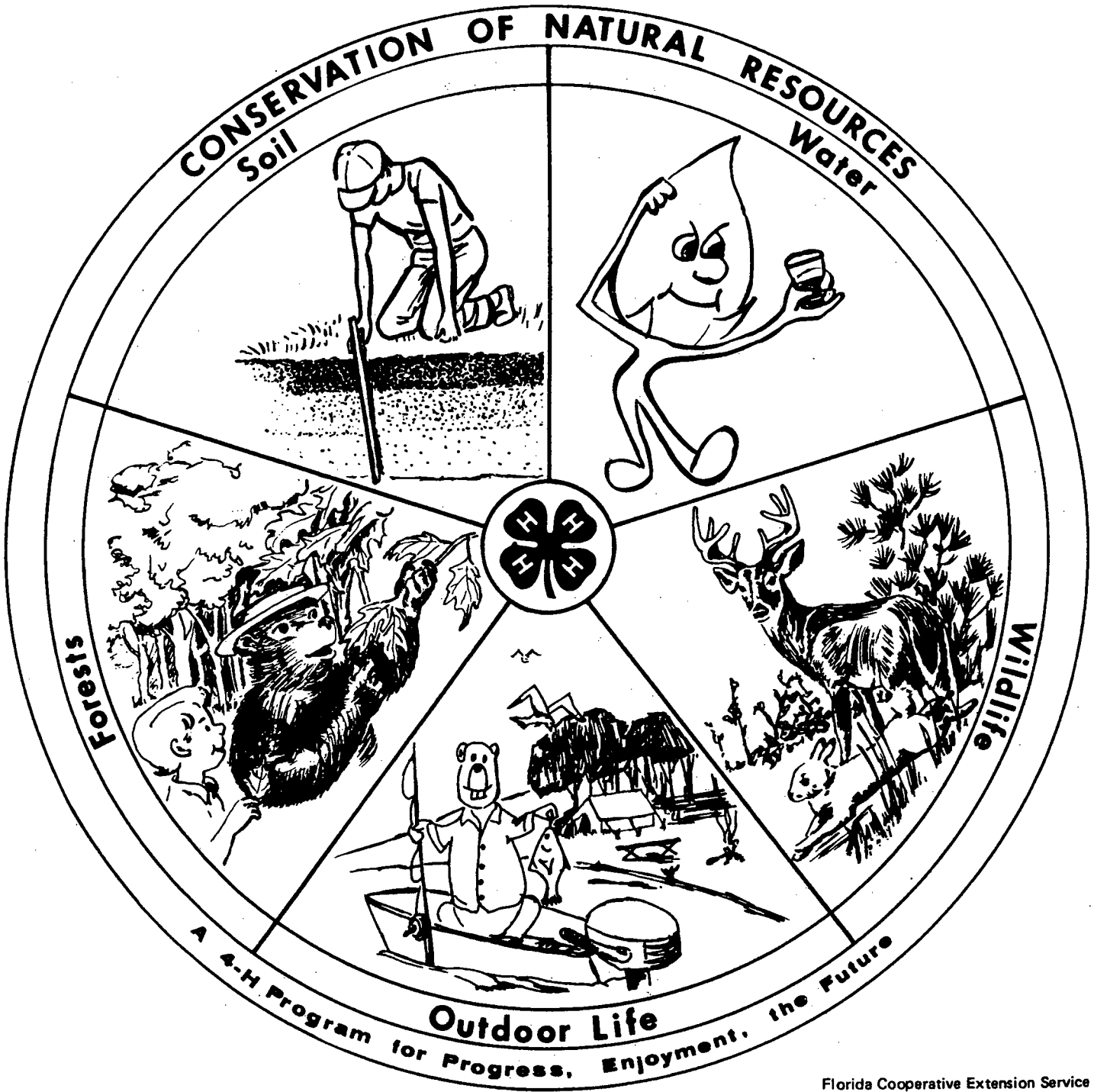


WATER: UNIT II



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 \_\_\_\_\_

## TABLE OF CONTENTS

Objectives and Requirements .....	1
Introduction .....	2
Activity 1    What happens to precipitation? .....	3
Activity 2    Draw a graph .....	3
Activity 3    Crossword puzzle .....	4
Activity 4    New water uses .....	5
Activity 5    Water and cooking .....	5
Activity 6    Water processing requirements .....	5
Activity 7    List some references .....	6
Activity 8    Inventory flood problems .....	6
Activity 9    Report on water use .....	6
Activity 10    Fill in the blanks .....	6
Activity 11    Other things to do .....	6
References .....	7
Conservation Pledge .....	9

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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 3, 4, 8, and 9 plus two of your choice are required.

When you complete the unit, advance to WATER: UNIT III.

## 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 natural 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's a lot to be known about water.

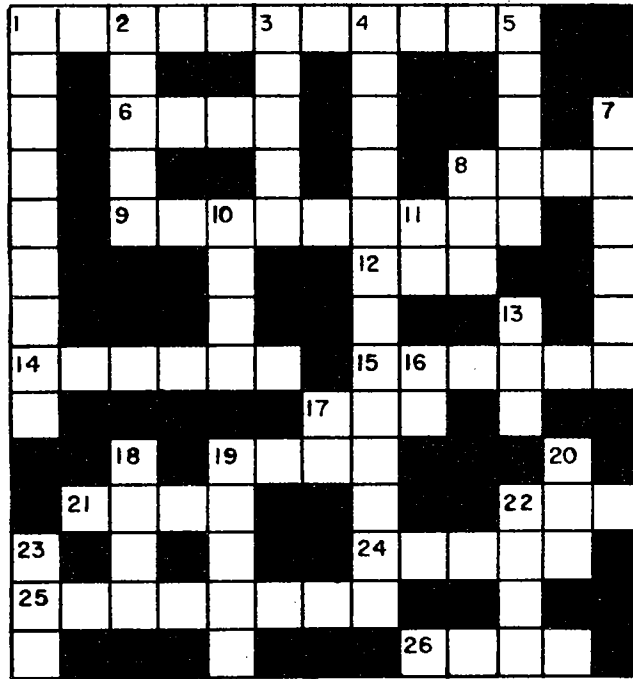
We see and feel rain, snow, dew, fog. We use water for drinking and washing. We irrigate our lawns and fields. We talk about the weather and complain when it is too wet or too dry. Most of us are conscious of the importance of water in our lives.

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.



**ACTIVITY 3 CROSSWORD PUZZLE**

Work the following crossword puzzle.



**ACROSS**

1. Process of converting into vapor.
6. To impose a charge.
8. A bore or shaft extending into the earth capable of yielding water.
9. A tract of land or country, drained by a river and its tributaries.
12. A domesticated animal.
14. Vital element in respiration.
15. Natural streams of water larger than brooks or creeks.
17. A barrier to confine or raise water for storage or diversion.
19. Twelve inches.
21. To descend freely by the force of gravity.
22. To move swiftly.
24. The whole body of salt water which covers nearly three-fourths of the surface of the globe.
25. Combines with oxygen to form water.
26. A body of water, usually smaller than a lake.

**DOWN**

1. Height above sea level.
2. Permit.
3. Verse with similar end sounds.
4. Process, movement of water out of plant leaves.
5. Observed.
7. Cirrus, Cumulus, Nimbus, and Stratus.
8. Not dry.
10. A large woody plant.
11. Personal pronoun.
13. A charge made for livestock grazing on the basis of a certain rate per head for a certain period of time.
16. Contraction for I am.
17. Accomplish.
18. The solid part of the earth's surface and and its physical environment.
19. A great flow of water.
20. The luminous celestial body around which the earth and other planets revolve.
22. Precipitation occurring in the form of liquid drops or droplets.
23. The most often asked question.

**ACTIVITY 4 NEW WATER USES**

Use of water is increasing! List as many ways as you can that water is used today that were impossible 25 years ago.

- 1. \_\_\_\_\_  
\_\_\_\_\_
- 2. \_\_\_\_\_  
\_\_\_\_\_
- 3. \_\_\_\_\_  
\_\_\_\_\_
- 4. \_\_\_\_\_  
\_\_\_\_\_
- 5. \_\_\_\_\_  
\_\_\_\_\_

**ACTIVITY 5 WATER AND COOKING**

Measure and report in the blank the amount of water required to prepare one fresh vegetable dish for a meal for 4 people. \_\_\_\_\_

**ACTIVITY 6 WATER PROCESSING REQUIREMENTS**

Listed below are several familiar items. Guess how much water is required to process each item. Check your guess with the leader.

**TABLE**

ITEM	GUESS	CORRECT AMOUNT
1 pound of cotton cloth		
1 pound of rayon		
1 yard of wool		
1 ton of steel		
1 ton of aluminum		
1 ton of newsprint		
1 pound cane sugar		
1 gallon gasoline		
1 phonograph record		
1 ton of soap		

### ACTIVITY 7 LIST SOME REFERENCES

Make a list of references on Florida water resources which are available through your school or public library. Insert your bibliography on a separate sheet.

### ACTIVITY 8 INVENTORY FLOOD PROBLEMS

List and describe problems that occur where you live during periods of excess rainfall. Insert on a separate sheet.

### ACTIVITY 9 REPORT ON WATER USE

Explore and report, both in this record book and to your club, ways in which water is used either agriculturally or industrially where you live. Information for this activity can be collected by going on a field trip. (Consider turning in to your science teacher for possible extra credit.)



### ACTIVITY 10 FILL IN THE BLANKS

What percentage of the human body is water? \_\_\_\_\_ How much do you weigh? \_\_\_\_\_

How many pounds of you is water? \_\_\_\_\_ How much does one gallon of water weigh? \_\_\_\_\_

How many gallons of water equal one cubic foot? \_\_\_\_\_ An *acre-foot of water* is the volume of water sufficient to cover an acre to a depth of 1 foot. Since an acre has 43,560 square feet, an *acre-foot of water* would be equal to 43,560 cubic feet. How many gallons of water is this? \_\_\_\_\_

If a reservoir has a surface area of 10 acres, and if the *average* depth of the water is 12 feet, how many acre-feet of water does the reservoir contain? \_\_\_\_\_

### ACTIVITY 11 OTHER THINGS TO DO

Help your leader think up additional activities. How about exploring ways water could be discussed in your school subjects?

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## Notes

## 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 \$309.48 or 24¢ per copy to inform 4-H members about conservation of natural resources.

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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. Tafertiller, Director