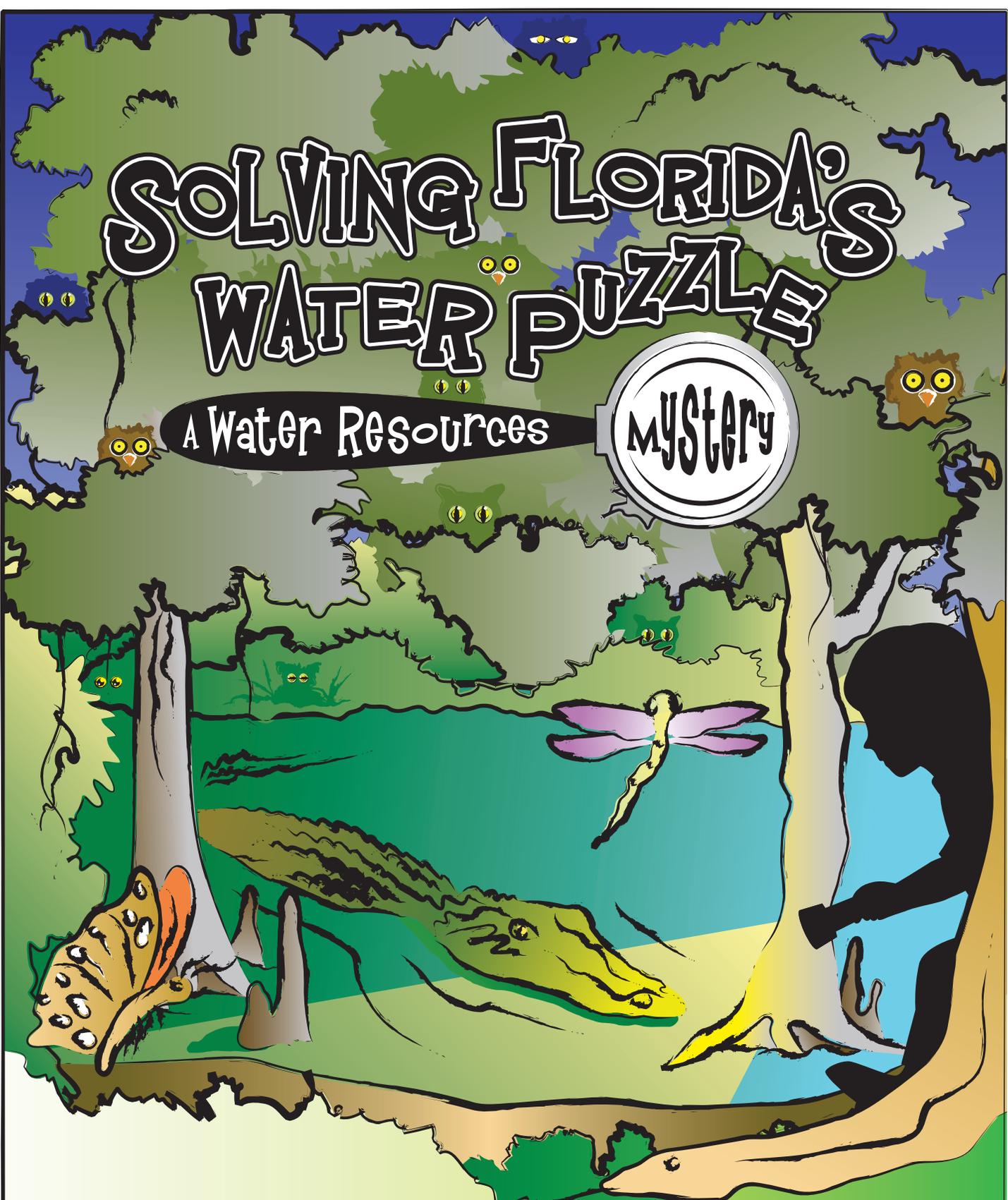


# SOLVING FLORIDA'S WATER PUZZLE

A Water Resources

MYSTERY



Southwest Florida  
Water Management District

WATERMATTERS.ORG • 1-800-423-1476

Student Booklet  
Grades 6–8

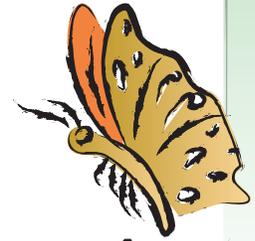
# What Can Be Done to Conserve and Protect Our Water Resources?

Get ready to help solve Florida's water puzzle by participating in a water resources mystery! YOU will play the role of an environmental detective. Throughout your investigation, you will gather several clues to help you learn more about water. For each clue, we have included a variety of information and activities about water. Be sure to check your facts so you can continue on your investigation to the next clue. Don't forget to complete the "piece it together" activities at the end of each clue. We have also included a water conservation game and a contest for you to enter.

This *Solving Florida's Water Puzzle* booklet focuses on water conservation, our current water conditions and alternative sources of water supply. The Southwest Florida Water Management District (SWFWMD) is the regional agency responsible for managing water resources. A goal of the SWFWMD is to ensure that there is an adequate supply of water for all reasonable and beneficial uses, now and in the future, while protecting and maintaining water and related resources.

When more people move into an area, they will need more water. In order to meet the increasing demands for water, we need to help solve the puzzle about what can be done to conserve and protect our water resources. It's up to all of us!

For additional information about water resources protection, please contact the SWFWMD's Public Affairs Bureau at 1-800-423-1476, ext. 4757, or visit our website at [WaterMatters.org](http://WaterMatters.org).



## Water Mystery Guide

 ..... Page 3  
Discovering the Basics About Water

 ..... Page 4  
Surveying Our Current Conditions

 ..... Page 6  
Investigating Water Conservation

 ..... Page 10  
Searching for Alternative Sources

 ..... Page 12  
Solving the Case Depends on Everyone

The *Solving Florida's Water Puzzle* booklet is a special educational publication from the SWFWMD. The purpose of the publication is to educate students, residents and visitors about water resources issues and encourage protection of our water resources. A supplementary teacher's guide is available on request. Please contact the Public Affairs Bureau of the SWFWMD at (352) 796-7211 or at 1-800-423-1476 (FL only), ext. 4757. You can also order free copies of our materials online at [WaterMatters.org/publications/](http://WaterMatters.org/publications/).

The SWFWMD serves all or part of these 16 west-central Florida counties: Charlotte, Citrus, DeSoto, Hardee, Hernando, Highlands, Hillsborough, Lake, Levy, Manatee, Marion, Pasco, Pinellas, Polk, Sarasota and Sumter.

The Southwest Florida Water Management District (District) does not discriminate on the basis of disability. This nondiscrimination policy involves every aspect of the District's functions, including access to and participation in the District's programs and activities. Anyone requiring reasonable accommodation as provided for in the Americans with Disabilities Act should contact the District's Human Resources Bureau Chief, 2379 Broad St., Brooksville, FL 34604-6899; telephone (352) 796-7211 or 1-800-423-1476 (FL only), ext. 4702; TDD 1-800-231-6103 (FL only); or email [ADACoordinator@WaterMatters.org](mailto:ADACoordinator@WaterMatters.org).



Clue

1

# Discovering the Basics About Water

Think about a few of the different living things that exist on earth. Some examples might include a friend at school, the palm trees in your neighborhood or the pair of sandhill cranes nesting at a nearby pond. What do all living things depend on in order to survive? The answer is water.

### It's a fact that...

the water on earth today is the same water that has always existed on earth.

### It's a fact that...

water is the most common substance on earth. Without water, life could not exist.

### It's a fact that...

water makes up about 70 percent of the human body.

### It's a fact that...

water can exist in three different forms — liquid, solid and gas.

### It's a fact that...

all the water on earth recycles itself through our environment in a process called the **hydrologic cycle**.

We've already discovered that we need water to survive, but where does water come from? In Florida, our water comes from rain. When rainwater falls, it typically follows one of three main paths. On the first path, water remains on the earth's surface, and so is called **surface water**. This water may end up in fresh water bodies such as lakes, streams, rivers and creeks. The water could also find its way to saltwater oceans. Surface water provides approximately 20 percent of our water supply.

By taking the second path, water soaks into the ground and is called **groundwater**. Groundwater is held in soil and rock formations called **aquifers**. Aquifers are spongelike underground layers of limestone full of holes that water can flow through. Approximately 80 percent of our water supply comes from groundwater pumped from aquifers.

The third path water may follow is evaporating into the air. **Evaporation** occurs when heat from the sun causes water to change its form from liquid to gas. **Transpiration** is a form of evaporation that happens when plants and trees give off moisture through their leaves. This vapor is carried through the atmosphere in clouds and contributes to the earth's weather patterns, eventually falling as **precipitation** in the form of rain, snow, sleet or hail. In our region of Florida, we usually receive between 50–55 inches of rain every year.

The next time you brush your teeth, drink a glass of water, wash your face or take a shower, think about your part in the natural water cycle. Water is a precious resource and we need to encourage everyone to conserve water and use it wisely.

## Check Your Facts

Check all the phrases that are true about water.

- More of our drinking water comes from groundwater than surface water.
- The average yearly rainfall in our area is 50–55 inches.
- The human body is mostly made up of water.
- The water cycle has no beginning and no end.
- Aquifers hold groundwater.

Answer: If you checked all of them, you have discovered a few facts about water.

## Don't Be Clueless — Piece It Together

1. Using a camera, take a few outdoor photos that illustrate something associated with water. Describe how each photo relates to part of the water cycle.
2. Search newspapers, magazines or the Internet for an interesting picture or article about water. Describe how the piece relates to the water cycle.





## Surveying Our Current Conditions

An important step in trying to solve any problem is gathering information about the current situation. Before you try to identify what can be done to conserve and protect our water resources, what should you do first? The answer is **examine the present water situation**. Let's survey our current water conditions.

### Our Current Situation

Surrounded on three sides by water and containing thousands of lakes and several major rivers, Florida seems to have plenty of water. As a matter of fact, Florida's average yearly rainfall amount is the second highest of any state in the country — 50–55 inches. In recent years, however, rainfall amounts have fallen below this average. This is bad news because Florida depends on large amounts of rainfall to replenish its water supply. This means that your detective work must begin with weather.

### How Our Climate and Weather Affect Us

Just think for a moment how weather affects our daily routines and activities. Weather conditions that are cloudy, stormy, hot, cold, sunny or dry have a direct impact on us, as well as on plants, animals and just about everything in our environment. In west-central Florida, we live in a humid subtropical climate. Climate refers to the weather patterns that take place in an area over a long period of time. Our climate naturally fluctuates between wet and dry seasons. Typically, we get 60 to 65 percent of our rainfall between June and September, but lose nearly three-fourths to evaporation.



Our pleasant climate attracts visitors and new residents. Estimates are that by 2025, the SWFWMD's population will grow to more than 6 million. You don't need to be a detective to know that is a lot of people! Our projected population growth shows that demand for water will exceed traditional supplies in many areas within the SWFWMD. In fact, in some areas it already has. As long as Florida continues to be dependent on rainfall, and our population continues to grow, people will need to use water wisely.

### Droughts are Dry

Usually people think that a drought exists only in a desert or other type of dry region. But a *drought* actually describes a period of time during which precipitation is much lower than the average amount of precipitation for that time of year at that particular place.

Droughts affect our environment in many ways. A drought causes water tables and water levels of streams, rivers and creeks to fall. A drought causes the soil to become dry, which then causes plants and crops to suffer. Forest fires can ignite easily and spread quickly during dry conditions. All forms of wildlife, including raccoons, armadillos, birds and even fish, are faced with additional challenges for survival when droughts spread through their habitats. Often, people mistakenly think that a drought is over when a heavy rainfall occurs. However, it takes several heavy rainfalls to raise the water levels of surface water bodies, such as streams and rivers, and to recharge the aquifers. During drought conditions it is especially important that all water users understand and practice water conservation.

## Our Current Water Users

Type	2010	2030	% Change
Public Supply/Domestic Self-Supply	659	856	up 30%
Agriculture	410	418	up 2%
Industrial/Commercial/Mining/Dewatering	124	136	up 10%
Recreational/Aesthetic	110	146	up 33%
<b>Total</b>	<b>1,303</b>	<b>1,556</b>	<b>up 19%</b>

Figures are given as million gallons per day averages in the Southwest Florida Water Management District

To help determine the water demands throughout the SWFWMD for now and in the future, current water users are grouped according to the way they use water. Use the chart above to gain a better understanding of how much water was being used as of 2010 by different types of water users and what the anticipated demand for water will be in 2030. To help protect our valuable water resources, all types of water users are finding more efficient ways of using water.

## The Land and Water Connection

Further stress is placed on the available water resources as land is altered and developed to accommodate our rapidly growing population. There is a strong connection between land and water. Florida's natural systems depend on fresh water and fresh water depends on healthy natural systems. Special care must be taken to avoid harming water resources and natural ecosystems. Improved planning about how land should be used and ways it can be developed more efficiently can help minimize the impact land development has on resources in the surrounding environment.

One way natural Florida ecosystems are preserved, protected and restored is through land acquisition. In fact, the SWFWMD has acquired and manages more than 400,000 acres that are considered important for water management, water supply and the conservation and protection of water resources.

Most of the land acquired by the SWFWMD is open for public recreational activities such as biking, hiking, camping and bird watching. Annually, about 2.5 million people are attracted to these lands for an opportunity to enjoy recreational activities and experience the natural beauty of real Florida.

### Don't Be Clueless — Piece It Together

1. Study the chart above that shows the water demands throughout the SWFWMD. Identify the groups that used the most and least amount of water in 2010. Compare their projected increase or decrease for water in 2030.
2. Look through your newspaper, search the Internet or watch television for the daily weather forecast. Select three different cities and describe how the weather forecast could affect a person's activities for that day.

## Check Your Facts

True or False? Circle T or F.

T or F

1. Fewer people are moving into our area each year.

T or F

2. Water should be conserved only during droughts.

T or F

3. A drought can occur in a subtropical humid climate.

T or F

4. By 2030, water demands will decrease by about 30 percent.

T or F

5. Agriculture is the area's largest user of water.

Answers: 1-F, 2-F, 3-T, 4-F, 5-F



# Investigating Water Conservation



While discovering a few basics about water and surveying our current conditions, you learned that water is one of our most important resources. What do you think is one of the easiest and least expensive ways to protect this valuable resource? The answer is **water conservation**.

EVERYONE is a water user. Consider a situation in which every person wastes just a few gallons a day. Can you imagine the total amount of water wasted in a year? The numbers would be shocking! It's so important to consider easy ways that your family can save water. Remember, water conservation is all about practices that use less water and it's up to all of us to find ways of using water more efficiently. There's no time OR water to waste!

It has been estimated that each person in our region uses an average of 113 gallons of water each day. We use water in a variety of ways inside and outside our homes. Most indoor water use occurs in the bathroom. Gallons of water are used every time you brush your teeth, wash your hands, flush a toilet and take a shower or bath. In the kitchen, water is used to prepare food, run a disposal and wash dishes. In the laundry area, every load of wash depends on lots of water. Outside, water is used to irrigate the lawn and plants and to wash the family car. In fact, a typical family uses about 50 percent of its water on outdoor activities. All these clues tell you there is a lot of water being used every day in and around your home.

Here is your chance to use your environmental detective skills and investigate the inside and outside of your home. Your investigation may give you a few clues about how your family uses water. For each area, the goal is to be able to answer "YES" to as many questions as possible. Try to get your whole family involved and repeat the activity each month.



## In the Kitchen

Yes

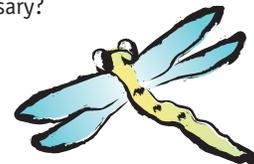
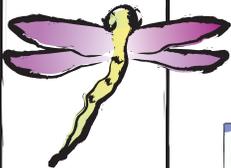
- Have you checked faucets and pipes for any leaks?
- Do you use the automatic dishwasher for only full loads or use water-saving settings, if available?
- When washing dishes by hand, do you turn the water on only when needed?
- Do you chill water in the refrigerator, rather than letting it run until cool?
- Do you use the garbage disposal only when necessary?

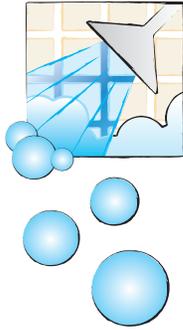


## In the Laundry Area

Yes

- Do you wash only full loads of clothes or adjust the water level for the correct load size?
- Have you checked faucets and pipes for leaks?





## In the Bathroom

Yes

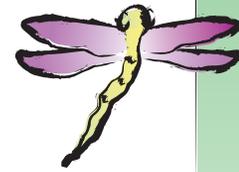
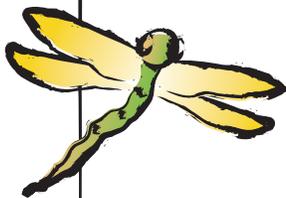
- Have you checked faucets and pipes for leaks?
- Do you turn off the water while brushing your teeth?
- Do you limit the amount of water you use when taking a bath or shower?
- Do you have a low-flow showerhead?
- Do you have a low-flow toilet?
- Do you avoid using the toilet as a trash basket?



## Outdoors

Yes

- Do you water your lawn only when necessary?
- Do you follow the watering restrictions for your community?
- Do you use a broom instead of a hose to clean driveways and sidewalks?
- Do you wash the car with a sponge, bucket and a hose with a nozzle?
- Did you install an automatic rain shutoff device?
- Do you follow Florida-Friendly Landscaping™ principles in your landscaping?



## Water Restrictions

Water restrictions are an important aspect of water conservation. Check with your local water utility to find out the days and times that you are allowed to water outdoors. If your local government does not have watering restrictions, follow those set down by the SWFWMD. Following watering restrictions not only demonstrates good citizenship but also shows support of water conservation efforts. Remember to reuse water whenever it is possible. Instead of wasting water from leftover drinks or baths, reuse the water on a few plants and trees. Your family may also want to consider Florida-friendly principles for gardening, such as planting trees, shrubs, foliage and flowers that require less water and are right for the soil, sun and other natural features of an outdoor area.

### Don't Be Clueless — Piece It Together

1. Select three friends, classmates or relatives to interview. Ask them to describe what water conservation means to them in their daily lives. Use a tape recorder or notebook to record each of their responses. Discuss their responses.
2. Look through newspapers or magazines for pictures of water or water scenes. For each picture, write a caption that includes a water conservation message.



## Check Your Facts

For each statement, decide whether the person is saving or wasting water.

**Circle Save or Waste.**

### SAVE or WASTE

1. Your friend turns the water off while brushing his teeth.

### SAVE or WASTE

2. Your neighbor waters the lawn every afternoon.

### SAVE or WASTE

3. Your friend is always tossing tissues into the toilet and flushing them away.

### SAVE or WASTE

4. A relative uses a Xeriscape plant guide to choose plants for his garden.

### SAVE or WASTE

5. A classmate sweeps leaves from the sidewalk.

Answers: (S = Save, W = Waste) 1-S, 2-W, 3-W, 4-S, 5-S



# WATER CONSERVATION GAME

Don't be puzzled over Florida's Future.  
Take steps today to conserve water.

Get ready to save water for our future! This game is for 2 or more players and the goal is to be the environmental detective who saves the most water. Players will follow the steps around Florida and end their journey at the Southwest Florida Water Management District.

## Instructions:

1. Cut out the game pieces located at the bottom of the game. One die, a pencil and paper will also be needed.
2. The first player puts his/her game piece on START, rolls the die and moves the number of spaces on the die. Players then take turns rolling the die and moving their pieces.
3. Players landing on a **special square** follow these instructions:
  - **Water Drops 1–10:** Read the water drop statement aloud and move ahead or score drops.
  - **Save:** Suggest one way a water user could conserve water. Score 2 drops.
  - **Waste:** Tell one way a water user may waste water and offer a suggestion for improvement. Score 3 drops.
  - **Lose Turn:** Lose one turn.
  - **Extra Turn:** Take an extra turn.
  - **Finish:** The first player to reach **FINISH** scores a bonus of 5 drops.
4. After all players have reached **FINISH**, count the number of drops each has saved. The player who saved the most drops is the winner.

**1** Our traditional water supply comes from groundwater and surface water.  
**Score 4 drops.**

**6** Florida-Friendly Landscaping™ is a way to have an attractive landscape while practicing water conservation.  
**Move ahead 4 steps.**

**2** Water moves through our environment in an endless cycle called the hydrologic cycle.  
**Move ahead 3 steps.**

**7** Reclaimed water is a way to provide us with an alternative water supply.  
**Move ahead 1 step.**

**3** Florida depends on its average yearly rainfall of 53 inches to replenish the water supply.  
**Score 2 drops.**

**8** Although stormwater is one of the biggest sources of water pollution, it can be an alternative water supply.  
**Score 3 drops.**

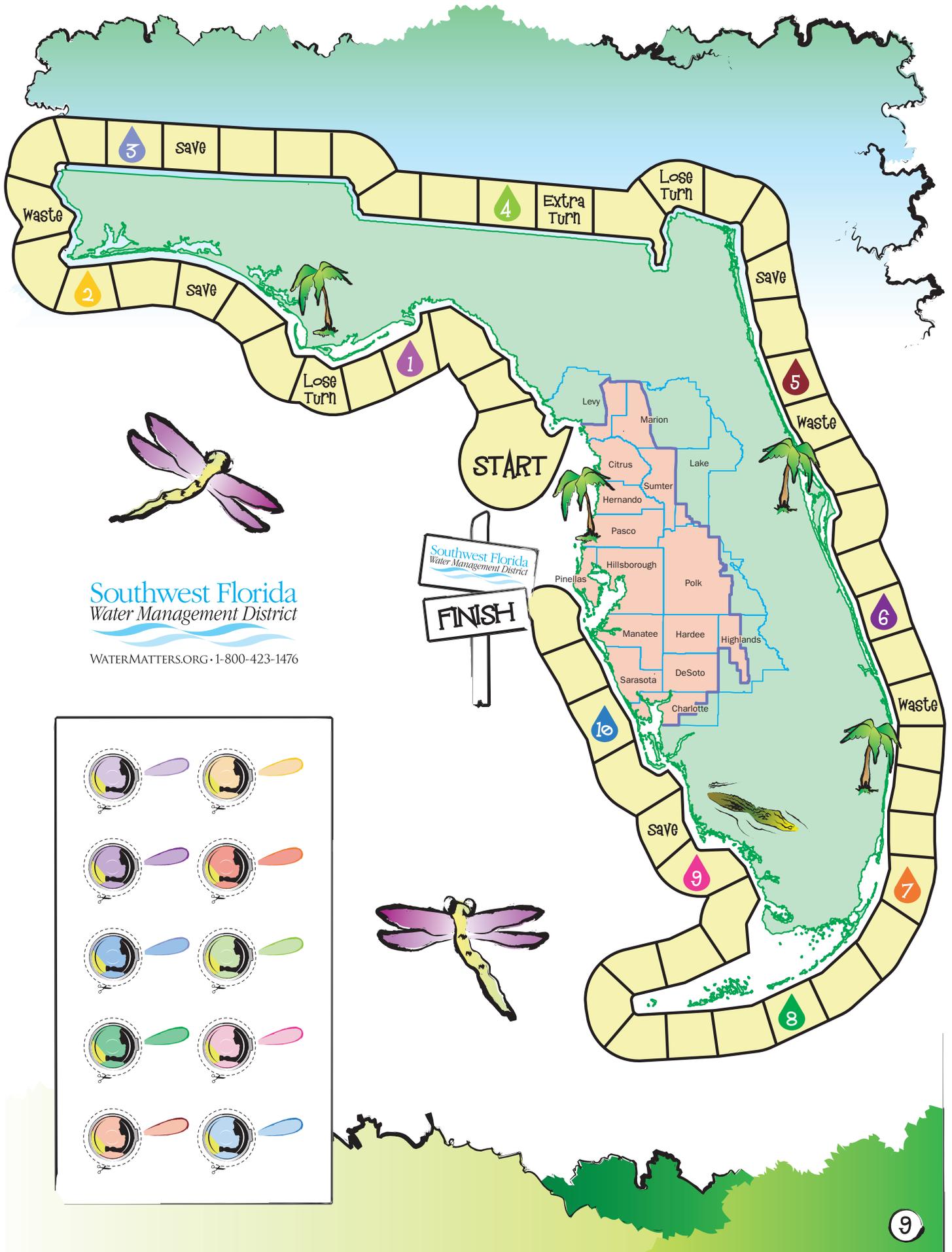
**4** The demand for water will increase as land is altered and developed for our rapidly growing population.  
**Move ahead 4 steps.**

**9** There are many ways for people to become involved in projects that contribute to water resources solutions.  
**Move ahead 2 steps.**

**5** Water conservation is all about practices that use less water.  
**Score 3 drops.**

**10** It's up to all of us to do our part to help conserve water for our future.  
**Score 1 drop.**





Southwest Florida  
Water Management District

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## searching for Alternative sources

In an earlier clue, you learned that our traditional sources of water are groundwater and surface water. Using your detective instincts, can you think of other ways to meet our area's increasing demand for water? The answer is **we need to search for alternative sources**. Let's take a look at a few of the possibilities.

### Surface Water stored for Future Use

If you have ever walked along the edge of a river or lake, then you are already familiar with a few forms of surface water. Since surface water is any water that has not seeped into the ground and is exposed to the air, it can exist in many different shapes and forms. Although most of the water that people in Florida use comes from aquifers, there are rivers and creeks within the boundaries of the SWFWMD that supply fresh water to the cities of Tampa, Bradenton, Punta Gorda, Port Charlotte, North Port and the counties of Manatee and Sarasota.

By expanding existing facilities, constructing new reservoirs and efficiently managing our water resources, additional amounts of water can be provided to consumers when rainfall is scarce. Of course, it is very important that any use of surface waters be carefully managed to protect the environmental quality of the natural resources.

### Reservoirs

A **reservoir** is a natural or constructed area where surface water is collected and stored for later use. During periods of increased rainfall, excess water can be skimmed from water bodies and deposited in reservoirs for use during the dry seasons. This process helps us meet our need for clean, healthy water.

As the population in Florida continues to grow, the demand for water will increase. Reservoirs can help us prepare for this extra demand and prevent future problems. For example, an unexpected drought may lower surface water levels and put plants and animals at risk. If humans used a large amount of the remaining water supply, we would further endanger the natural environment. On the other hand, if we had water stored in reservoirs, we wouldn't have to take as much water from our surface water bodies.

Reservoirs also offer an alternative to pumping water from aquifers. Too much pumping can create problems, such as sinkholes, or cause salt water to mix with underground freshwater supplies. Since aquifers are such important natural resources, it is essential that we do all we can to protect and maintain them.

There are six major reservoirs in the SWFWMD. One of the most recently constructed is the 1,100-acre C.W. "Bill" Young Regional Reservoir, which can hold 15 billion gallons of water and sits on 5,200 acres of land in Hillsborough County. The property was purchased by the SWFWMD and Tampa Bay Water and will remain in permanent preservation, providing critical habitat in Hillsborough County's wildlife corridor. Together, all the reservoirs throughout the SWFWMD hold many billions of gallons of water that can be used to meet our region's needs.

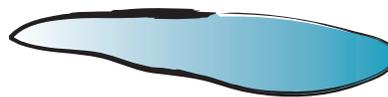
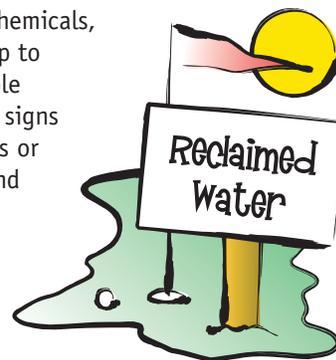


## Using Reclaimed Water

Another alternative water source is **reclaimed** or **reuse water**. Reclaimed water is the result of a process where wastewater is highly treated with filters and chemicals, though it is not pure enough to drink or to use for cooking or swimming. Up to 50 percent of a community's water is used for irrigation. Much of this potable irrigation water could be replaced with reclaimed water. You may have seen signs posted with the words "Reclaimed Water" at places such as community parks or golf courses where attractively landscaped areas need water for irrigation and other purposes. Common uses for reclaimed water include:

- Irrigation
- Street-sweeping operations
- Power generation
- Decorative fountains
- Fire protection

Reclaimed water costs less than drinkable water and reduces stress on drinking water supplies.



## Getting the Most out of Stormwater

During a rainfall, we are often surrounded by sheets of water flowing across roads, parking lots and land surfaces. This water is called **stormwater**. As stormwater flows over different surfaces, it picks up pesticides, fertilizers and other pollutants that it carries to its final destination. Stormwater is one of the biggest sources of water pollution, but it can also be considered an alternative water supply. Stormwater can be collected and stored in areas called detention ponds. After treatment, this water can be used for irrigation purposes or rehydration. **Rehydration** is the process of applying stormwater or reclaimed water to the surface of wellfields and wetlands. This increases the amount of water going into the aquifer.

## Check Your Facts

Now that you know more about alternative water sources, match each term with its description.

**Write the correct letter next to each term.**

- \_\_\_\_\_ 1. ASR
  - \_\_\_\_\_ 2. desalination
  - \_\_\_\_\_ 3. reclaimed water
  - \_\_\_\_\_ 4. storm water
- a. process of storing water in an aquifer and withdrawing it later
- b. water from a rainfall that flows across the land surface
- c. also called reuse water
- d. process of removing the salt from seawater

Answers: 1-a, 2-d, 3-c, 4-b

## Don't Be Clever — Piece It Together

1. Investigate your neighborhood to locate areas that use reclaimed water. Make a list of these areas and search for signs that indicate reclaimed water is being used for irrigation.
2. Search newspapers, magazines or the Internet for an article that discusses an alternative water supply. Write a summary of the article.



Clue

5

## Solving the Case Depends on Everyone

Students, teachers, parents and other citizens are taking positive steps to conserve and protect our water resources. How can we solve the case of Florida's water puzzle? The answer is **solving the case depends on everyone**. Following are just a few examples of ways that help contribute to water resources solutions.

### The Art of Conservation

You probably never thought of water conservation as art, but a creative group of teachers and students in Hillsborough County did just that. With support of a Splash! school grant provided by the Southwest Florida Water Management District (SWFWMD), hundreds of students at Temple Terrace Elementary School and King High School teamed up to produce a series of water conservation murals for public display. Water messages such as "treasure every drop," "helping hands save water" and "water, water everywhere, but not a drop to drink" were included as part of the creative artwork displayed on the brightly colored sheets of plywood hinged together to form the murals. To prepare for the project, students studied ways to conserve water, the effects of wasting water and the impact of drought on wetland communities. Students agreed that their participation in the project made them and their families better water savers!



### Florida-Friendly Landscaping™ Principles 101

Citizens interested in being part of a community solution to water conservation can learn how by attending classes at local county Extension offices.

Classes on the University of Florida's Florida-Friendly Landscaping™ principles are presented year-round on topics such as landscape design, plant selection, water-conserving irrigation, fertilization, pest management, mowing height, pruning, mulch and soil analysis. Visit the SWFWMD's Florida-Friendly Landscaping™ pages at [WaterMatters.org](http://WaterMatters.org) to find information on your county's Extension office.



## Students Making a Difference

Every year the SWFWMD awards grants to fund a variety of school projects throughout our 16-county area. These projects provide educational and hands-on experiences for students that lead to the protection and conservation of Florida's water resources near their homes and schools.

For example, in one project students designed and planted a garden that used minimal water on their school campus. With assistance, students installed a rain barrel to collect water for use in their garden. Students also learned how human impacts on land, such as over fertilizing, impact water quality. They then created a water quality public service announcement that was broadcast at school.

In one project, students discovered bacteria and litter in the wetlands near their school. They took action to clean up the area and passed on their water conservation knowledge to nearby residents.

To apply for a grant at your school, ask your teacher to contact the SWFWMD. Teachers can contact us at 1-800-423-1476, ext. 4757, or visit our website at [WaterMatters.org/SchoolGrants](http://WaterMatters.org/SchoolGrants) for more information.



## Tools for Conservation

One of the SWFWMD's priorities is water conservation. Here are a few ways the SWFWMD helps people conserve water.

- **The SWFWMD's Leak Detection Program** provides assistance to public water supply utility companies by locating leaks in pipes so they may be repaired. Since the establishment of the Leak Protection Program, more than 800 million gallons of water per year have been saved within the SWFWMD.
- If you are **interested in learning how to save water indoors and outdoors**, visit our website at [WaterMatters.org/publications](http://WaterMatters.org/publications) to download or order free copies of *Saving Water Indoors* and *Saving Water Outdoors*.

## Check Your Facts

Help solve the case by completing each of these sentences with the best choice.

**Circle a, b or c.**

1. It is no longer a secret that everyone is a \_\_\_\_ user.  
a. computer  
b. water  
c. cell phone
2. It is up to all of us to protect and \_\_\_\_ our water resources.  
a. conserve  
b. damage  
c. consume
3. To meet our demands for water, we must try a variety of \_\_\_\_.  
a. problems  
b. solutions  
c. gadgets

Answers: 1-b, 2-a, 3-b

## Don't Be Clueless. Piece it together.

1. Discuss with your class some water conservation projects that could take place at your school. Take a vote to decide which one to do.
2. Search newspapers, magazines or the Internet for pictures, announcements or articles about water conservation projects. Describe one of these projects and explain the positive effect it may have on our future.



# CrossWord

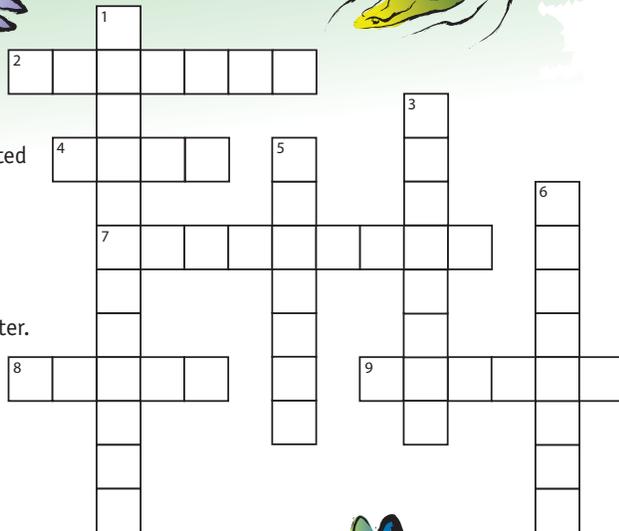


## Across

- A \_\_\_\_\_ can occur when there is less precipitation than normal.
- Everyone is a water \_\_\_\_\_.
- Surface water can be stored in a natural or constructed \_\_\_\_\_ for future use.
- Without \_\_\_\_\_, life could not exist.
- Groundwater is water that soaks into the \_\_\_\_\_.

## Down

- Water \_\_\_\_\_ is all about practices that use less water.
- Groundwater is held in soil and rock formations called \_\_\_\_\_.
- Water that remains on the earth's surface is called \_\_\_\_\_ water.
- A Florida- \_\_\_\_\_ garden uses less water than a traditional garden.



# Unscramble

Unscramble the letters to form real words.

SVNOCTEIORAN

TDGHRUO

ORSRVERIE

GOLHDYORIC

MENIRONTENV



# Hidden Message

Break the code and learn an important message.

2 25    23 15 18 11 9 14 7    20 15 7 5 20 8 5 18'

23 5    3 1 14    8 5 12 16    19 15 12 22 5

6 12 15 18 9 4 1 19    23 1 20 5 18    16 21 26 26 12 5

1=A • 2=B • 3=C • 4=D • 5=E • 6=F • 7=G • 8=H • 9=I • 10=J • 11=K • 12=L • 13=M • 14=N  
15=O • 16=P • 17=Q • 18=R • 19=S • 20=T • 21=U • 22=V • 23=W • 24=X • 25=Y • 26=Z



## Vocabulary

**aquifer:** a spongelike underground layer of rocks that can hold and release water

**drought:** a period of time during which precipitation is much lower than the average amount of precipitation for that time of year at that particular place

**evaporation:** process by which water changes from liquid to gas

**groundwater:** water beneath the earth's surface

**hydrologic cycle:** the endless cycle of water moving through the environment

**precipitation:** moisture released from clouds in the form of rain, snow, hail, etc.

**reclaimed or reuse water:** the result of a process by which wastewater is highly treated with filters and chemicals so it can be used for irrigation purposes

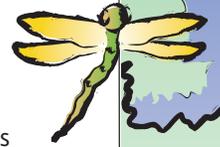
**rehydration:** the process of applying stormwater or reclaimed water to the surface of wellfields and wetlands

**reservoir:** a natural or constructed area where surface water is collected and stored for future use

**stormwater:** sheets of water that flow across roads, parking lots and land surfaces during a rainfall

**surface water:** water that stays on top of the earth's surface

**transpiration:** process by which plants and trees give off moisture through leaves



## Websites

You can surf the Internet to learn even more about water resources. Below is a list of interesting websites that include information, educational activities and links to other sites about water topics.

Southwest Florida Water Management District  
[www.WaterMatters.org](http://www.WaterMatters.org)

U.S. Geological Survey's (USGS)  
Water Science for Schools  
[ga.water.usgs.gov/edu](http://ga.water.usgs.gov/edu)

Learning to be Waterwise  
[www.getwise.org](http://www.getwise.org)

U.S. Drought Monitor  
[drought.unl.edu/dm](http://drought.unl.edu/dm)



## Answer Key

### Crossword Answers

- |                 |             |              |
|-----------------|-------------|--------------|
| 1. conservation | 4. user     | 7. reservoir |
| 2. drought      | 5. surface  | 8. water     |
| 3. aquifers     | 6. friendly | 9. ground    |

### Unscramble Answers

conservation	reservoir	environment
drought	hydrologic	

### Hidden Message Answer

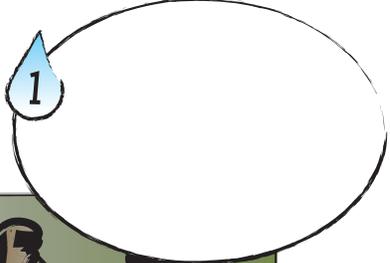
By working together, we can help solve Florida's water puzzle.

# SOLVING FLORIDA'S WATER PUZZLE



## CREATE YOUR OWN CLUES

Now that you have completed your water resources mystery, use your creative writing skills to develop a few interesting water questions for others to try to answer.



- 3.
- 2.
- 1.



Southwest Florida  
Water Management District

WATERMATTERS.ORG • 1-800-423-1476

