



current water info for grades 6-8

A publication of the Southwest Florida Water Management District

## Conservation and Water Supply

## Teacher's Guide

Welcome to the conservation and water supply issue of *WaterWeb*! As part of the Splash! Water Resources Education program, the Southwest Florida Water Management District (SWFWMD) offers the *WaterWeb* newsletter for middle and high school students. The newsletter is correlated to grades 6-8 and 9-12 of the Sunshine State Standards and provides an interesting way for students to increase their awareness and respect for our precious water resources.

This issue of *WaterWeb* focuses on conservation and Florida's water supply. It includes an article about our area's water supply, an introduction to seawater desalination, information about water demands throughout the SWFWMD, a conservation contest, a desalination experiment, a crossword puzzle and word scramble, and suggestions for surfing the Internet. All information and activities are designed to teach students about the importance of conserving our water supply. In addition, we have included *WaterWeb* Challenge, which contains items similar to those students could expect to find on the Florida Comprehensive Assessment Test (FCAT).

Many other free materials from the SWFWMD can be ordered online at [WaterMatters.org/publications/](http://WaterMatters.org/publications/). We also offer water resources workshops for teachers. Please contact us if you have any questions or suggestions about our water resources education programs.

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### ***Conservation and Our Water Supply***

Page 1

It is important we all realize the connection between conservation and water supply to help ensure we always have plenty of fresh, clean water. Emphasize how plants, animals and people depend on water in order to live. Ask students to imagine what would happen if our water supply sources were no longer so readily available to us. Point out that because we live in a state that usually receives a lot of rainfall and is surrounded by so much water, we often forget about the importance of water conservation. During the discussion, emphasize the responsibility citizens have in protecting water resources.

#### **Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.1.3, SC.D.2.3. *Social Studies (6-8):* People, Places, and Environments, SS.D.1.3. *Science (9-12):* Processes that Shape the Earth, SC.D.1.4, SC.D.2.4. *Social Studies (9-12):* People, Places, and Environments, SS.D.1.4.

### ***WaterWeb Query***

Page 1

Ask students to read the Question and Answer. Then ask if they can add to the list of water-saving tips.

#### **Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.2.3, SC.G.2.3. *Social Studies (6-8):* People, Places, and Environments, SS.D.1.3. *Science (9-12):* Processes that Shape the Earth, SC.D.2.4, SC.G.2.4. *Social Studies (9-12):* People, Places, and Environments, SS.D.1.4.

### ***Water Supply Overview***

Pages 2 & 3

Read the article and facts about our water supply and water sources. Try the extended activities with your students.

#### **Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.2.3, SC.G.2.3. *Social Studies (6-8):* People, Places, and Environments, SS.B.2.3, SS.D.1.3. *Science (9-12):* Processes that Shape the Earth, SC.D.2.4, SC.G.2.4. *Social Studies (9-12):* People, Places, and Environments, SS.B.2.4, SS.D.1.4.

### ***Living in a High-Tech Environment***

Page 4

Prior to reading the article, ask students how technology has changed our lives. Examples may include the use of computers, surfing the Internet, household appliances, cell phones, etc. Emphasize that technology also plays an important role in providing us with an alternative water source. Have students complete the Classroom Activity about desalination.

#### **Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.2.3; The Nature of Science, SC.H.2.3. *Science (9-12):* Processes that Shape the Earth, SC.D.2.4; The Nature of Science, SC.H.2.4.

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**SWFWMD Water Demands**

Discuss the different types of water users. Read the article and study the chart together. Take the quiz to check your students' understanding of the various water demands throughout the SWFWMD. Discuss how each of these water users could conserve water to help meet future demands.

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

**Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.2.3. *Social Studies (6-8):* People, Places, and Environments, SS.B.2.3; Economics, SS.D.1.3. *Science (9-12):* Processes that Shape the Earth, SC.D.2.4. *Social Studies (9-12):* People, Places, and Environments, SS.B.2.4; Economics, SS.D.1.4.

Encourage students to participate in the contest by making it a classroom activity. Entries may be submitted as a classroom set. Be sure to include teacher's name, school name and address.

**Sunshine State Standards**

*Language Arts (6-8):* Reading, LA.A.2.3; Writing, LA.B.2.3. *Language Arts (9-12):* Reading, LA.A.2.4; Writing, LA.B.2.4.

**Create Your Own Desalination Plant**

Before beginning this activity, make sure your students understand the concept of desalination. For additional background, guide students through a review of the article on page 4. Proceed with the activity and use the discussion questions to enhance their understanding of desalination.

**Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.1.3, SC.D.2.3; The Nature of Science, SC.H.1.3, SC.H.2.3. *Social Studies (6-8):* People, Places, and Environments, SS.B.2.3. *Science (9-12):* Processes that Shape the Earth, SC.D.1.4, SC.D.2.4; The Nature of Science, SC.H.1.4, SC.H.2.4. *Social Studies (9-12):* People, Places, and Environments, SS.B.2.4.

Although these activities are meant to be fun, they are designed to reinforce important vocabulary and concepts associated with understanding conservation and Florida's water supply.

**Crossword Puzzle Answers**

- |                 |                 |
|-----------------|-----------------|
| <b>Across</b>   | <b>Down</b>     |
| 1. mgd          | 2. ground       |
| 6. desalination | 3. conservation |
| 8. seawater     | 4. salty        |
| 9. off          | 5. alternative  |
| 10. reuse       | 6. drought      |
| 11. water       | 7. lakes        |
|                 | 8. surface      |

**WaterWeb Scramble Answers**

- Words:**
- save
  - resources
  - conservation
  - future

**Answers for paragraph:**

Practice simple conservation habits and you can play an important role in meeting the future demands for our water supply. By encouraging others to save water, you will help to ensure that we always have an adequate supply of the water resources.

**Sunshine State Standards**

*Language Arts (6-8):* Reading, LA.A.1.3, LA.A.2.3. *Language Arts (9-12):* Reading, LA.A.1.4, LA.A.2.4.



A lot of information is available about water conservation and our water supply. Use the topics listed to get your students started on their search. Ask them to identify five new facts they learned while surfing the sites. Be sure to have students take the Classroom Challenge at [www.WaterMatters.org/ClassChallenge/](http://www.WaterMatters.org/ClassChallenge/).

**Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.1.3, SC.D.2.3; How Living Things Interact with Their Environment, SC.G.2.3; The Nature of Science, SC.H.2.3. *Language Arts (6-8):* Reading, LA.A.2.3. *Science (9-12):* Processes that Shape the Earth, SC.D.1.4, SC.D.2.4.; How Living Things Interact with Their Environment, SC.G.2.4; The Nature of Science, SC.H.2.4. *Language Arts (9-12):* Reading, LA.A.2.4.

Items included in the Challenge are similar to those presented on the Florida Comprehensive Assessment Test (FCAT). Make copies of the Challenge and explain to students that this provides good practice for preparing for FCAT. Students should be allowed to use the *WaterWeb* issue as they complete the Challenge.

**Answers to multiple-choice items:**

- 1-b, 2-c, 3-b, 4-d, 5-a, 6-a, 7-c, 8-b, 9-a, 10-d

**Answers to extended-response items:**

**Question 1.**

Responses will vary. Student should be able to accurately describe groundwater and surface water and explain how each one is different.

**Score 2 points if . . .**

The response indicates the student has a basic understanding of groundwater and surface water and how each one is different. The student has provided a response that is accurate and complete.

**Score 1 point if . . .**

The response indicates the student has a partial understanding of groundwater and surface water and how each one is different. The student has provided a response that includes information that is essentially correct, but the information is too general or too simplistic.

**Score 0 points if . . .**

The response is inaccurate, confused and/or irrelevant.

**Question 2.**

Responses will vary. Student should be able to give several reasons why conservation plays an important role in protecting our water resources.

**Score 2 points if . . .**

The response indicates the student understands why conservation is important to water resources protection. The student has provided a response that is accurate and complete.

**Score 1 point if . . .**

The response indicates the student partially understands why conservation is important to water resources protection. The student has provided a response that includes information that is essentially correct, but the information is too general or too simplistic.

**Score 0 points if . . .**

The response is inaccurate, confused and/or irrelevant.

**Sunshine State Standards**

*Science (6-8):* Processes that Shape the Earth, SC.D.1.3, SC.D.2.3. *Social Studies (6-8):* People, Places, and Environments, SS.B.2.3; Economics, SS.D.1.3. *Language Arts (6-8):* Reading, LA.A.2.3; Writing, LA.B.2.3. *Science (9-12):* Processes that Shape the Earth, SC.D.1.4, SC.D.2.4. *Social Studies (9-12):* People, Places, and Environments, SS.B.2.4; Economics, SS.D.1.4. *Language Arts (9-12):* Reading, LA.A.2.4; Writing, LA.B.2.4.

# WaterWeb Challenge



**Directions:** This is your opportunity to demonstrate what you have learned about conservation and Florida's water supply. It is also an opportunity for you to practice answering questions similar to those found on the Florida Comprehensive Assessment Test. Do your best and meet the challenge!

For each multiple-choice item, select the best answer.

- In this issue of *WaterWeb*, you have learned about the importance of water conservation. What does this mean?
  - using only bottled water for drinking
  - practicing ways that use less water
  - practicing ways that use more water
  - both b and c
- Which one below does NOT belong in a list of tips for saving water?
  - Take shorter showers.
  - Run only full loads in washing machines or dishwashers or set the correct water level.
  - Use the toilet as a trash can.
  - Install water-saving showerheads and faucets.
- What can be generalized about the future of our area?
  - We will no longer need to practice water conservation.
  - As more people move into the area, more water will be needed.
  - Desalination will meet all our water needs.
  - We will no longer depend on groundwater to meet our water needs.
- Approximately 80 percent of fresh water used in the SWFWMD is groundwater. What is groundwater?
  - water that is found only on the surface
  - water that has seeped into the ground
  - water that is pumped from underground aquifers
  - b and c
- Which one below is NOT an example of an alternative water source?
  - rivers
  - desalination
  - reuse
  - reclaimed water
- What is desalination?
  - a process that removes the salt and other minerals from water
  - a process that increases the amount of salt and other minerals from water
  - a process that removes the salt from fresh water
  - an efficient way to increase the salinity of the bay
- What is the leading technology used in desalination of seawater?
  - rehydration
  - pumping
  - reverse osmosis
  - conservation
- What is the benefit of desalination?
  - It may be harmful to the surrounding environment.
  - It can provide a droughtproof alternative water supply.
  - It is an inefficient way to provide drinking water.
  - It is a way to use water from the underground aquifers.
- Which type of water user is predicted to demand the most water in 2025?
  - public supply/domestic self supply
  - agriculture
  - industrial/commercial/mining/dewatering
  - recreational/aesthetic
- What is an important message for readers to remember after completing this *WaterWeb* issue?
  - There is no need for us to conserve water.
  - Groundwater will become an alternative water source.
  - We need to persuade people not to visit our area.
  - There is a connection between water conservation and water supply.

