

Ponds

Teacher's Guide

Welcome to the ponds issue of *WaterWeb*! As part of the Splash! Water Resources Education program, the Southwest Florida Water Management District (SWFWMD) offers the *WaterWeb* water resources 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 Florida's precious water resources.

This issue of *WaterWeb* focuses on ponds. It includes nonfiction articles, a career focus on an environmental scientist, a pond mapping activity, a crossword puzzle and word scramble, and suggestions for exploring the SWFWMD'S web site. 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). Let *WaterWeb* make a splash in your classroom today!

Many other free materials are available from the SWFWMD and can be ordered online at 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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Introduction

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Ponds play an important role in the environment. Ask students to describe a pond located close to their homes. Have students list several ways ponds have a positive impact on the environment. For copies of our *Stormwater Systems in Your Neighborhood* brochure, order online at WaterMatters.org/publications/.

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.1.3.

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.1.4.

WaterWeb Query

Page 1

Have students read The WaterWeb Query. Ask students to locate a pond near the school and determine whether it is a retention pond or a detention pond.

Sunshine State Standards

Science (6–8): Processes that Shape the Earth, SC.D.1.3, SC.D.2.3.

Science (9–12): Processes that Shape the Earth, SC.D.1.4, SC.D.2.4.

All About Ponds

Page 2

Identify your watershed. Discuss the connection between ponds and the overall quality of a watershed. Read the factual information about ponds. Ask students if they can add any additional information. Then have students answer the questions.

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.1.3, SC.G.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; How Living Things Interact with Their Environment, SC.G.1.4, SC.G.2.4. *Social Studies (9–12):* People, Places and Environments, SS.B.2.4.

Pond/Pollution

Page 3

Read the article together. Complete the exercises by using information presented in the article. Emphasize the importance of handling household chemicals in a safe manner.

Sunshine State Standards

Science (6–8): How Living Things Interact with Their Environment, SC.G.1.3, SC.G.2.3. *Social Studies (6–8):* People, Places and Environments, SS.B.2.3.

Science (9–12): How Living Things Interact with Their Environment, SC.G.1.4, SC.G.2.4. *Social Studies (9–12):* People, Places and Environments, SS.B.2.4.

Career Focus

Page 4

Read the interview with your students. Ask them if they know someone who works on ponds. Ask your students if they would be interested in this type of career and have them give reasons for their responses.

Discuss the concept of the littoral zone of a pond. Then read about the different areas of this zone. Complete the extended activity as a classroom project.

Sunshine State Standards

Science (6–8): Processes that Shape the Earth, SC.F.1.3; How Living Things Interact with Their Environment, SC.G.1.3.

Science (9–12): Processes that Shape the Earth, SC.F.1.4; How Living Things Interact with Their Environment, SC.G.1.4.

Classroom Activity

Mapping a Pond

Before beginning this activity, make sure your students understand the importance of taking safety precautions when walking near a pond. You may want students to work as a team when they are measuring the different dimensions of the pond. Repeating this hands-on activity periodically will help your students gain a better understanding of how ponds change over time.

Sunshine State Standards

Science (6–8): The Nature of Matter, SC.A.1.3; Processes that Shape the Earth, SC.D.1.3; How Living Things Interact with Their Environment, SC.G.1.3; The Nature of Science, SC.H.1.3.

Mathematics (6–8): Measurement, MA.B.1.3, MA.B.3.3, MA.B.4.3.

Science (9–12): The Nature of Matter, SC.A.1.4; Processes that Shape the Earth, SC.D.1.4; How Living Things Interact with Their Environment, SC.G.1.4; The Nature of Science, SC.H.1.4.

Mathematics (9–12): Measurement, MA.B.1.4, MA.B.3.4, MA.B.4.4.

Activities

Although these activities are meant to be fun, they are designed to reinforce important vocabulary and concepts associated with understanding ponds.

Crossword Puzzle Answers:

- | | | |
|----------------|--------------|---------------|
| 1. Retention | 2. Detention | 3. Stormwater |
| 4. Environment | 5. Fish | 6. Pollution |
| 7. Birds | 8. Littoral | 9. Ponds |
| 10. Plants | 11. Nature | 12. Fresh |
| 13. Shallow | | |

Activities

Word Scramble Answers:

healthy, nature, development, pollutants

Paragraph Answers:

Ponds can be some of the most fascinating places found in nature. Keeping our ponds healthy means everyone being actively involved. By taking a few easy steps, we can prevent pollutants from flowing into our ponds. Increased growth and development make it especially important for all of us to help manage and protect our ponds.

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 ponds. Follow the directions for visiting web sites listed in this section. Also, encourage students to view the SWFWMD virtual watershed excursions, located at WaterMatters.org/watersheds/.

Sunshine State Standards

Science (6–8): How Living Things Interact with Their Environment, SC.G.1.3, SC.G.2.3; The Nature of Science, SC.H.2.3, SC.H.3.3.

Language Arts (6–8): Reading, LA.A.2.3.

Science (9–12): How Living Things Interact with Their Environment, SC.G.1.4, SC.G.2.4; The Nature of Science, SC.H.2.4, SC.H.3.4.

Language Arts (9–12): Reading, LA.A.2.4.

WaterWeb Challenge

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 the FCAT. Students should be allowed to use the *WaterWeb* issue as they complete the Challenge.

Answers to multiple-choice items: 1–c, 2–a, 3–c, 4–d, 5–b, 6–d, 7–a, 8–d, 9–c, 10–d

Extended-Response Items

Question 1.

Responses will vary. Students should be able to demonstrate an understanding of the connection between pollution and water quality.

Score 2 Points If...The response indicates the student understands the effects of pollution on ponds. The student has provided an answer that is accurate and complete.

Score 1 Point If...The response indicates the student has a partial understanding of the effects of pollution on ponds. The student has provided an answer that is essentially correct, but the information is too general or simplistic.

Score 0 Points If...The response is inaccurate, confused or irrelevant.

Question 2.

Responses will vary. Students should be able to generate a few ways for citizens to become involved in the process of managing and protecting water resources.

Score 2 Points If...The response indicates the student has a thorough understanding of actions that can improve the quality of a pond. The student has provided an answer that is accurate and complete.

Score 1 Point If...The response indicates the student has a partial understanding of the actions that can improve the quality of a pond. The student has provided an answer that is basically correct, but the information is too general or simplistic.

Score 0 Points If...The response is inaccurate, confused or irrelevant.

Sunshine State Standards

Science (6–8): The Nature of Matter, SC.A.1.3; Processes that Shape the Earth, SC.D.1.3; How Living Things Interact with Their Environment, SC.G.1.3.

Language Arts (6–8): Reading, LA.A.2.3; Writing, LA.B.2.3.

Science (9–12): The Nature of Matter, SC.A.1.4; Processes that Shape the Earth, SC.D.1.4; How Living Things Interact with Their Environment, SC.G.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 ponds. It is also an opportunity for you to practice answering questions similar to those found on the FCAT.

Do your best and meet the challenge!

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

- In this issue of *WaterWeb*, you have learned a lot about ponds. What is a pond?
 - a small, deep body of water surrounded by water on three sides
 - a large body of salt water surrounded by land
 - a small, shallow body of fresh water surrounded by land
 - a narrow body of flowing water surrounded by land on two sides
- What term is used to describe the shallow zone within a pond that extends from the water's edge outward as far as rooted plants grow?
 - littoral zone
 - reptile zone
 - stormwater zone
 - habitat zone
- Which one below does NOT belong in a list of suggestions for working with household products?
 - Follow the directions for the use and disposal of chemical products.
 - Dispose of unused hazardous household waste properly.
 - Dispose of toxic chemicals and waste by placing them in storm drains.
 - Use environmentally friendly substitutes instead of hazardous products.
- How can a stormwater pond be made to look like a natural pond?
 - by removing all of the fish
 - by digging a deeper hole in the center of the pond
 - by adding metals, oils and chemicals
 - by adding native plants and trees
- In what way do ponds help to improve the quality of groundwater and surface water?
 - They attract wildlife.
 - They remove and filter pollutants.
 - They provide a recreation area.
 - They never change.
- Which statement below is TRUE about hazardous household products?
 - Few communities have a collection or waste management program.
 - Pollutants help to improve the water quality of ponds.
 - Household hazardous waste is not a cause of water pollution.
 - It is illegal to dump toxic materials into storm drains.
- What kind of pond slowly releases water downstream to lakes, rivers or streams?
 - detention pond
 - retention pond
 - saltwater pond
 - none of the above
- What is a major source of pollutants to our ponds?
 - filmy, surface tension
 - duckweed
 - drinking water
 - stormwater
- Which of the following does NOT belong in or near a pond?
 - herbivorous animals
 - carnivorous animals
 - hazardous chemicals
 - native plants
- What is an important message for readers after completing this *WaterWeb* issue?
 - We all need to be actively involved in safeguarding the water that flows into our ponds.
 - It is everyone's responsibility to manage and protect neighborhood ponds.
 - A pond can be one of the most fascinating places found in nature.
 - All of the above.

