

## How Healthy is Your Lake? *Teacher's Guide*

*Students practice for the FCAT while learning about water quality indicators in different lakes.*

**GRADE LEVEL:** Intermediate Grades

**SUBJECT AREA/COURSE:** Reading, Writing and Math

**SUNSHINE STATE STANDARDS:**

**LANGUAGE ARTS:**

- The student selects from a variety of simple strategies, including the use of phonics, word structure, context clues, self-questioning, confirming simple predictions, retelling, and using visual clues to identify words and construct meaning from various texts, illustrations, graphics, and charts. (LA.A.1.2.2)
- The student reads text and determines the main idea or essential message, identifies relevant supporting details and facts, and arranges events in chronological order. (LA.A.2.2.1)
- The student reads and organizes information for a variety of purposes, including making a report, conducting interviews, taking a test, and performing an authentic task. (LA.B.2.2.5)
- The student recognizes the difference between fact and opinion presented in a text. (LA.B.2.2.6)

**MATH BIG IDEAS:**

- Develop quick recall of addition facts and related subtraction facts and fluency with multi-digit addition and subtraction.
- Develop quick recall of multiplication facts and related division facts and fluency with whole number multiplication.
- Develop an understanding of and fluency with addition and subtraction of fractions and decimals.

**ACADEMIC OUTCOMES/LESSON OBJECTIVES:**

- Students will read a selection adapted from the Pinellas Watershed Atlas, written in FCAT practice format.
- Students will respond to FCAT-type questions or prompts in Reading, Writing, and Math.

**BACKGROUND INFORMATION:** Scientists measure the level of plant nutrients in lake water as one way to determine lake health. The score for the level of nutrients is the lake's Trophic State Index, or TSI. The different trophic states are Oligotrophic, lacking nutrients, Mesotrophic, medium amount of nutrients, Eutrophic, rich in nutrients, and Hypereutrophic, or extremely rich in nutrients.

Many factors are important to the status of the lake including dissolved oxygen (DO) and biological factors, such as plants and animals found in the test sites.

**TEACHER WEBSITE RESOURCES:**

- Sunshine State Standards can be found at <http://firn.edu/doe/menu/sss.htm>
- Information about FCAT can be found at <http://www.firn.edu/doe/sas/fcat/pdf/fcatfact.pdf>
- Rubric for grading FCAT writing prompts <http://www.firn.edu/doe/sas/fw/fwaprubr.htm>
- Rubric for grading FCAT reading questions <http://www.firn.edu/doe/sas/fcat/pdf/rubrcrdn.pdf>
- Rubric for grading FCAT math questions <http://www.firn.edu/doe/sas/fcat/pdf/rubrcmat.pdf>
- More FCAT-Friendly Activities, visit <http://pelotes.jea.com>

Name:

Date:

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**MATERIALS NEEDED:** Internet access with [www.Pinellas.wateratlas.org](http://www.Pinellas.wateratlas.org) bookmarked and student handout pages for "How Healthy Is Your Lake?"

**SAFETY:** N/A

**VOCABULARY:** trophic level, nutrient, phosphorus, oligotrophic, mesotrophic, eutrophic, hypereutrophic

**AUTHOR:** Kelley G. Weitzel – Modified from the original lesson plans created for the Seminole County Watershed Atlas

**PROCEDURES:**

1. Preview this FCAT-Friendly activity. Photocopy student handouts.

2. Preview the Pinellas Watershed Atlas.

Go to [www.Pinellas.wateratlas.org](http://www.Pinellas.wateratlas.org) > The Atlas > Lake Name and scroll down to a lake that is near your school. Look over the General Info page and read the information on Trophic Levels.

3. After students have completed the FCAT Friendly activities, select other lakes with which your students are familiar. Visit them on the Pinellas County Watershed Atlas website.

4. Using the information learned in the FCAT practice and the Watershed Atlas, discuss the general health of the nearby lake. How healthy is your lake?

**KEY: Reading**

1. The lower the rating, the better the nutrient levels. So the plants won't grow out of control.
2. c.
3. d.
4. Use rubric to score- be sure answer includes explanation of choice.

**Writing**

Use rubric to score writing from the Pinellas County Language Arts Frameworks.

**Math**

1. c.
2. b.
3. 60.7

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