

Clean Water Volunteers *Teacher's Guide*

Students practice for the FCAT and learn about volunteer watershed clean-up and monitoring programs

GRADE LEVEL: 6th-8th

SUBJECT AREA/COURSE: Reading, Writing (Language Arts), and Math

SUNSHINE STATE STANDARDS:

LANGUAGE ARTS:

- The student identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning. (LA.A.2.3.2)
- The student recognizes logical, ethical, and emotional appeals in texts. (LA.A.2.3.3)
- The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real world task. (LA.A.2.3.5)
- The student selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion. (LA.B.2.3.3)

MATH:

- Big Idea- Write, interpret, and use mathematical expressions and equations.
- Write, solve, and graph one- and two-step linear equations and inequalities. (MA.6.A.3.2)
- Determine the measures of central tendency (mean, median, mode) and variability (range) for a given data set. (M.6.S.6.1)
- Select and analyze the measures of central tendency or variability to represent, describe, analyze and/or summarize a data set for the purposes of answering questions appropriately. (MA.6.S.6.2)
- Add, subtract, multiply, and divide integers, fractions, and terminating decimals, and perform exponential operations with rational bases and whole number exponents including solving problems in everyday contexts. (MA.7.A.3.2)
- Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. (MA.7.P.7.1)
- Use tables, graphs, and models to represent, analyze, and solve real-world problems related to systems of linear equations. (MA.8.A.1.3)

ACADEMIC OUTCOMES/LESSON OBJECTIVES:

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

DURATION: One Instructional period.

TEACHER BACKGROUND INFORMATION: Resources like the Pinellas County Watershed Atlas rely on volunteers to collect water samples, measure water levels, and participate in local cleanup activities. A primary goal is to regularly assess indicators of water quality and generate long term water quality trends so environmental problems can be identified quickly. Effective use of volunteer hours means improved health for our water bodies, our planet, and our families.

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>

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MATERIALS NEEDED: Internet access with www.Pinellas.WaterAtlas.org book marked, student pages for "Clean Water Volunteers"

SAFETY: N/A

VOCABULARY: volunteer, resource, monitor, aquatic, wetland, campaign, conservation, erosion, sediment, watershed, biochemist, entomologist, sensitive, tolerant

KEY:

Reading

1. c. LA.A.2.3.2, Bloom's Taxonomy Level Two
2. b. LA.A.2.3.3, Bloom's Taxonomy Level One
3. c. LA.A.2.3.2, Bloom's Taxonomy Level Two
4. Use the rubric for Extended Response Reading Questions – 4 points
LA.A.2.3.5 Bloom's Taxonomy Level Two

Example of a Top-Score Response:

I could organize a volunteer cleanup of the retention pond on the school grounds. First, I would research how to organize a cleanup campaign by using the two websites in the article. I would also find out if there are already cleanup teams in the area and ask for their assistance. I would ask a hardware store to donate garbage bags and plastic gloves. Then I would ask student service clubs to volunteer their time either for the cleanup or for bringing food for the celebration party afterwards. We can also get photos for the school paper like the ones in the article to make sure the whole school learns about the project.

Writing

For All – Use the rubric for FCAT Writes! – 6 points

1. LA.B.2.3.3
2. LA.B.2.3.3
3. LA.B.2.3.3
4. LA.B.2.3.3

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Clean Water Volunteers *Teacher's Guide**Math*

1. Use the rubric for Extended Response Math Questions – 4 points
MA.E.1.3.3

Example of a Top-Score Response:

<i>Watershed Name</i>	<i>Volunteer Coverage per square mile</i>
Boca Ciega Bay	0
Clearwater Harbor	.14
Lake Tarpon	0
Lower Tampa Bay	.06
Narrows	.13
Old Tampa Bay	.02
Riviera Bay	0

1. a. Clearwater Harbor & b. Narrows have the best volunteer coverage.

2. Use the rubric for Short Response Math Questions – 2 points
MA.E.1.3.3

Example of a Top-Score Response:

The average volunteer coverage is 0.048. Average = Add together all of the volunteer coverage values and divide by 7, the total number of watersheds. The 7 watersheds that have values of less than 0.048 for volunteer coverage include Boca Ciega, Lake Tarpon, Old Tampa Bay, and Riviera.

3. b. MA.E.3.3.1

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4. Use the rubric for Short Response Math Questions – 2 points
MA.D.2.3.2

Example of a Top-Score Response:

Recruit 2 more volunteers. Old Tampa Bay has .02 volunteer coverage with 1 volunteer. The county average is 0.048 volunteer coverage. To find out how many volunteers Old Tampa Bay would need to meet the county average, set up the following algebraic equation:

$$0.048 = x \text{ volunteers} / 61 \text{ square miles}$$

$x = 2.928 = \#$ volunteers to meet county average. In whole people, that's 3; also that surpasses the county average as the question stated.

PROCEDURE:

1. Preview this FCAT-Friendly activity. Print copies for your students.
2. Preview the Pinellas Watershed Atlas.
 - a. Go to www.Pinellas.WaterAtlas.org > The Atlas > Visit several different watershed pages from the pop-down menu. Look over the General Info including volunteers, watershed size, and land use.
 - b. Find your school's watershed. On the website, > Atlas > View a List of all Water bodies. If you know your watershed, choose it from the list. If not, scroll down and find the name of a lake, river, or stream near your school. Beside it, you will see the name of the watershed it is in. Click on the watershed. Click on and read "Learn more about watersheds."
3. Have your student's research volunteer opportunities in your area, particularly those with environmental impacts.
4. Using the information learned in the FCAT practice and the Watershed Atlas, discuss a volunteer opportunity that might be appropriate for your class.

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

Name:

Date: