

Pointless Personal Pollution *Teacher's Guide*

Students practice for the FCAT while learning about non-point source pollution

GRADE LEVEL: Intermediate Grades

SUBJECT AREA/COURSE: Reading, Writing and Math

SUNSHINE STATE STANDARDS:

LANGUAGE ARTS:

- 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 determines the author's purpose in a simple text. (LA.A.2.2.2)
- 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)
- The student identifies and uses literary terminology appropriate to the grade level, including symbol, theme, simile, alliteration, and assonance. (LA.E.1.2.5)

MATH:

- Big Idea- Develop quick recall of addition facts and related subtraction facts and fluency with multi-digit addition and subtraction.
- Big Idea- Develop quick recall of multiplication facts and related division facts and fluency with whole number multiplication.
- Big Idea- Develop an understanding of and fluency with addition and subtraction of fractions and decimals.
- Select appropriate units, strategies and tools to solve problems involving perimeter. (MA.3.G.5.1)
- Classify angles of two-dimensional shapes using benchmark angles (i.e. 45°, 90°, 180°, and 360°). (MA.4.G.5.1)
- Big Idea- Describe three-dimensional shapes and analyze their properties, including volume and surface area.
- Compare, contrast, and convert units of measure within the same dimension (length, mass, or time) to solve problems. (MA.5.G.5.2)
- Describe real-world situations using positive and negative numbers. (MA.5.A. 6.3)

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.

DURATION: One-two days

BACKGROUND INFORMATION: Point-source pollution is pollution that comes from one point--- where you can point to the source (like a pipe discharging into a stream). Most of this kind of pollution has been cleaned up since the nineteen seventies. The major pollution entering our waterways today is non-point source pollution, which comes from many sources. The major sources are the pesticides, fertilizers, and pet waste. These pollutions find their way to waterways. People can help stop this "pointless" pollution through proper use of lawn chemicals and other means.

There is hidden pollution caused by the products we use or the food we eat.

MATERIALS NEEDED: Internet access with www.Pinellas.WaterAtlas.org book marked and student handout pages for "Personal Pointless Pollution".

SAFETY: N/A

Name:

Date:

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VOCABULARY: point source pollution, non-point source pollution, nutrients, fertilizer, pesticide, herbicide, prevention

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

KEY:

Reading

1. b. LA.E.1.2.5, Bloom's Taxonomy Level One
2. Use the rubric for Short Response Reading Questions – 2 points
LA.A.2.2.1, Bloom's Taxonomy Level One

Example of a Top-Score Response:

<i>Ways People Cause Pollution</i>	<i>How Pollutants Hurt the Environment</i>	<i>How People Can Prevent Pollution</i>
Car oil and antifreeze drips	Kills underwater plants & animals	Keep car in good condition
Pesticides	Make egg shells thin	Reduce the use of them
Animal Waste	Add minerals to the water and make algae grow too much	Properly dispose of it

3. d. LA.A.2.2.2, Bloom's Taxonomy Level Two
4. Use the rubric for Extended Response Reading Questions – 4 points
LA.A.2.2.1, Bloom's Taxonomy Level Two

Example of a Top-Score Response:

The article shows that the statement "Ordinary people can not do anything to prevent water pollution" is false in several ways. First, it explains that people can stop underwater animals and plants from being killed by preventing car leaks. Next, it describes how people have already protected birds like eagles by making a law stopping the use of the pesticide DDT. Finally, it shows that doing something as simple as scooping pet poop can prevent waste from getting into the water system, and it can make you a better neighbor too! There are many ways people can prevent pollution.

Writing

For All – Use the rubric for FCAT – 6 points

1. LA.B.2.2.6
2. LA.B.2.2.6
3. LA.B.2.2.5
4. LA.B.2.2.5

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Math

1. Use the rubric for Short Response Math Questions – 2 points

Example of a Top-Score Response:

80 lbs./cow/day x 200 cows/herd – 16,000 lbs./herd x 365 days/year = 5,840,000 pounds of waste/year

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

MA.B.1.2.1

Example of a Top Score Response: 6,400 square feet can be surrounded by the fence. 320 ft. divided by 4 = 80 ft.

80ft x 80 feet = 6,400 square feet

3. a. MA.A.3.2.2, MA.A.3.2.3

Resources for Data in Math Section:

- "Improving Old MacDonald's Farm – Protecting Streams from "Fruited Plains," United States Environmental Protection Agency. http://www.epa.gov/owow/nps/nps_edu/pdf/farms.pdf, 5/10/04.
- "Make the Most of Manure," Mother Earth News – The Original Guide to Living Wisely. <http://www.motherearthnews.com/menarch/archive/issues/080/080-042-01.htm>, 5/10/04.
- "Frequently Asked Questions about New Mexico Dairies," Dairy Producers of New Mexico. <http://www.nmdairy.org/faq1.htm>, 5/10/04.

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>

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