

Seminole County Water Atlas Learning Kit

What Is A Watershed? *Student Handout*

Students practice their skills while learning about watersheds.

Water Atlas Curriculum Lesson 46

Grade Level: Upper Elementary

Performance Objectives:

References are to the Next Generation Sunshine State Standards (2007).

Language Arts

- LA.3.6.1.1 The student will read informational text (e.g., graphs, charts, manuals) and organize information for different purposes, including but not limited to being informed, following multi-step directions, making a report, conducting interviews, preparing to take a test, and performing a task.
- LA.3.6.3.1 The student will determine main content and supporting details, including distinguishing fact from opinion, in a print media message.
- LA.4.3.1.2 The student will prewrite by determining the purpose (e.g., to entertain, to inform, to communicate, to persuade) and the intended audience of a writing piece.
- LA.5.1.7.3 The student will determine the main idea or essential message in grade-level text through inferring, paraphrasing, summarizing, and identifying relevant details.
- LA.5.1.7.5 The student will identify the text structure an author uses (e.g., comparison/contrast, cause/effect, sequence of events) and explain how it impacts meaning in text.
- LA.6.1.7.5 The student will analyze a variety of text structures (e.g., comparison/contrast, cause/effect, chronological order, argument/support, lists) and text features (main headings with subheadings) and explain their impact on meaning in text.

Math

- MA.5.A.1.4 Divide multi-digit whole numbers fluently, including solving real-world problems, demonstrating understanding of the standard algorithm and checking the reasonableness of results.
- MA.5.G.5.3 Solve problems requiring attention to approximation, selection of appropriate measuring tools, and precision of measurement.
- MA.6.A.1.3 Solve real-world problems involving multiplication and division of fractions and decimals.
- MA.6.S.6.1 Determine the measures of central tendency (mean, median, and mode) and variability (range) for a given set of data.

Academic Outcomes/Lesson Objectives:

Students will read a selection adapted from the [Seminole County Water Atlas](#), and respond to questions or prompts in Reading, Writing, and Math.

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Duration: One instructional period

Teacher Background Information:

A watershed (or drainage basin) is the area of land that drains into a particular river or lake. Storm water contributes to the flow in any watershed and is analyzed for flood control as well as movement of pollutants like oil, pesticides, and fertilizers. The amount of storm water in an area varies greatly, due to Florida's "scattered showers" which leave one watershed with below-average water levels, and another with above-average levels. These waters always flow towards the lowest water body in a drainage basin. Each small Seminole County drainage basin flows into the larger St. Johns River watershed. The St. Johns River eventually flows into the Atlantic Ocean near Jacksonville.

Scientists collect data to measure the health of watersheds and their waterbodies. All available scientific information (historical and recent) for Seminole County waterbodies has been placed in a database and is available through the Seminole Water Atlas website.

To access this information, go online to www.Seminole.WaterAtlas.org. Choose the Advanced Mapping Tool from the dropdown menu or the link on the home page. To find your watershed using the Advanced Mapping Tool, click on the button for "an address," click in the text block and then type your address or the school's address (this works best if you use just the street number/name, e.g. "123 Main"). A map will come up with that address marked by a red star. The name of your watershed is highlighted in yellow. If you want to see more of the map, click on the zoom out tool (on the top left), and then click on the star. There are many interesting map features you can explore on this page; however for this activity, we are interested in the watershed. Type the name of the watershed in the text block at the upper right and press enter.

Explore your watershed site, then lead your students on a virtual tour of their watershed as part of the preparation for this activity. Note that the school and student's homes might be in different watersheds, because school zones aren't based on watersheds!

The hands-on watershed activity described in the student reading is from a Project WET workshop. For more information on Project WET and more activities on water, visit the [Project Wet website](#).

Materials Needed:

1. Internet access with the [Seminole Water Atlas](#) bookmarked
2. Student pages for "What Is a Watershed?"
3. To do the hands-on activity described in the student reading section:
scrap copy paper (clean on one side), water-based markers, water-filled spray bottles, newspapers to protect desks, sponges for clean-up.

Safety: N/A

Vocabulary:

Watershed

A watershed is an area of land that collects, stores and transports all forms of precipitation (rainfall and snow melt). A watershed is comprised of any or all of the following: streams, lakes, reservoirs, aquifers, estuaries, wetlands, or an ocean. The term is not restricted to surface water runoff and includes interactions with subsurface water. Watersheds vary from the largest river basins to just acres or less in size.

Basin

Another term for a watershed.

Swale

A low tract of land, especially moist or marshy ground; also an artificially created trench that contains standing or flowing water after rainfall.

Storm drain (or storm sewer)

A sewer that carries only surface runoff, street wash, and snow melt from the land. In a separate sewer system, storm sewers are completely separate from those that carry domestic and commercial wastewater (sanitary sewers).

Contour map

A map that shows relative elevations and surface features of a land surface by means of contour lines.

Pollution

Generally, the presence of matter or energy whose nature, location, or quantity produces harmful or undesired environmental effects on humans, animals, or plants.

Author: Kelley Weitzel

Answer Key:

Reading

1. Use the rubric for Short Response Reading Questions – 2 points
LA.4.1.7, Bloom's Taxonomy Level One

Example of a Top-Score Response:

If there's a pollution event, scientists can look at contour maps of the watershed to see which areas are higher than the polluted spot. This will give them some clues about where the pollution is coming from. They know the pollution is coming from inside the watershed, because if it started out outside the watershed, it couldn't have flowed down to where they found it. Then they can look at the kinds of pollution they're seeing and try to match them up with the people or companies who might be adding the pollution to the environment.

2. c. LA.4.1.7, Bloom's Taxonomy Level One
3. b. LA.4.1.7, Bloom's Taxonomy Level One
4. b. LA.4.1.6, Bloom's Taxonomy Level Two

Writing

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

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

Math

5. d. MA.E.1.2.2
6. a. MA.A.1.2.3
7. b. MA.A.3.2.2, MA.A.