

**Grade Level:** Upper Elementary

**Performance Objectives**

*References are to the Next Generation Sunshine State Standards.*

**Reading**

- LA.A.2.2.1 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.2.2.2 The student determines the author's purpose in a simple text.
- LA.B.2.2.5 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.2.2.6 The student recognizes the difference between fact and opinion presented in a text.

**Math**

- MA.A.3.2.2 The student selects the appropriate operation to solve specific problems involving addition, subtraction, and multiplication of whole numbers, decimals, and fraction, and division of whole numbers.
- MA.A.3.2.3 The student adds, subtracts, and multiplies whole numbers, decimals, and fractions, including mixed numbers, and divides whole numbers to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.
- MA.E.1.2.2 The student determines range, mean, median, and mode from sets of data.

**Academic Outcomes/Lesson Objectives:**

Students will read a selection adapted from the Orange County Water Atlas, written in FCAT practice form.

Students will respond to FCAT-type questions or prompts in Reading, Writing, and Math.

**Time Allotted:** One class period (about 50 minutes)

**Topic:** 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 Orange County drainage basin flows into the larger Upper St. Johns River, Middle St. Johns River, Kissimmee River or Ocklawaha River watershed. The St. Johns River flows northward, eventually running into the Atlantic Ocean near Jacksonville. Water in the Kissimmee

River flows south into Lake Okeechobee. The Ocklawaha River joins the St. Johns River north of Orange County, near Palatka.

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

To access this information, go online to [www.Orange.WaterAtlas.usf.edu](http://www.Orange.WaterAtlas.usf.edu). Choose the Advanced Mapping tool from the dropdown list in the menu bar. To find your watershed, use the search tool in the upper right-hand corner. Click on the button for "an address," click in the text block and then type your address or the school's address (no city). A map will come up with that address marked by a red star. The name of your watershed will be 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 using the Advanced mapping tool, then lead your students on a virtual tour of their watershed as part of the preparation for this activity. They can learn more about their watershed by visiting the [Orange County Watershed Excursion](#), also on the Water Atlas. 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, contact the St. Johns River Water Management District, <http://www.sjrwmd.com/> or <http://www.floridaswater.com/>.

### **Materials:**

- Computer with internet access
- Student pages for "What Is a Watershed?"
- 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

### **Vocabulary:**

#### **Basin**

Another word for "watershed"

#### **Contour Map**

A map showing elevations of a land surface.

**Pollution**

Contamination of air, land or water by a harmful substance.

**Storm Drain**

A flood-prevention system designed to carry stormwater to a river, lake, retention pond or other containment area.

**Swale**

A low area of land that is designed to receive and channel water to give it an opportunity to soak into the soil.

**Watershed**

An area of land that collects, stores, and transports precipitation (rainfall and snow melt). It may include any or all of the following: streams, lakes, reservoirs, aquifers, estuaries, and wetlands.

**Key**

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

**Reading**

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

LA.4.2.1, 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.4.2.1, 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**

1. d. – MA.6.A.5, MA.7.A.1.2
2. a. – MA.4.G.3.1
3. b. – MA.6.A.5, MA.7.A.1.2

## **Watersheds: Where does the Water Go? *Teacher's Guide***

*Students practice for the FCAT while learning about watersheds.*

*Water Atlas Curriculum Lesson 29 FCAT Supplement*

*The original version of this lesson was written by Kelley G. Weitzel for the Seminole County Water Atlas; it was adapted in 2011 by Water Atlas staff for use on the Orange County Water Atlas*

Curriculum developed for Orange County Environmental Protection Division by USF's Florida Center for Community Design & Research. This material is based upon work supported by the Department of Energy under Award Number DE-EE0000791.

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.