

## OUR AQUIFER - OUR WATER - PROTECT IT Grades 5-8

### OBJECTIVES:

- The students will understand where our drinking water originates.
- The students will create a model of a water filtration system.
- The students will make recommendations to protect our aquifer.

### FCAT STRANDS ADDRESSED:

Reading Exam	Reference and Research
Writing Exam	Expository Writing
Science Exam	Processes that Shape the Earth - How living things interact with their environment / Nature of science - scientific method

### MEETS THE FOLLOWING SUNSHINE STATE STANDARDS:

#### *SCIENCE*

**Strand D:** *Processes That Shape the Earth (Grade 5)*

**Standard 2:** *The student understands the need for protection of the natural earth systems*

**Benchmark SC.D.2.2.1** The student knows that reusing, recycling, and reducing the use of natural resources improve and protect the quality of life.

**Strand H:** *The Nature of Science (Grade 5, 6, 7, 8)*

**Standard 1:** *The student uses the scientific processes and habits of mind to solve problems*

**Benchmark** Meets all benchmarks under this standard

**Strand G:** *How Living Things Interact With Their Environment (Grade 6-8)*

**Standard 2:** *The student understands the consequences of using limited natural resources*

**Benchmark SC.G.2.3.1** The student knows that some resources are renewable and others are nonrenewable.

**Benchmark SC.G.2.3.4** The student understands that humans are a part of a system and their activities may deliberately or inadvertently alter the equilibrium in ecosystems.

## MATERIALS:

- Teacher background on Florida's aquifer
  - Aquifer basics: <http://capp.water.usgs.gov/aquiferBasics/floridan.html>
  - Florida Springs: <http://floridasprings.org/>
  - Articles on threats to Florida's drinking water and the Floridan Aquifer:  
<http://www.monitor.net/monitor/0201a/floridawater.html>  
<http://www.monitor.net/monitor/9909a/undergroundinjection.html>
  - PDF document on Floridan Aquifer (includes some images):  
[http://fga.freac.fsu.edu/gaw/resources/waterpdf/floridan\\_aquifer\\_system.pdf](http://fga.freac.fsu.edu/gaw/resources/waterpdf/floridan_aquifer_system.pdf)
  - Plant Management in Florida Waters:  
<http://aquat1.ifas.ufl.edu/guide/aquifers.html>
  - Documentary film *Water's Journey, The Hidden Rivers of Florida*
- Soda bottles with tops cut off
- Dirty water (made from oil, mud or whatever you choose)
- Gauze
- Screening
- Sand
- Pebbles
- *Other materials students think will help*

## PRE-VISIT ACTIVITIES:

1. Ask student where our drinking water comes from. (Many students will answer from the faucet stored in our aquifer.)
2. Have students use the websites above to research the Floridan Aquifer. Students write an organizational paragraph explaining how it works.

3. Brainstorm how pollutants can enter our water system and what some of those pollutants might be.
4. Divide students into teams of four and challenge each team to create a filtration system to clean out the visible impurities from the dirty water samples. Provide each team with a soda bottle.
5. Allow teams to develop and write out a plan on how they will accomplish this challenge. Students use the scientific method, including question, hypothesis, procedures, results and conclusions.
6. With a plan completed, allow students to select the materials they will use to create their systems. They will need time to try several tests of their plan as well as make modifications.
7. Have students write up their results and share with the class.
8. At the conclusion, ask students to create a list of ways they and other citizens of Florida can protect the precious underground water system. Use this list to create posters to share their ideas.

#### **AT THE HISTORY CENTER:**

1. Have students find out how the formation of our aquifer is related to sinkholes.
2. Visit the display showing how our aquifer works. Use the questions on the glass to stimulate further scientific questioning such as how does salt water stay out of our drinking water.

#### **POST VISIT ACTIVITIES:**

1. Divide class into small groups. Provide each group with a small container of blue colored salt water and a small container of clear (or red) fresh water. Students add salt water to fresh water and share observations.