



WATER IS ESSENTIAL FOR LIFE

ALABAMA AG IN THE CLASSROOM
MOBILE, ALABAMA
MAY 30-JUNE 1, 2018

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NATIONAL AG IN THE CLASSROOM
PORTLAND, MAINE
JUNE 27-29, 2018

Alabama: the River State

Concepts : Water and the Environment

ENDURING UNDERSTANDINGS

- * WATER IS ESSENTIAL FOR LIFE
- * WATER HAS UNIQUE PHYSICAL AND CHEMICAL CHARACTERISTICS
- * WATER IS A NATURAL RESOURCE WE MUST PRESERVE AND PROTECT

ESSENTIAL QUESTIONS

- * WHY IS WATER IS ESSENTIAL FOR LIFE?
- * WHAT ARE SOME UNIQUE PHYSICAL AND CHEMICAL CHARACTERISTICS OF WATER?
- * HOW CAN WE PRESERVE AND PROTECT OUR WATER RESOURCES?

WEEK ONE

THE WATER ENVIRONMENT

Week One – The Water Environment

- Orient to the activity - Look at a map of Alabama on-line
<http://www.outdooralabama.com/fishing/freshwater/where/rivers/rivers.pdf>
- What do you notice.... Look at all the blue...Explain a watershed
- K-W-L on Alabama's water
- Look at another interactive map <http://www.riversofalabama.org/index.htm>

Homework with your family (school to home connections)

<http://ga.water.usgs.gov/edu/sq3.html>

<http://www.epa.gov/region1/students/pdfs/gwa21.pdf>

Prepare a chart or graph with your results...

1. Do you use a lot of water?
2. Waste a lot?
3. Use resources wisely?

WEEK TWO

WHERE CAN WE FIND WATER

Week Two – Where Can We Find Water

- Share results of homework, post graphs on the wall as an interactive analysis
- Orient to the activity – Brainstorm a list of places we might find water (glaciers, groundwater, clouds, etc). Do this with your table group. Post this list
- Toss a globe and have the students catch it with their arms outstretched and fingers apart. Record the fingers on blue. After 10 catches, you should have between 65 and 90 fingers on blue. The earth is 70-75 percent water. Make a chart or graph.

WEEK THREE

A WATER CYCLE IS NOT A CIRCLE

Orient to the activity – Brainstorm a list of places we might find water from group work

- Discuss the differences between a water **cycle and a circle**
- Activity – Stations of the water cycle <http://www.in.gov/dnr/nrec/files/pwdice.pdf> - were the students surprised about water in animals (us) and plants?
- Explain how they will travel through some of the stations as a water molecule, collecting beads for their bracelet (I use chenille sticks, the beads generally stay put and it's easy to make a bracelet). Remind them to keep great notes of what caused the movement from one place to another (can review Talents Unlimited here – Forecasting)
- Allow ten stops for this activity – then name a station and see how many people visited. Did anyone make it to all stations?
 - 10 beads-do easy percentages
- Write a creative story about your journey. Use the places you visited (in order) and tell about your adventures. Draw a picture
- <http://www.riversofalabama.org/index.htm>
- <http://www.peelregion.ca/pw/waterstory/pdf/activities/bucket.pdf>

Homework with your family (school to home connections)

- Share your bracelet and the story you wrote with your family. Have an adult sign your record sheet to indicate that you have explained the activity to them.

WEEK FOUR

POLLUTION AND WATER QUALITY

- Share results of homework bracelet activity, ask about what their families thought.
- Orient to the activity – KWL on pollution
- Freddy the Fish [http://wupcenter.mtu.edu/sustainability/lessons/Freddie the Fish Lesson Gr2-3.pdf](http://wupcenter.mtu.edu/sustainability/lessons/Freddie_the_Fish_Lesson_Gr2-3.pdf)
- Nine sources of pollution: Sedimentation, Cow manure, Fertilizer, Weed killer, Road salt, Litter, Acid Rain, Industry, used motor oil
- Activity – Using the Decision Making Talent, formulate a plan to reduce pollution in Alabama Rivers.
 - Think of many, varied things you could do – ALTERNATIVES
 - Think of the varied questions you need to ask about the things you could do – CRITERIA
 - Use your answers to help you make a decision – WEIGHING
 - State your final decision – DECISION
 - Give many varied reasons for your decision – REASONS
- Homework with your family (school to home connections)
 - Talk to your family and friends, what do others think are the biggest pollutants. Talk about ways your family can make a difference.

WEEK FIVE

WE ARE ALL DOWNSTREAM

- Sum of the Parts – Each student will develop a piece of property, with a million dollars to spend. There is a (common) water source and we will discuss PS and NPS pollution; upstream and downstream and Best Management Practices.
 - After completing their drawings, place them touching on a table or can hang and discuss the impact they each will have on another persons property
- Using the Forecasting Talent (copy in folder on computer), discuss the cause and effect in the Sum of the Parts activity.
 - Forecasting
 - Make many, varied predictions about the CAUSES of a situation.
 - Make many, varied predictions about the EFFECTS of a situation.

WEEK SIX

ENVIROSCAPE

- Orient to the activity – Review pollutants. As a group make a Venn or other diagram classifying types of pollution. Define and distinguish point source pollution and non-point source pollution.
- Open the Enviroscope. Talk about the different physical locations (farmland, roads, homes, streams. etc.) and the things that have happened or may happen.
- Demonstrate the enviroscape <http://www.enviroscapes.com/nonpoint-source.html>
- Choose one area of the enviroscape and do a (before, during and after) list. Summarize in a paragraph (add forecasting talent and EU) type for homework

Choose one activity as a possible culminating action:

- Bulletin Board on Alabama River
- Problem solve field experiences solutions
- Make a list of items for the traveling trunk
- Your ideas are always welcome

WEEK SEVEN

HUNGRY CAVE CRITTERS

<http://caves.org/committee/projectunderground/>

- Bat Facts Puzzle
- Research cave critter and food source
- Play game <https://cavecurriculum.weebly.com/lesson-10---cave-critters.html>
- Results chart/graph
- Candy corn multiple intelligences (math/kinesthetic/interpersonal)
 - Corn as a commodity

Homework – research information on your critter and what they eat (pictures)

WEEK EIGHT

INDICATOR SPECIES

- Share your cave critters research
- Orient to the activity – Review animals that live in the water. Is water quality important to them?
- Activity – Macro Mayhem activity. Bring in the Bio-assess kit so they can see the actual creatures. Chart/graph the results.
- Homework with your family (school to home connections)
- Take trip to the grocery store with your family. Look for earth-friendly products. Are these easy to find? Make a list of products you think might cause problems for our water supply. Use magazines or newspaper ads if you could not physically go to the store.
 - Share Phosphate removal story

WEEK NINE

CULMINATING ACTIVITY PRESENTATION

- Each student group will present their project
- Using multiple perspectives and technology, students will thoughtfully share their topic of interest with the group
- Other solutions and ideas will also become part of the project

WATER IS ESSENTIAL FOR LIFE

- People need water to survive
- Agriculture must have water on a good schedule to grow healthy sustainable food
- Water quality and quantity are important

Alabama, the River State - Concepts: Change and the Environment

- **Enduring Understandings**

- Water is essential for life
- Water has unique physical and chemical characteristics
- Water is a natural resource we must preserve and protect

- **Essential Questions**

- Why is water essential for life?
- What are some unique physical and chemical characteristics of water?
- How can we preserve and protect our water resources?