



Author(s): <i>Michael Lucky Voiselle</i>			Lesson Title: <i>WATER, WATER EVERYWHERE....?</i>			
Grade Span			ICLE Application Model			
<i>K-4</i>	<i>5-8</i>	<i>9-12</i> <i>X</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i> <i>X</i>

Instructional Focus:

Writing

Students write for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

Measurement

Students use a variety of tools and techniques of measurement in a problem-solving situation. Students communicate the reasoning used in solving these problems.

Science as Inquiry

Students demonstrate knowledge and skills necessary to perform scientific inquiry.

Communication

Students communicate and apply scientific concepts.

Performance Task

Water conservation is becoming increasingly important due to lowering of reservoir supplies of fresh clean water. Your task is to monitor the amount of water used at your house. Develop a suitable way to measure a single use of water. Some water uses are already measured. For instance, a standard toilet uses 5 gallons per flush. A full bath uses approximately 50 gallons. A washing machine uses 15-30-45 gallons depending upon a low, medium, or high wash. Other water uses will have to be measured. For instance, open a spigot and time how long it takes to fill a gallon jug. Then you can keep track of the time the spigot was in use to brush teeth, wash face, etc. and convert minutes to gallons. You can have little sheets of paper near each water source to record time or amounts of use. Talk this over with your family members and try it for 1 week.

You are to keep a science journal and record all your data for each water source daily.

After one week of collecting, form groups of 4 and share uses. Determine among your group how much is too much to use and formulate reasons why. Brainstorm and develop a list of 10 ways that can help conserve water in their homes. Share these 10 ways with your family members and ask for their opinions. Summarize your data, group brainstorming, and family thoughts in a well-written write-up free from spelling and grammatical errors.

Each member of your group will pick one of the following to research and share with each other. Discover how that water source became polluted and how serious the problem was. Find out what actions the controlling governments took to attempt a cleanup and if they solved the problem or not. After each member shared their topic orally, each will write another summary well-written and free from spelling and grammatical errors. Depending upon time you may want to write to the chamber of commerce of these cities or countries on a school letterhead.

1. Neva River near Leningrad in Russia.
2. Thames River that flows through London, England
3. Lake Erie in the United States
4. Jamaica Bay in New York City.

Work with your group on these next thoughts and questions. Research in any resources available to you including: encyclopedias, the Internet, and water supply people and share with each other. You are required to summarize in a third write-up well written free from spelling and grammatical errors.

1. How much fresh water is available on the earth?
2. Is there an endless supply of fresh water?
3. Have there been water shortages in other cities or countries?
5. Is conservation really necessary?

6. Is there a source of water pollution in your community? Analyze and observe to possibly find the cause. Share these findings with your class and parents. Decide as a whole class whether you want to pursue writing a letter to your city council making them aware of your findings and concerns.
7. The Ogallala Aquifer is a vast underground lake sprawling from Wyoming through Nebraska, Kansas, Colorado, Oklahoma, New Mexico and Texas. Find out what this vast lake is used for and what has happened to that lake in the past 60 years.

ICLE Essential Skills

Apply in writing the rules and conventions of grammar, usage, punctuation, paragraphing and spelling. (ela1)

Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report. (ela3)

Use brainstorming, role playing, and standard problem solving strategies to define a problem and suggest solutions. (ela19)

Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios. (ela40)

Use expository writing skills in subjects other than English language arts. (ela58)

Know and apply the principles of scientific inquiry. (*Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures.*) (Not Ranked s114)

Make observations using senses and instruments. Inferences and interpretations are arrived at based on observations. Classify observable properties and organize observations in a meaningful and logical way. (s5)

Understand how humans, through technology, cause environmental change by disrupting the equilibrium or balance of nature by introducing pollutants into the environment. (s6)

Understand the human impact on the environment through pollution (air, water, and soil), and ways to improve it through education, research, laws, and conservation. (s10)

Identify and comprehend the concepts involving the earth's water, i.e., ground water (infiltration, permeability, porosity, and capillarity), surface water (runoff), and pollution (sources, types, concentration, and long range effects). (s17)

Know the processes involved in the water cycle, (i.e., evaporation, condensation, precipitation, surface runoff, percolation) and their effects on climate patterns. (s7)

Scoring Guide:

RATE CRITERIA: 3=Excellent, 2=Satisfactory, 1=Unsatisfactory, 0=Does not attempt or does not understand

CRITERIA SCORE

Student worked and cooperated well with their group

Student developed a suitable method to measure the amount of water usage in their home

Student kept data well organized in their science journal

Student listed 10 ways of conserving water in their home

First write-up was well organized and free from spelling and grammatical errors

Student researched one of the water supplies, stated the causes of pollution, and how the governments dealt with it

Second write-up was well organized and free from spelling and grammatical errors

Student researched the last seven questions and were included in a third write-up

Third write-up was well organized and free from spelling and grammatical errors

Keywords

English Language Arts	Mathematics	Science
Reading Comprehension	Algebra Computation	Earth Science Environment Water Scientific Inquiry
Writing Spelling Grammar Journal Expository	Geometry	Life Science Ecosystem
Communications Discussion	Statistics	Chemistry
Literature	Calculus	Physics
Other	Trigonometry	Other
	Other	