

Title: Saving a Resource in Jeopardy

Source: The Water Sourcebook Series, U.S. Environmental Protection Agency

Subject(s): Science, Social Studies, Language Arts

Grade(s): 3-5

Objectives: Students will be able to name the many uses of water and classify water uses into four main categories. They will learn habits to conserve water.

Summary: Students will begin by brainstorming the ways they and others use water. The class will then play Water Conservation Jeopardy. Questions for the game are included in the materials. The class will divide in half and a spokesperson will be chosen for each team. Students will choose questions from four categories including residential, agricultural, industrial, and recreational uses of water. After the game, students will write a paragraph about what they have learned.

Extension: For a creative writing extension activity, students can form groups and write a play or skit about conserving water. For a math extension activity, students can take readings from the water meter at school. Using the phonebook, students can find out how much money the school spends on water by calling appropriate city offices. Finally, students can act as undercover water cops to figure out how water conservation could be improved at school.

Standards: ELA3W1. The student demonstrates competency in the writing process.

SS3E1. The student will describe the four types of productive resources.

S3L2. Students will recognize the effects of pollution and humans on the environment.

ELA4W1. ELA5W1. The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.

S4E3. Students will differentiate between the states of water and how they relate to the water cycle and weather.

# SAVING A RESOURCE IN JEOPARDY

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## OBJECTIVES

The student will do the following:

1. Name many uses of water.
2. Classify water uses into four main categories.
3. Learn water conservation habits.

## BACKGROUND INFORMATION

Water conservation saves energy, money, chemicals and fresh water supply. It takes a lot of energy to pump water to your home and, once it gets there, it takes both energy and money to heat water. Heating water is usually the second largest use of

energy in the home. Everyone who uses water spends money for that privilege (both city water pumped to your house, school, office, recreational facility, etc., and well water—you pay to install a well). Chemicals are used at water treatment plants.

Communities face two problems. One is the increasing demand for clean water. The other is locating new water sources. The water we use often comes from underground reserves. If we use this water faster than nature can replace it, sometimes the land sinks. According to the U.S. Geological Survey, 35 states are pumping groundwater faster than it is being replaced. We are using the earth's water supply from hundreds of millions of years ago. In the water cycle it is used over and over again. We need to keep it clean and conserve it to make sure there is enough fresh water to meet our future needs.

### Term

**conservation:** to protect from loss or depletion

## ADVANCE PREPARATION

- A. On the 16 sheets of typing paper, write \$1 on 4 pieces, \$5 on 4, \$10 on 4, and \$20 on 4 with a big magic marker. (Also, make the gameboard on posterboard if you won't be using a chalkboard.)
- B. Get play money in a variety store's party supply section. (NOTE: Make sure the denominations on the typing paper sheets correspond with the play money denominations.)

### **SUBJECTS:**

Science, Social Studies, Language Arts, Math

### **TIME:**

60 minutes

### **MATERIALS:**

chalkboard

16 sheets of scrap paper

tape

marker

play money in 4 denominations

camcorder and video tape (optional)

clipboard

list of student's names for each teacher

teacher sheet (included)

bell or buzzer (one per team)

## PROCEDURE

### I. Setting the stage

Have the students brainstorm as many uses of water they can possibly think of. Write these on the board. Next ask them to see if there are any similarities. Can they put these words in groups? Have the students suggest categories for the water uses they listed. Work on this as a class, and lead the students to use residential, agricultural/rural, industrial, and recreational as the categories.

### II. Activity

Have the students play the Water Conservation Jeopardy Game.

- A. Use a chalkboard to set up the categories like they do on television. On the chalkboard write the appropriate answers which are found on the teacher sheet, "Water Conservation Jeopardy Game." (For your benefit, the correct response [question] is underlined.) Cover the questions with pieces of paper with dollar amounts on them and pull them off to reveal the questions. When a team/individual gets a right answer on the first try, hand them a piece of play money.

Set up a chalkboard like this.

Residential	Agricultural	Industrial	Recreational
\$1	\$1	\$1	\$1
\$5	\$5	\$5	\$5
\$10	\$10	\$10	\$10
\$20	\$20	\$20	\$20

(NOTE: If you prefer, you may make a reusable chart on which to play this game. Also, if you cannot put the cover sheets on your chalkboard with small pieces of tape, use a bulletin board for your gameboard.)

- B. Play the game in teams of boys vs. girls, blue-eyed vs. brown-eyed, type of shoe, or what they ate for breakfast or just divide the groups alphabetically. Each team must choose a spokesperson to give the answer for their team. The first team to answer correctly gets the play money and the right to choose the next question. Play the game as they do on TV. Have the team ring a bell or press a buzzer when they have the correct answer. When a team asks, for example, for Recreational \$10, pull the sheet of paper away from that area and ask the team the appropriate question. (NOTE: The answers are constructed so that students can guess the correct answers if they think about them.)

### III. Follow-Up

Have the students write a paragraph about "what they learned" from this activity. Ask them to state their favorite water conservation fact and the reasons they thought this was the most interesting.

### IV. Extensions

- A. Have the students read one of Wilder's Little House books (or read to them) or some similar book. Let them make the following comparisons:

**Past**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Present**

- Turn on the faucet
- Bathe in the bathroom
- Hot water comes from a water heater
- Flush the toilet in the bathroom
- Pull the plug in the bathtub after a bath

- B. Students can make a study of inventions and make a time line. Make a list of inventions/devices that have to do with the use of water. If you have the resources, find out when products concerning water were invented/patented and draw these on a time line. (Check on the bathtub, PVC pipe to get water to our homes, hot water heater, faucets, and tea kettle.)
- C. For a creative writing/acting activity, have students work in cooperative learning groups. Each group is to create a play/skit/pantomime (their choice) to show how water can be conserved in these four areas—residential, agricultural/rural, industrial, recreational. They need a title for it when they finish. Encourage background music and/or “speaking parts.” After composing the script or actions, videotape their rehearsal. Let them play back the tape and critique it for changes before they do the “real” thing for other classes or the PTA.
- D. To incorporate math, conservation, and phone book skills, try the following activity.
  - 1. Find the water meter in your school. Take a reading at the beginning and end of the day. If your school gets water from a utility company or city, call the water department.
  - 2. Teach telephone book skills. Blue pages are government pages. Four sections (city, county/parish, state, national) exist. Find out how much 1 gallon of water costs your school. Call the central office for your school district and find out how much water your school uses in a certain month and how much it costs.
  - 3. Have children devise a way to “catch” the water that is wasted by your school in (any time segment you think is appropriate) by students not turning off the faucet completely. How much money do you waste in one day, one month, the whole school year? How much money could you SAVE?
- E. Have the students act as undercover water cops to encourage water conservation.
  - 1. Each time students go to the bathroom, drink from a fountain, or use classroom sinks, have them take note of times students do not turn the water faucets completely off, or who run more water than they need.
  - 2. At the end of the day, add all the students’ lists (tallies) together for a count of the instances of wasting water.
  - 3. Have the class make a list of the ways they can conserve water at school.
- F. If your class has pen pals, write to them and ask them how much water costs in their city. If they don’t have pen pals, let each child write to another city in the United States to find out what other people pay for water. (Addresses can be found in the World Almanac and telephone directories in public libraries.) Make a graph. Discuss why it would be different in different parts of the country.

**RESOURCES**

Miller, G. T., Environmental Science: Sustaining the Earth, Wadsworth, Belmont, California, 1991.

1991 Statistical Abstract, U.S. Department of Commerce, p. 239.

“The Official Captain Hydro” (Water Conservation Workbook), East Bay Municipal Utility District, Oakland, California, 1982.

Wilder, Little House books (various).

Teacher Sheet

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## WATER CONSERVATION JEOPARDY GAME

### Residential

- \$1 What two resources do you save by taking shorter showers? (Water/Energy, Water/Trees, Water/Air)
- \$5 If you wash your dishes with the tap running, how many gallons of water could you use? (5 gal./15 gal./30 gal.) (NOTE: About 5 gallons are used if you use a dish pan to hold the water.)
- \$10 How much more water do you use if you leave the water running while you brush your teeth? (2X/10X/100X) (NOTE: If you just wet the toothbrush and rinse it you only use about 1/2 gallon.)
- \$20 How many gallons of water do you use when you flush a standard toilet? (1 quart, 1 gallon, 5 gallons)

### Recreational

- \$1 What do most people do "in" water? (fish, swim, brush teeth)
- \$5 Hockey is a team game played on a surface covered with water in which of these states? (solid, liquid, gas)
- \$10 Name two water sports that require a sail. (think) Team has to come up with 2. (Possible answers: sailing/wind surfing/parasailing.)
- \$20 In 1990 how much money was spent on buying pleasure boats? (\$9 million, \$9 billion, \$9 trillion)

### Industrial

- \$1 About how much does one U.S. gallon of water weigh? (2 lbs./8 lbs./108 lbs.)
- \$5 Do Canadian and U.S. gallons weigh the same? (yes/no) (NOTE: Canadian imperial gallon weighs 10 lbs.)
- \$10 Which of the following accounts for more of industry water use? (washing things, cooling things that get hot, mixing into things)
- \$20 About how many gallons of water were used for industrial purposes in 1985? (2 million, 2 billion, 29 billion) (Extra: Can anyone write this big number on the board? \$29,000,000,000)

### Agricultural

- \$1 If a farmer is irrigating on his farm, what is he/she using water for? (plants, animals, cleaning)
- \$5 If a rancher is watering his livestock, what is he doing? (watering his crops, washing out the barn, giving his animals a drink)
- \$10 About how much of our fresh water is used for agriculture? (10%, 20%, 40%)
- \$20 In the United States which of the following uses more of our water? (cities, industries, agriculture)