

# WHAT'S IN A BOTTLE OF WATER?

9-12

## OBJECTIVES

The student will do the following:

1. Examine the bottled water industry.
2. Distinguish between different kinds of bottled water.
3. Become more aware of the differences between bottled water and tap water.
4. Develop an individual perspective on bottled water controversy through a project.

### SUBJECTS:

Social Science (Economics),  
Language Arts, Science  
(Physical, Ecology)

### TIME:

1 class period for discussion.  
homework/presentation

### MATERIALS:

handout Bottled Water:  
"Quality or Hype"

## BACKGROUND INFORMATION

Bottled water is big business in the United States. It is a business that may anticipate considerable growth in the coming years, for consumers are often turning to bottled water as a replacement for tap water and as an alternative to alcoholic beverages and sodas.

### Terms:

**artesian well:** a well that produces water without the need for pumping due to pressure exerted by confining layers of soil

**bottled water:** water that is sealed in food grade bottles and is intended for human consumption

**club soda:** same as soda water; water charged under pressure with carbon dioxide gas

**mineral waters:** sparkling (carbonated) waters generally used as an alternative to soft drinks or cocktails

**natural water:** water that comes from springs or streams and does not have any chemicals added to it

**potable water:** water suitable for drinking without harmful effects

**seltzer water:** natural mineral water that is effervescent

**soda water:** water charged under pressure with carbon dioxide gas

**sparkling water:** carbonated drinking water

**spring:** a surface flow of water originating from subsurface sources (groundwater); often a source of a stream or pond

**well:** a bored, drilled, or driven shaft or dug hole. Wells range from a few feet to more than 6 miles in depth, but most water wells are between 100 and 2,000 feet in depth.

## ADVANCE PREPARATION

- A. Have vocabulary words/definitions on board for discussion at beginning of class period.
- B. Copy Student Sheet "Bottled Water: Quality or Hype."
- C. Copy Student Sheets for Word Find and Cryptogram (cover solution when copying) if teacher wants to include these.

## PROCEDURE

- I. Setting the stage
  - A. Discuss the current popularity of bottled water.
  - B. Give copies of handouts.
  - C. Have individual students or groups research and read at least three articles dealing with bottled water.
- II. Activity
  - A. Write an article for the school newspaper in which you discuss the growth of the bottled water industry. Include information from the handout.
  - B. Construct poster/collage to show different labels of bottled water. Include name, source, distributor's name, source of supply, and any other information unique to each label. Use U.S. or regional map to show point of origin of the water.

- C. Phone or visit a local supermarket. Talk to the manager about bottled water sales. Write a four-paragraph essay to report your findings. Be sure to develop a strong thesis in the introduction. Write two detailed body paragraphs to report your findings. Summarize and draw conclusions in the fourth paragraph.
- D. Develop your own questionnaire to poll opinions of ten students or adults about bottled water. Report your findings to the class using graphs and/or charts.
- E. Have a taste test of different kinds of bottled water.

### III. Extensions

- A. Cryptogram
- B. Word Find
- C. Research the purity of your local tap water and compare it to state and federal contamination limits and guidelines. Check with the local water system for information.

## RESOURCE

Marguardt, Sandra, "Bottled Water: Sparkling Hype at a Premium Price", Environmental Policy Institute. January, 1989.

Bottled Water Fact Sheet, EPA, May 1990. Call the Safe Drinking Water Hotline at 1-800-426-4791.

### **BOTTLED WATER: QUALITY OR HYPE**

In this time of growing public concern over how safe is drinking water, Americans are buying bottled water to satisfy their needs and tastes. The bottled water industry has sales of \$1.9 billion a year. Concerns over the purity of bottled water are now stimulating research into the benefits/disadvantages of this water.

Americans are paying premium prices for bottled water with little assurance that the product is "purer" than their tap water. However, bottled water is tested for contaminants similarly to drinking water (or tap water) provided by a public water system. Sales of bottled water increased by almost 500 percent between 1977 and 1987. Bottled water costs 700 times the average cost of tap water and three times the cost of oil.

People have different reasons for buying bottled water products. Some buy it because of advertising that promotes the idea that bottled water is important to a fit lifestyle. For others, water in a bottle just tastes better. Then there are the people who are forced to buy bottled water because their private wells or public water supplies have become contaminated by pesticides, fertilizers, chemicals, or bacteria. Government reliance on bottled water as a response to water supply contamination, combined with advertising, appears to have encouraged the misconception that bottled water guarantees a product substantially safer and healthier than tap water.

The following is a quote from Sandra Marquardt who works for The Environmental Policy Institute (EPI). "After reviewing government documents, independent and government studies, as well as state and federal regulations governing bottled water, the Environmental Policy Institute has concluded that, despite the attractive packaging of bottled water, this product, in general, is not necessarily any safer or more healthful than the water which comes out of most faucets. In fact, the public water utilities supplying these same faucets are the source for more than one-third of all the bottled water in the U.S."

EPI has found that numerous independent studies of bottled water have cast doubt on claims of bottled water purity. In reviewing these studies and assessing other available evidence, the Environmental Policy Institute has found that bottled water frequently contains low levels of contaminants such as heavy metals and solvents.

## Activities for: DRINKING BOTTLED WATER

## WORD FIND: DRINKING BOTTLED WATER

|                |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DRINKING WATER | D | W | P | O | T | A | B | L | E | A | S | H | L |
| MINERAL        | E | R | E | M | U | S | N | O | C | P | H | T | L |
| NATURAL        | S | T | I | L | L | W | A | T | E | R | E | S | L |
| STILL WATER    | N | R | D | N | A | T | U | R | A | L | C | U | W |
| SPARKLING      | O | G | E | O | K | R | M | G | E | S | I | S | N |
| PUBLIC         | I | H | A | W | B | I | E | P | L | H | L | A | A |
| FILTRATION     | T | S | E | S | N | R | N | D | L | H | B | N | I |
| POTABLE        | A | O | U | E | N | T | R | G | E | S | U | S | S |
| SODA           | R | D | R | V | E | E | I | T | W | L | P | P | E |
| CLUB SODA      | T | A | L | E | Z | A | S | L | A | A | R | B | T |
| SELTZER        | L | P | A | T | A | E | M | A | R | I | T | E | R |
| WELL           | I | X | L | Y | P | Z | X | K | N | R | Y | E | R |
| SPRING         | F | E | M | A | R | L | L | G | Z | R | U | T | R |
| ARTESIAN WELL  | S | T | N | A | N | I | I | M | A | T | N | O | C |
| TAP            | X | Y | Z | N | N | C | L | U | B | S | O | D | A |
| CONSUMER       | E | P | A | G | C | O | N | T | A | E | N | E | R |
| IBWA           |   |   |   |   |   |   |   |   |   |   |   |   |   |
| EPA            |   |   |   |   |   |   |   |   |   |   |   |   |   |
| PEST           |   |   |   |   |   |   |   |   |   |   |   |   |   |

Activities for: DRINKING BOTTLED WATER

WORD FIND: DRINKING BOTTLED WATER

|                |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DRINKING WATER | D | W | P | O | T | A | B | L | E | A | S | H | L |
| MINERAL        | E | R | E | M | U | S | N | O | C | P | H | T | L |
| NATURAL        | S | T | I | L | L | W | A | T | E | R | E | S | E |
| STILL WATER    | N | R | D | N | A | T | U | R | A | L | C | U | W |
| SPARKLING      | O | G | E | O | K | R | M | G | E | S | I | S | N |
| PUBLIC         | I | H | A | W | B | I | E | P | L | H | L | A | A |
| FILTRATION     | T | S | E | S | N | R | N | D | L | H | B | N | I |
| POTABLE        | A | O | U | E | N | T | R | G | E | S | U | S | S |
| SODA           | R | D | R | V | E | E | I | T | W | L | P | P | E |
| CLUB SODA      | T | A | L | E | Z | A | S | L | A | A | R | B | T |
| SELTZER        | L | P | A | T | A | E | M | A | R | I | T | E | R |
| WELL           | I | X | L | Y | P | Z | X | K | N | R | Y | E | A |
| SPRING         | F | E | M | A | R | L | L | G | Z | R | U | T | R |
| ARTESIAN WELL  | S | T | N | A | N | I | I | M | A | T | N | O | C |
| TAP            | X | Y | Z | N | N | C | L | U | B | S | O | D | A |
| CONSUMER       | E | P | A | G | C | O | N | T | A | E | N | E | R |
| IBWA           |   |   |   |   |   |   |   |   |   |   |   |   |   |
| EPA            |   |   |   |   |   |   |   |   |   |   |   |   |   |
| PEST           |   |   |   |   |   |   |   |   |   |   |   |   |   |

Activities for: DRINKING BOTTLED WATER

WORD FIND: DRINKING BOTTLED WATER

CRYPTOQUOTE: Here's how it works: One letter stands for another letter. Single letters, double letters, word formations, and punctuation are all clues. E is the most frequently used letter of the alphabet; THE is the most frequently used three-letter word. Have fun!!

J S Q Q M B V O I Q B D      K C J K H

J Z C K R B C C      K R      Q U B

Z R K Q B V C Q I Q B C.

SOLUTION:

Bottled water is big business in the United States.