



## TEACHER GUIDE

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## STUDENT HANDOUTS

• Reading Comprehension	
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- Go to our website: [www.classroomcompletepress.com/bonus](http://www.classroomcompletepress.com/bonus)
- Enter item CC5773 – Conservation: Fresh Water Resources
- Enter pass code CC5773D for Activity Pages





# How The Purity Of Fresh Water Could Change

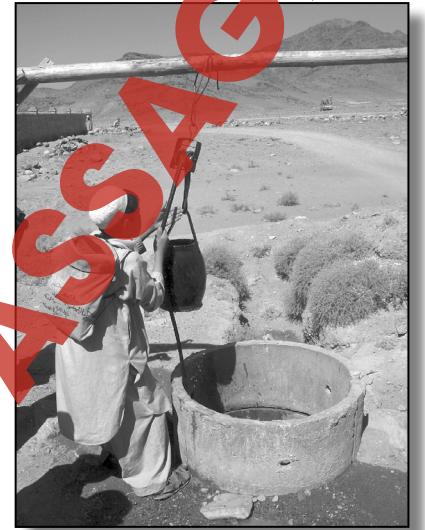
1. Put a check mark (✓) next to the answer that is most correct.
- a) In which of these places do only half the people have access to safe drinking water?
- A Africa
  - B Europe
  - C North America
  - D South America
- b) All of these are substances that often pollute fresh water, except:
- A pesticides.
  - B fertilizer.
  - C raw sewage.
  - D greenhouse gases.
- c) What is the greatest problem caused by polluted water?
- A It kills crops.
  - B It spreads disease.
  - C It cannot be used for washing.
  - D It rusts water pipes.

2. Circle the word **TRUE** if the statement is TRUE or Circle the word **FALSE** if it is FALSE.

- a) About one person in a hundred does not have access to safe drinking water.  
**TRUE      FALSE**
- b) Increasing global temperature will increase the need for crop irrigation.  
**TRUE      FALSE**
- c) Fertilizer running into streams can kill fish.  
**TRUE      FALSE**
- d) All cities have sewage treatment plants.  
**TRUE      FALSE**
- e) Hundreds of millions of people do not have a faucet in their home.  
**TRUE      FALSE**
- f) Fresh water supplies can sometimes become salty.  
**TRUE      FALSE**

# How The Purity Of Fresh Water Could Change

**A**bout one person in four, worldwide, does not have access to safe drinking water. In Africa, only about half of the people can get safe water. It is hard to give an exact number of people without access to safe water because the water some people have "access" to may be miles away. We would not call that access.



Water may be unsafe for a number of reasons. Water may contain bacteria and viruses that cause disease, it may be polluted by pesticides and fertilizer in runoff from crop **irrigation**, or it may contain toxic chemicals from factories. Also, water that was once fresh may become too salty for drinking or irrigation.

Climate change may increase water pollution in the future. Higher temperatures will increase the need for irrigation, which will carry more pesticides and fertilizer into freshwater sources. Fertilizer in fresh water is a problem because it encourages plant growth. When the plants die and decay, the decay process removes oxygen from the water that fish and other animals that live there need to breathe.

Irrigation can also make ground water more salty. When the irrigation water evaporates, it leaves any salt it contains behind in the soil. In places near the ocean, underground water may become salty if too much is pumped out. If the water table sinks too low, it can be replaced by salt water that seeps in from the ocean.

**STOP** Identify two reasons that water may be unsafe to drink.

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All of these problems will be made worse by increasing population. More population means more irrigation for more crops, more water pumped from underground, and more factories. Some of these problems can be solved by purifying polluted water in treatment plants. The problem is that the countries most in need of more pure water are usually those that do not have enough money to build treatment plants.



# How The Purity Of Fresh Water Could Change

1. Fill in each blank with a word from the list.

**bacteria      salt      pesticide      fertilizer      irrigation**

- a) \_\_\_\_\_ and \_\_\_\_\_ in runoff from crops can endanger river habitats.
- b) \_\_\_\_\_ in drinking water can spread disease rapidly.
- c) Higher temperatures will increase the amount of water needed for \_\_\_\_\_.
- d) If too much water is pumped from a well near the ocean, \_\_\_\_\_ may seep into the well water.

2. Put a check mark (✓) next to the answer that is most correct.

- a) Pesticides polluting river water usually come from:
- A atmosphere.
  - B farmers' fields.
  - C sewage plants.
  - D vehicle exhausts.
- b) Irrigating a field for many years can make the soil less fertile by causing a buildup of:
- A bacteria.
  - B fertilizer.
  - C pesticide.
  - D salt.
- c) Which of these changes will make it more difficult to solve all water purity problems?
- A increasing human population
  - B melting polar ice caps
  - C rising ocean levels
  - D running out of oil

# How The Purity Of Fresh Water Could Change

3. Answer the questions in complete sentences.

- a) Explain how crop runoff that carries fertilizer into streams can harm fish that live there.
- 
- 
- 
- b) Describe one way that increasing human population can make the problem of unsafe water worse.
- 
- 
- 

## Extensions & Applications

A small farming village is near a stream and also near the ocean. Crops are planted near the stream. People get their water from the stream, except during the dry season, when they get it from a well. The village is not connected to a sewage system or a water system.

Describe **three** ways that the villagers' water supply could become unfit for drinking.

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_



# Activity One

## Build a Model of the Water Cycle

This is what you will need:

- a large glass jar with a lid
- a few tablespoons of salt
- a scale
- a typical kitchen.

This is what you will do:

1. Put a couple inches of cold water and the salt into the jar and stir until the salt disappears.
2. Taste the salt water.
3. Screw the lid on tight.
4. Weigh the jar.
5. Fill the kitchen sink with warm water from the tap.
6. Place the jar in the warm water and leave it there for ten minutes.
7. Weigh the jar again.
8. Place the jar in the refrigerator. (If there is not enough room in the refrigerator, cool the jar by running cold water over it.)
9. Observe any changes inside the jar.
10. Dry the jar with a towel, and weigh it again.
11. Taste any beads of water that have collected on the inside of the jar.

Which parts of the water cycle happened inside the jar?

When did each water cycle process happen?

Did the weight change? Why or why not?

Compare the taste of the salt water and the beads of water and explain your observations.



# Crossword Puzzle!

### Across

3. water-saving kind of irrigation
6. water flowing from a field into a stream
10. the world's most popular drink
11. making fresh water out of salt water
12. to change from solid to liquid
14. the kind of dam electricity comes from
15. solid water

### Down

1. a dry spell
2. bathwater or dishwater
4. water falling from the sky
5. Pumping water out faster than it seeps in is \_\_\_\_\_ use.
7. a big chunk of ice floating in the ocean
8. an underground layer of water
9. Some people collect it from their roof
13. Water goes round and round in a \_\_\_\_\_

Word List		
AQUIFER	DROUGHT	PRECIPITATION
BERGS	GRAYWATER	RAINWATER
CYCLE	HYDROELECTRIC	RUNOFF
DESALINATION	ICE	UNSUSTAINABLE
DRIP	MELT	WATER

(Note: For answers of more than one word, do not put a space between the words.)



# Comprehension Quiz

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### Part A

Circle the word **TRUE** if the statement is TRUE or Circle the word **FALSE** if it is FALSE.

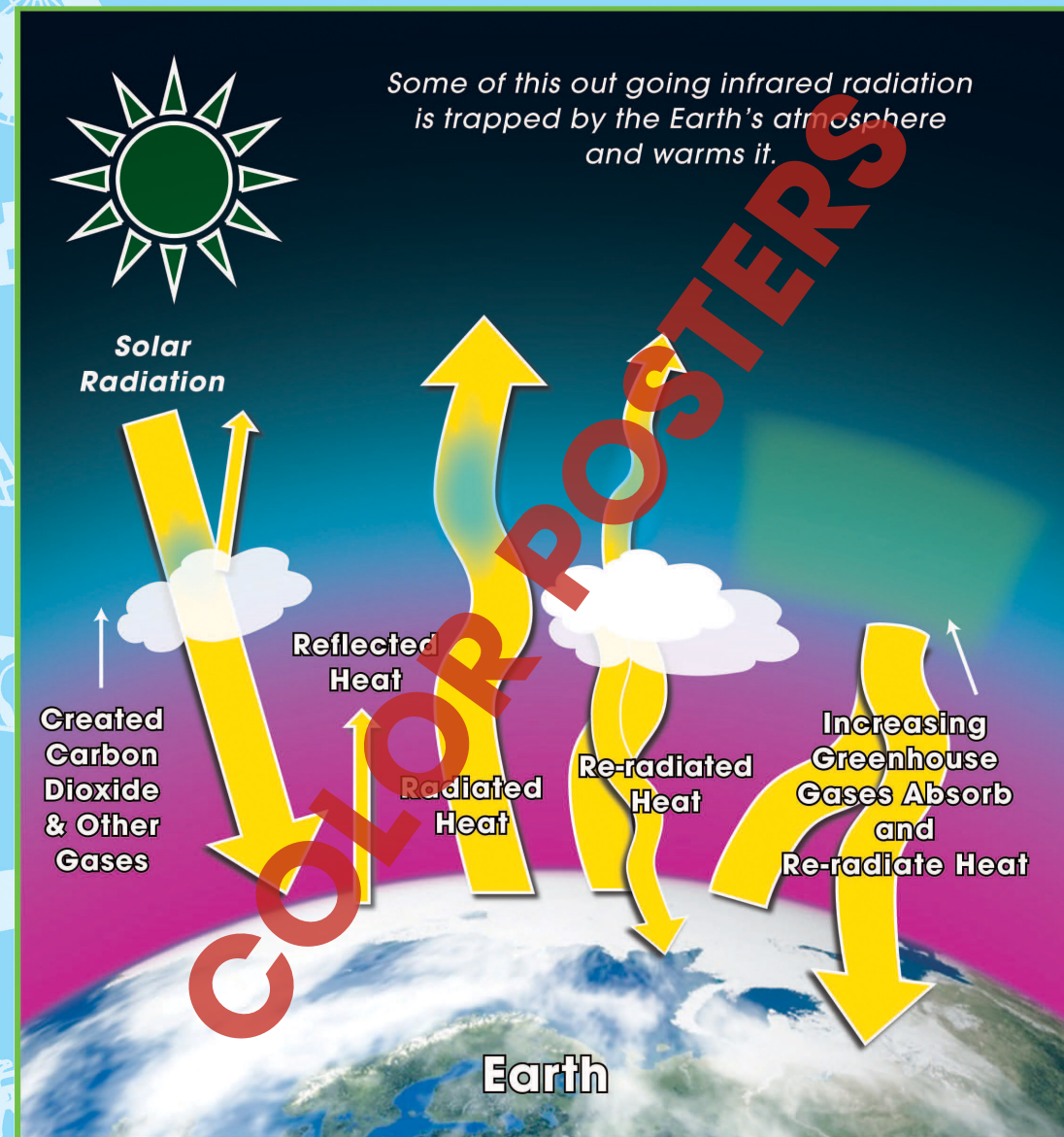
1. The Mississippi River is fresh water.  
**TRUE**      **FALSE**
2. Most fresh water on Earth is either liquid or gas.  
**TRUE**      **FALSE**
3. Burning fossil fuels releases greenhouse gases.  
**TRUE**      **FALSE**
4. An aquifer is the device that controls water flow in a drip irrigation system.  
**TRUE**      **FALSE**
5. Melting polar ice caps will increase Africa's supply of fresh water.  
**TRUE**      **FALSE**
6. One person in four, worldwide, does not have access to safe drinking water.  
**TRUE**      **FALSE**
7. Desalination is another term for graywater recycling.  
**TRUE**      **FALSE**

### Part B

Put a check mark (✓) next to the answer that is most correct.

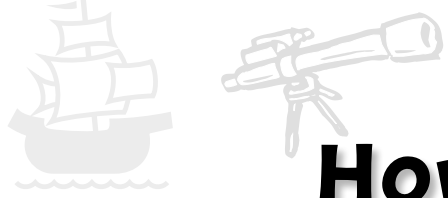
- a) Water in the ocean is changed into water vapor in the air by:
- A condensation.
- B evaporation.
- C precipitation.
- D respiration.
- b) Which of these is a greenhouse gas?
- A nitrogen
- B oxygen
- C hydrogen
- D carbon dioxide
- c) Which of these continents has the most serious water shortage problem?
- A Africa
- B Europe
- C North America
- D South America

# The Greenhouse Effect



NAME: \_\_\_\_\_

After You Read 



# How The Purity Of Fresh Water Could Change

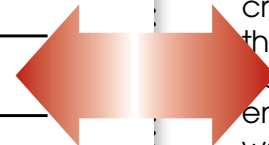
### 3. Answer the questions in complete sentences.

a) Explain how crop runoff that carries fertilizer into streams can harm fish that live there.

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

b) Describe one way that increasing human population can make the problem of unsafe water worse.

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



### Extensions & Applications

A small farming village is near a stream and also near the ocean. Crops are planted near the stream. People get their water from the stream, except during the dry season, when they get it from a well. The village is not connected to a sewage system or a water system.

Describe **three** ways that the villagers' water supply could become unfit for drinking.

a) \_\_\_\_\_  
\_\_\_\_\_

b) \_\_\_\_\_  
\_\_\_\_\_

c) \_\_\_\_\_  
\_\_\_\_\_

3.

- a) Fertilizer encourages water plant growth. When water plants die and decay, oxygen that fish need is removed from the water. (Answers will vary.) More people will cause more sewage to enter drinking water. More people will irrigate more crops, increasing the amount of pesticides that enter drinking water. Etc.
- b) \_\_\_\_\_

Evaporation, and condensation (and perhaps runoff) happened in the jar. Evaporation happened when the jar was heated, and condensation (and perhaps runoff) happened when the jar was cooled. The weight did not change because the water was recycled and did not leave the jar (answers will vary). The beads of condensed water did not taste salty.

12

The temperature was higher inside the jar. Light came in, heated the inside, and heat was trapped.

13

### Extensions & Applications

- Answers will vary: Sewage could pollute the water. Disease bacteria could enter the water. Salt water could seep into the well. Pesticides could run into the stream. Fertilizer could run into the stream.

10

- Historians tend to believe water conflicts will not lead to wars.
- Some historians say water is too important to fight over.
- (Answers will vary.) The Jordan, the Nile, the Colorado etc.

14

(Answers will vary.)

15



# EASY MARKING ANSWER KEY