

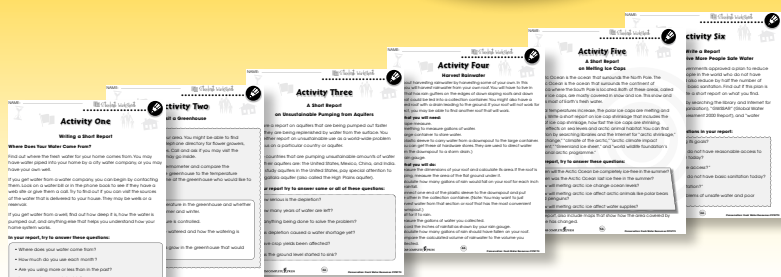
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Where Is Fresh Water?

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

- a) Most of Earth's fresh water is frozen.
TRUE **FALSE**
- b) Ocean water is fresh water if it is not polluted.
TRUE **FALSE**
- c) Most liquid fresh water is underground.
TRUE **FALSE**
- d) Air contains some water.
TRUE **FALSE**
- e) Wells never go dry if they are sunk deep enough into the ground.
TRUE **FALSE**

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

a) Where is most of Earth's fresh water?

- A in lakes
 B in rivers
 C underground
 D in polar ice caps

b) What is an aquifer?

- A a method of irrigation
 B an underground layer of water
 C a heavy rainstorm
 D water frozen in a glacier

c) What is the approximate ratio of salt water to fresh water on Earth?

- A 1 salt to 40 fresh
 B 1 salt to 3 fresh
 C 3 salt to 1 fresh
 D 40 salt to 1 fresh

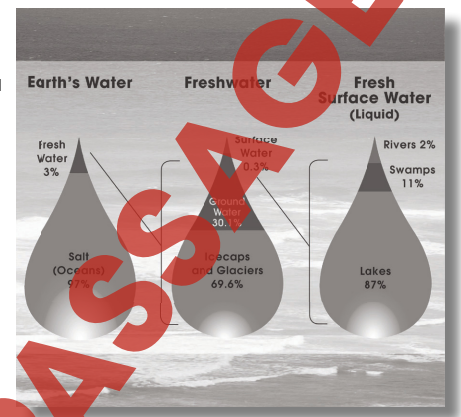
Where Is Fresh Water?

Can you picture 1000 drops of water? This much liquid water would be about one-quarter of a cup or about as much as you could hold in your cupped hands. Suppose 1000 drops of water came together from all the many places on Earth where water is located. If these drops were chosen randomly, the chances are that 975 of the drops would be salt water from the ocean, and only 25 would be fresh water that you could use to drink or water your garden.

If you tried to drink those 25 drops, you would first have to melt about 17 of them. That is how many would have come from ice and snow at the North and South Poles. The remaining 8 drops would have come mostly from underground. Only one-tenth of one drop would have come from surface water in lakes and rivers. One-hundredth of one drop would have come from water vapor in the air.

To put the availability of drinkable water another way, there is 10,000 times as much water in the world that is undrinkable or hard to get than there is water that is safe to drink and easy to get. The diagram above also shows how Earth's water is distributed.

When people can't get enough fresh water from lakes and rivers, they usually get it from underground. This water is pumped up from wells. Wells that are not very deep get water that is near the surface. This water is replaced by water that seeps down from the surface when it rains or snows.



Explain why most of Earth's fresh water is difficult to use for drinking or watering crops.



There is also water very deep in the ground in layers called **aquifers**. This water is sometimes called **fossil water** because it has been there for a very long time and because it takes hundreds or thousands of years to seep down. When this water is pumped up from deep wells, it is often removed faster than it is replaced. This is called **unsustainable** use of water.



Where Is Fresh Water?

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

- a) The Great Lakes in the United States and Canada contain fresh water.
TRUE **FALSE**
- b) Most of Earth's fresh water is in the atmosphere.
TRUE **FALSE**
- c) Precipitation is about equal to evaporation, worldwide.
TRUE **FALSE**
- d) Some farmers rely on rainwater alone to water their crops.
TRUE **FALSE**
- e) Most of Earth's water is either hard to get or too salty to drink.
TRUE **FALSE**

2. The list below shows six places on Earth where fresh water is found. Show how the amounts of water in these places compare with each other by writing a number 1 in the place with the most water, a 2 in the place with the second-most water, and so forth, until you write a 6 in the place with the least water.

- _____ Lakes
 _____ Rivers and streams
 _____ The atmosphere
 _____ Underground aquifers
 _____ Polar ice caps
 _____ Swamps

Where Is Fresh Water?

3. Answer the questions in complete sentences.

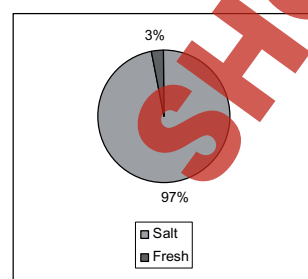
- a) Explain what is meant by "unsustainable" use of underground water.

- b) Why is water in deep aquifers called "fossil water"?

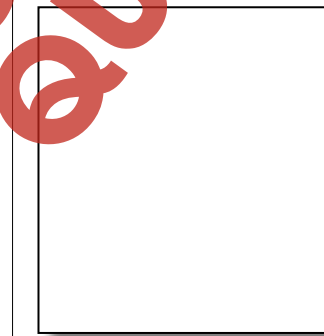
Extensions & Applications

Rough Draft Worksheet

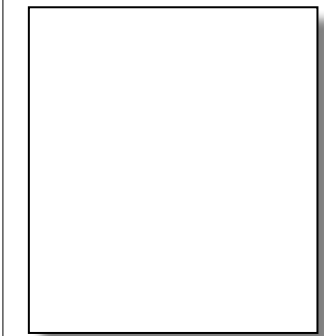
The pie chart below shows how much of Earth's water is fresh and how much is salty.



Draw another pie chart to show how much of Earth's fresh water is frozen and how much is liquid.



Only about 1% of Earth's liquid fresh water is on the surface where it is easy to get. Draw one more pie chart to show how surface fresh water is divided among lakes, swamps, and rivers.



See Page 41 for Final Version Worksheet.



Activity Two

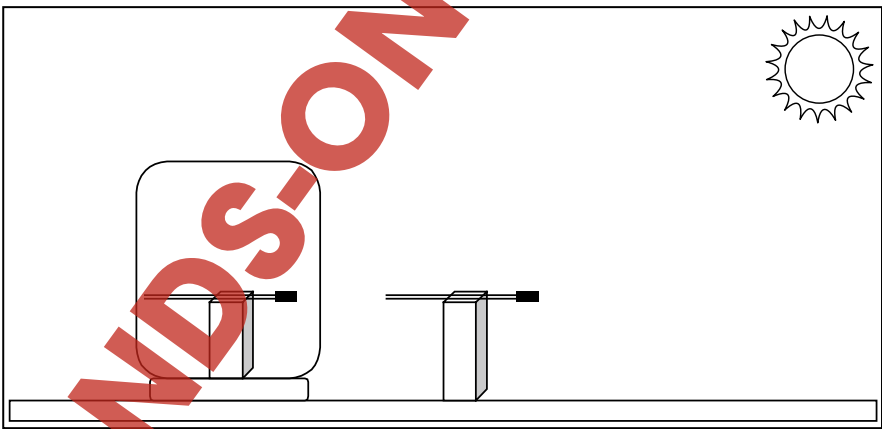
Build a Greenhouse

For this activity you will need:

- A large glass jar, a glass goldfish bowl, or a glass aquarium.
- Two thermometers
- Any two flat-topped objects about half as high as the jar, bowl, or aquarium.

This is what you will do:

1. Take all your materials outside on a sunny day.
2. Read and record the temperature on one of your thermometers.
3. Arrange your experiment as shown below.



4. Read the thermometers every 15 minutes for two hours.

How did the temperatures inside and outside the glass container compare? Explain your observations in terms of the greenhouse effect.

NAME: _____



Word Search

Find all of the words in the Word Search. Words are written horizontally, vertically, diagonally, and some are even written backwards.

atmosphere conservation drip fossil greenhouse melt salt
 berg cycle drought fuel ice precipitation unsustainable
 climate desalination evaporation gas irrigation runoff vapor



NAME: _____



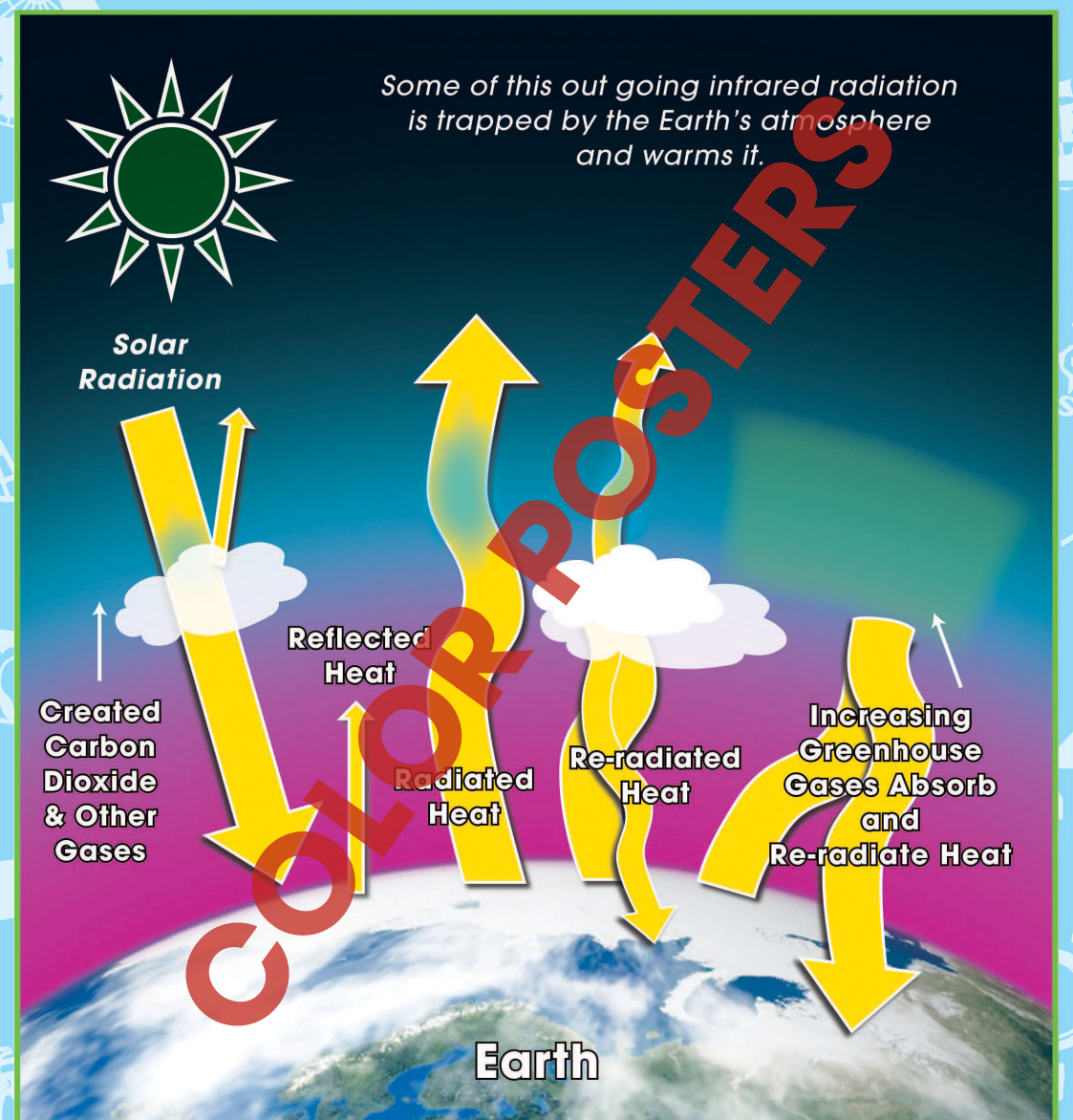
Part C

Comprehension Quiz

Answer each question in complete sentences.

1. Explain what "unsustainable" withdrawal of water from an aquifer means. 3
2. Describe the "greenhouse effect" as it applies to Earth's atmosphere. 3
3. Describe one problem that can result when irrigation water for crops runs into a river. 3
4. Why does a drip irrigation system use less water than a sprinkler system? 3
5. How is the increasing number of people on Earth related to fresh water shortage? 3

The Greenhouse Effect



NAME: _____

After You Read 



Where Is Fresh Water?

3. Answer the questions in complete sentences.

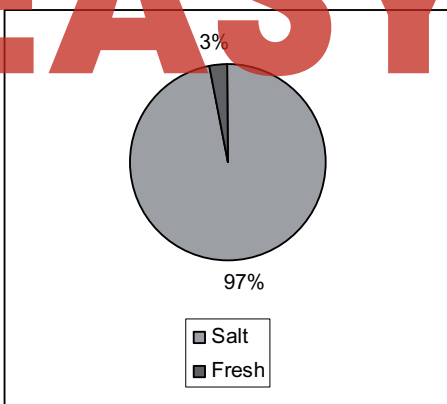
a) Explain what is meant by "unsustainable" use of underground water.

b) Why is water in deep aquifers called "fossil water?"

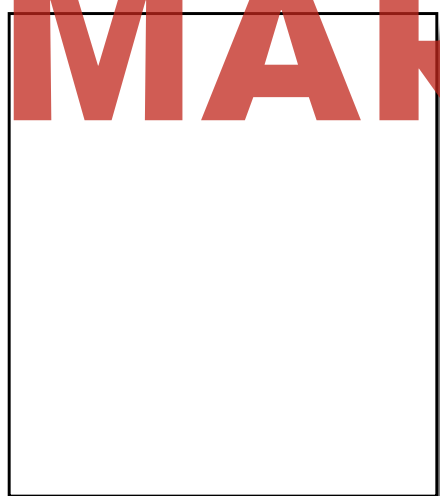
Extensions & Applications

Rough Draft Worksheet

The pie chart below shows how much of Earth's water is fresh and how much is salty.



Draw another pie chart to show how much of Earth's fresh water is frozen and how much is liquid.



Only about 1% of Earth's liquid fresh water is on the surface where it is easy to get. Draw one more pie chart to show how surface fresh water is divided among lakes, swamps, and rivers.



See Page 41 for Final Version Worksheet.

3.

a) Pumping water out of aquifers faster than it seeps back in is unsustainable use.

b) (Answers will vary.) Fossil water has been there a long time. OR Fossil water takes a long time to seep down to the aquifer.

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

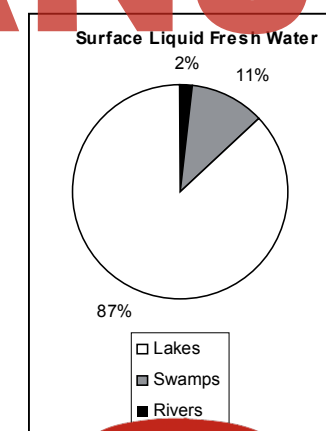
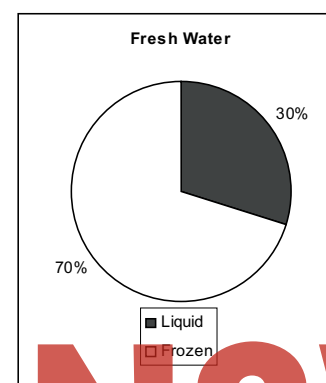
- Historians tend to believe water conflicts will not lead to wars.
- Some historians say water is too important to fight over.
- (Answers will vary.) The Jordan, the Nile, the Colorado etc.

14

(Answers will vary.)

15

Extensions & Applications



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EASY MARKING ANSWER KEY