



WHO, ME?

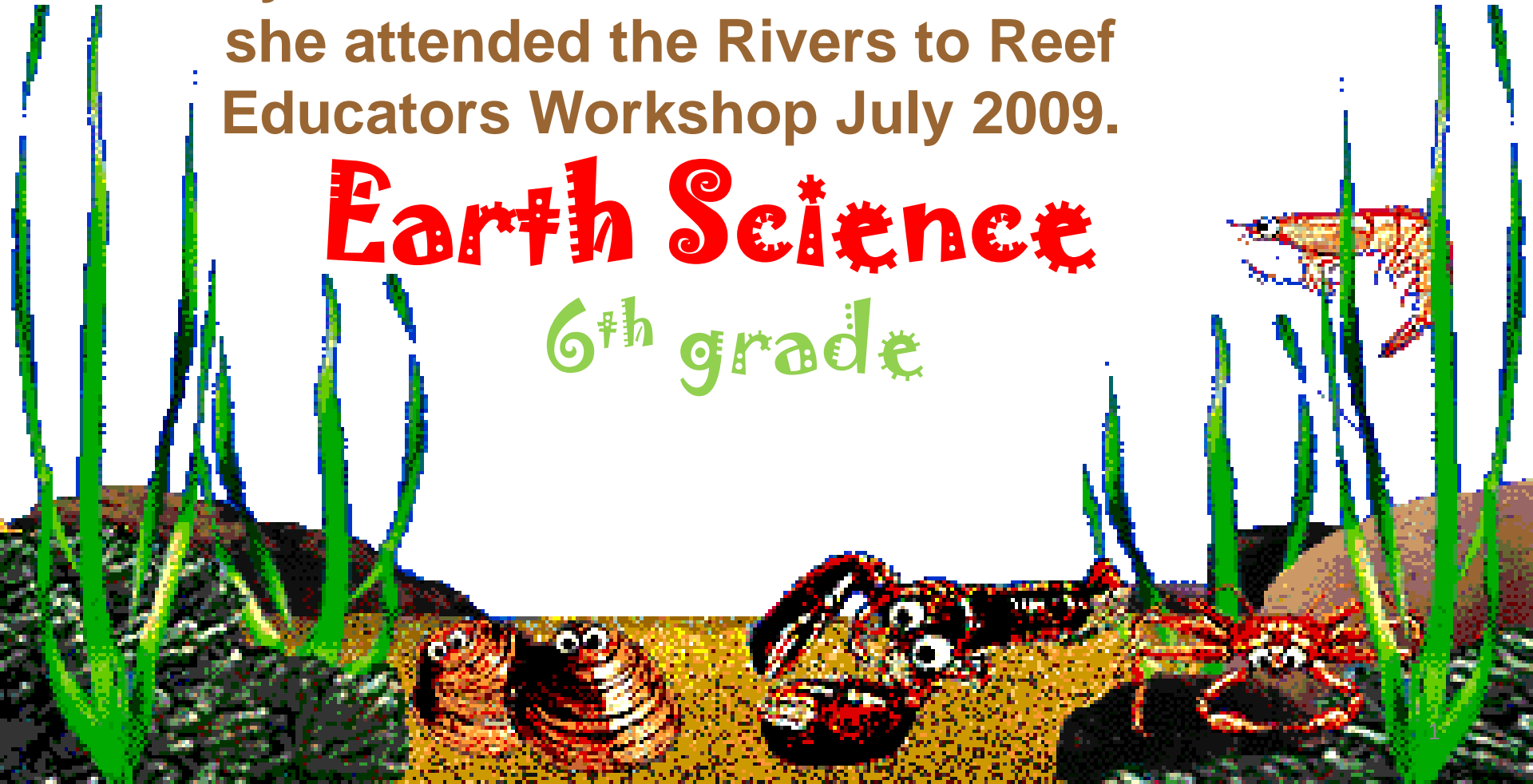


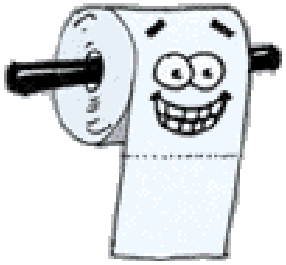
This lesson was created

by Mrs. Christian Callahan after
she attended the Rivers to Reef
Educators Workshop July 2009.

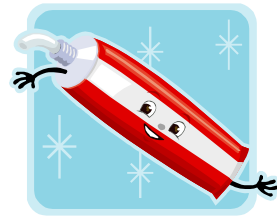
Earth Science

6th grade





Bell-Ringer (Activator):



- **What one thing do all the following items have in common?** (Write your answer in your journal in a complete sentence. Support your answer.)
- The items are: gallon of water, Noxzema, hand soap, clothes detergent, toilet paper, dish detergent, dish washer detergent, toothpaste, fish in an aquarium, spaghetti noodles in a pot, wash cloth & bar of soap.



Bell-Ringer (Activator)

The Answer is...



WATER!



Essential Questions:

- How is water connected to all living things?
- How are you connected to the water cycle?
- Do you affect water where you live?
- What ways can you help clean up water in your area, in your state, and even in our own Ocean?



Learning Objectives for this Lesson

- Students will be able to identify how humans impact aquatic ecosystems.
- Students will understand how limited freshwater is to all organisms, including themselves.
- Students will understand how rivers are connected to our Ocean.
- Students will also understand their impact on our Ocean.

Enduring Understandings for This Lesson



- The amount of fresh water is limited to all organisms, most fresh water is found in glaciers and polar ice caps.
- Water composes a large percentage of the Earth's surface and is a vital resource. Humans play an important role in its conservation.
- We all are connected to our Ocean and have an impact on it, regardless of our location.





Georgia Performance Standards :

- **S6E3. Students will recognize the significant role of water in earth processes.**
- a. Explain that a large portion of the Earth's surface is water, consisting of our Ocean, rivers, lakes, underground water, and ice.
- b. Relate various atmospheric conditions to stages of the water cycle.
- **S6E5. Students will investigate the scientific view of how the Earth's surface is formed.**
- i. Explain the effects of human activity on the erosion of the Earth's surface.





Activity #1



- 1) Open your journals to the next clean available sheet and draw a moderate sized circle.
- 2) Using color pencils, fill in the circle the way you see the Earth.
- 3) Now underneath your drawing, describe the Earth in your own words.
- 4) Wait on teacher. We will have a class discussion about your journaling.

What do you think this picture is trying to say?





Activity #2

- 1) Observe the containers on your desk. These containers represent the amount of water on Earth.
- 2) Discuss with your table mates and decide which container represents the following in terms of their percentages on Earth. Write your answers down in your journals.

Matching:

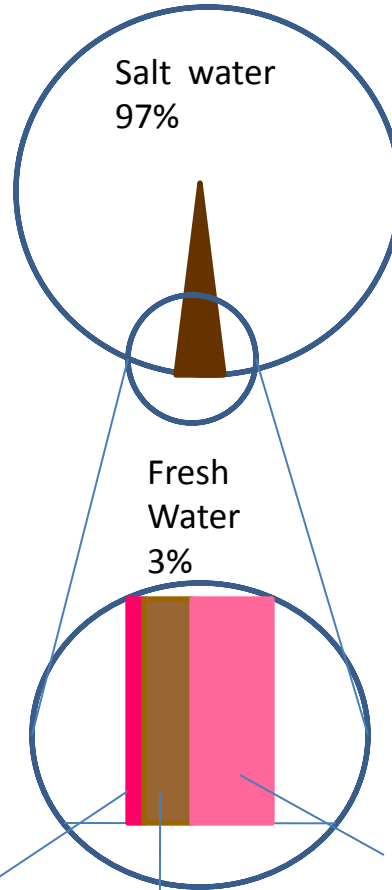
- | | |
|---------------------------|-----------------------------------|
| (a) Fresh Water | ___ Container A (1,940 mL) |
| (b) Groundwater | ___ Container B (60 mL) |
| (c) Ice Caps, Glaciers | ___ Container C (40 mL) |
| (d) Salt Water | ___ Container D (18 mL) |
| (e) Rivers, Swamps, Lakes | ___ Container E (2mL) |



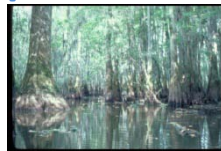
Water in Earth's Processes

Water Facts:

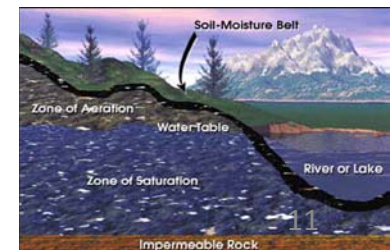
- 71 % of the Earth is covered with water.
- 97% of that water is salt water.
- Only 3% is fresh water.
- 2% of the fresh H₂O is frozen in glaciers.



Ice Caps and Glaciers 2%



Rivers, Swamps, and Lakes .1%
Groundwater .9%





Answers to Activity #2

- (a) Fresh Water
- (b) Groundwater
- (c) Ice Caps and Glaciers
- (d) Salt Water
- (e) Rivers, Swamps, and Lakes

Container A (d)

Container B (a)

Container C (c)

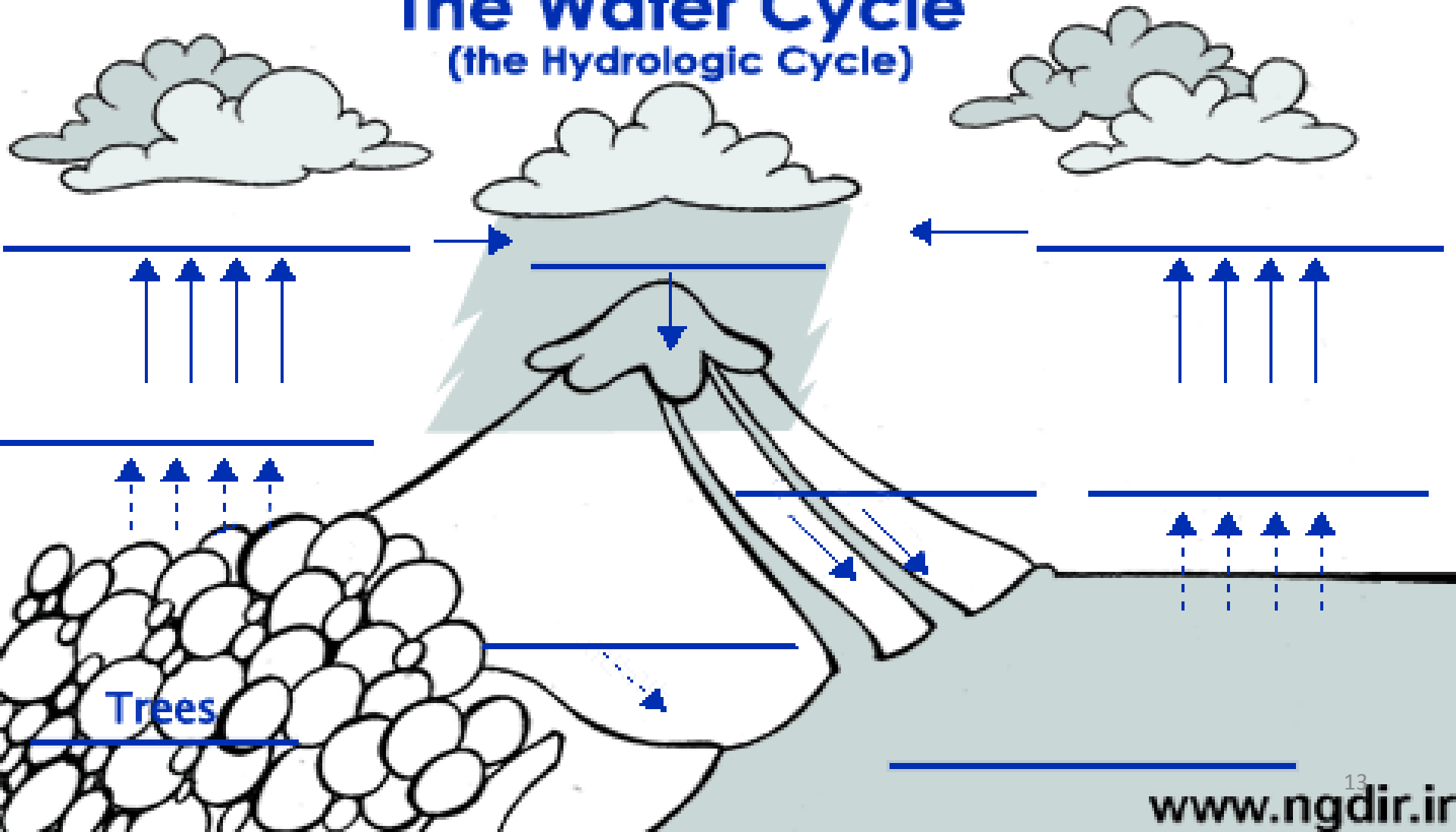
Container D (b)

Container E (e)

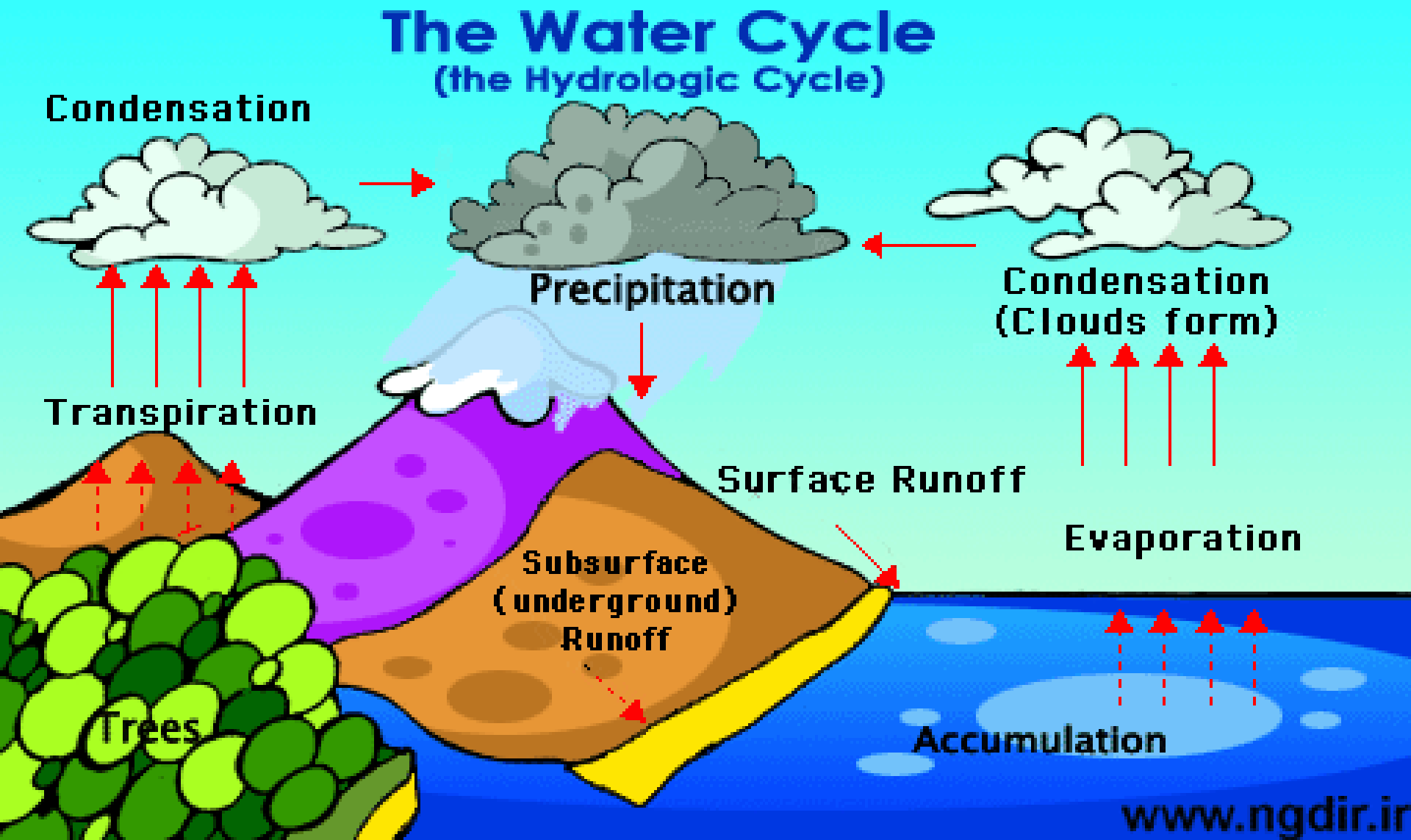
1. Knowing how limited we are in fresh water, how can we conserve it?
2. Looking back at our activator how much water do we use with each of those items? gallon of water, Noxzema, hand soap, clothes detergent, toilet paper, dish detergent, dish washer detergent, toothpaste, fish in an aquarium, spaghetti noodles in a pot, wash cloth, & soap.

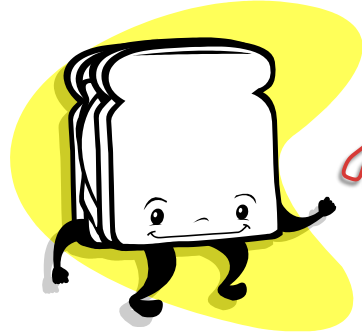
What do you know?

The Water Cycle (the Hydrologic Cycle)



The Answers:





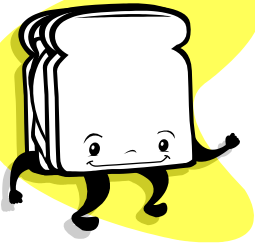
Activity #3: “Seepy” Sandwiches

Lab Materials:

- **Food coloring to represent pollutant**, a slice of bread per group to represent soil and rock, a sprayer to produce rainwater & a waterproofed area.

Procedure:

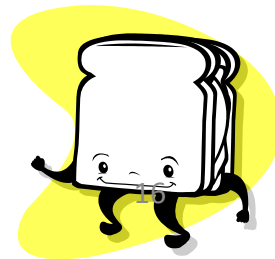
- **Student No. 1** – Holds a slice of bread vertically.
- **Student No. 2** – Adds a drop of food coloring (pollutant) to the top crust edge of the bread.
- **Student No. 3** – Sprays water (rain) on the food coloring, allowing drainage to seep through the crust into the bread.
- **Student No. 4** – Records the groups answers to the discussion questions on the “Seepy Sandwich” Lab Sheet.

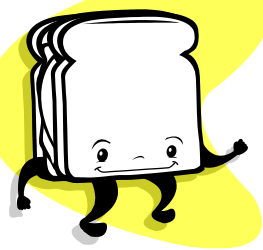


"Seepy Sandwiches" Contd.

Questions each group needs to answer and then review as a class:

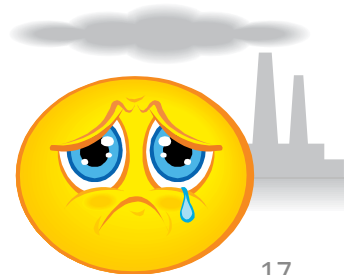
- 1. Did the pollution (food coloring) continue through the bread or was it filtered, leaving only clean water to progress downward?
- 2. Did the water spread out or go straight down?
- 3. Do human activities on the surface have any effect on groundwater quality?
- 4. What kinds of pollutants might come from common household products?
- 5. What kinds of pollutants might come from septic tank fields?
- 6. What kinds of pollutants come from landfill seepage?
- 7. How can groundwater contamination be prevented?



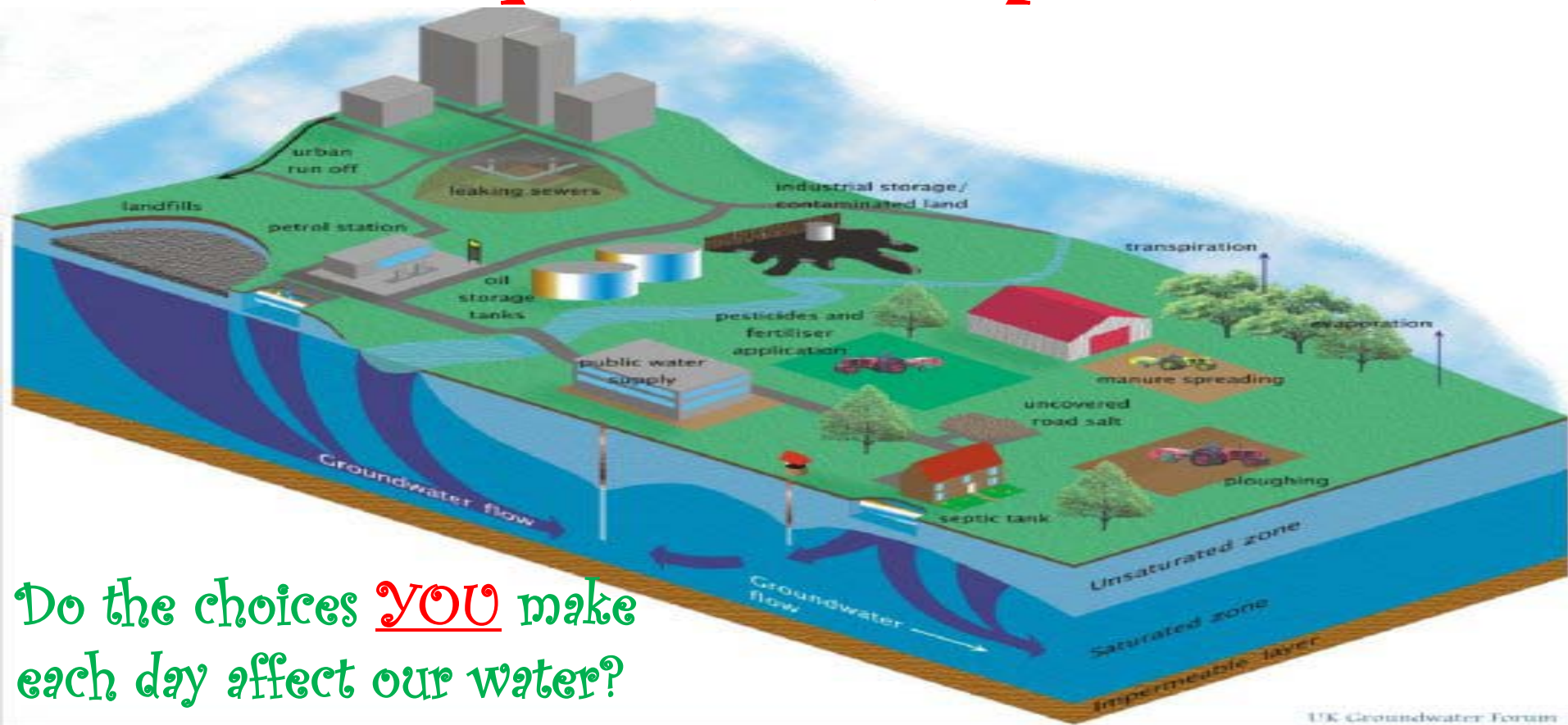


“Seepy Sandwiches” Contd.

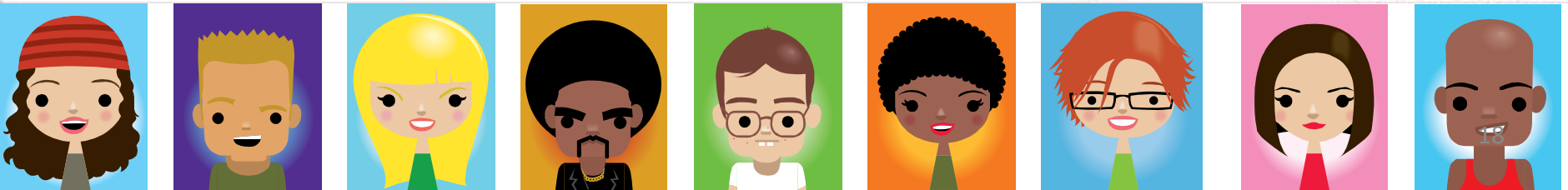
As the polluted water seeps down it spreads out, making it difficult to locate where the pollution originated. The water and food coloring will remain together as the water moves. This illustrates visually how pollutants are carried by water; that pollutants are not filtered out by the ground; and that human activities can affect groundwater quality.



Do we, YOU, have an effect on all water (fresh and salt)?



Do the choices YOU make each day affect our water?








Water T-Shirt Challenge



Pretend you have been hired by an advertising agency to design a T-Shirt Logo that does one of the following:

-  Promotes cleaning up our water;
-  Shows how to conserve our water;
-  Shows how essential water is to all organisms.





Let's Revisit Our Essential Questions and **see** what you have learned. **Directions:** Copy & answer the following questions in your journals.



1. How is water connected to all 13 items?

Explain. (To refresh your memory, the items you compared were a gallon of water, Noxzema, hand soap, clothes detergent, toilet paper, dish detergent, dish washer detergent, toothpaste, fish in an aquarium, spaghetti noodles in a pot, wash cloth & soap.)

2. How are you connected to the water cycle?

3. Do you affect water where you live? Explain.

4. What ways can you help clean up water in your area, in your state, and even in our Ocean?



YOU DID A

GREAT JOB!

