

Conserving Water: A Renewable Resource

Lesson Description



This lesson reviews the water cycle and introduces natural resources. Students will discuss what natural resources are and ways that they can conserve them. They will conduct a water cycle experiment and listen to a Tribal Elder discuss traditional beliefs about water and rain.

- Time required: 60 minutes
- Location of lesson: Classroom and garden


Learning Objectives

- Observe and describe how the water cycle is a renewable resource.
- Define and describe the words “natural resource” and “renewable resource”.
- Describe ways to conserve water (specifically rainwater).
- Listen to a Tribal Elder discuss traditional beliefs about water and rain/water preservation.

Materials and Preparation

- Invite a Tribal Elder to discuss traditional beliefs about water and rainfall
- Tea kettle or saucepan to heat water
- Electric hot plate to heat water (electric outlet necessary)
- Styrofoam cups- 1 per group of 5 students
- Plastic cups- 1 per group of 5 students
- Ice cubes- a handful per group of 5 students
- Oven mitts
- Colored pencils/crayons
-  **The Water Cycle**
-  **Natural Resources**
- Prepared vegetable snack of the week – 1 for each student
- Water to drink during the Class Warm-up – water dispenser in the classroom and 1 cup or a water bottle for each student

Class Warm-up: Champion Cheer and Veggie Taste Test (5-10 minutes)

- Give each student a cup of water or ensure that they have a filled water bottle in front of them.
- Give each student the prepared veggie snack of the day.
- Lead the students in enthusiastically reciting the  **Champion Cheer**.
- At the end of the cheer, drink water and eat the veggie snack together.

- Have students complete their  **Taste Test Observations** about the vegetable snack of the week.

Review of Last Lesson (2-3 minutes)





- Review the evaluation questions from last week's lesson. Evaluation questions from all lessons are listed at the end of the workbook .

Class Discussion (10 minutes)

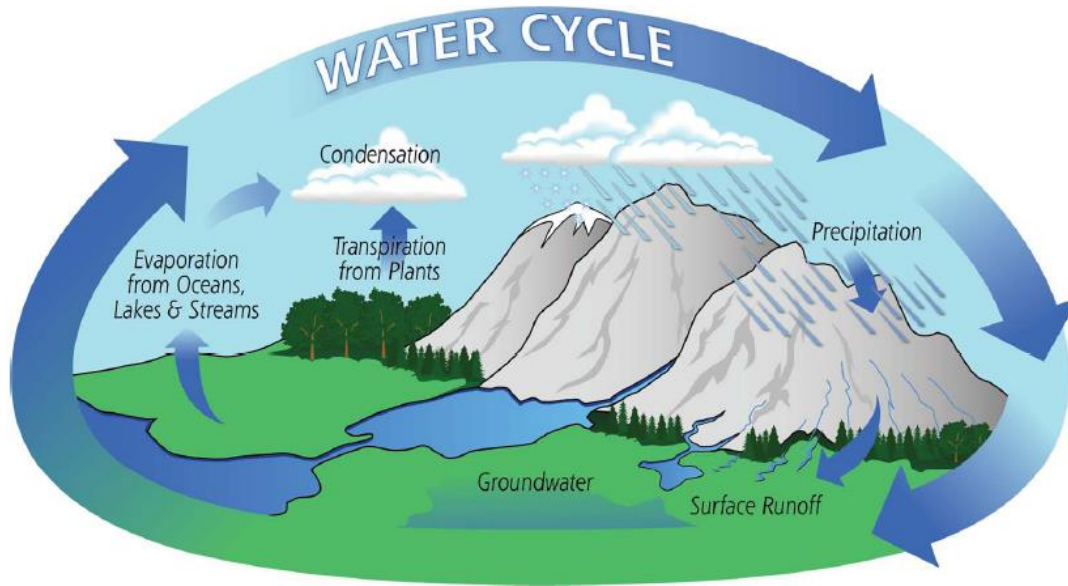
The Earth has many natural resources. A natural resource is something the earth provides that we need to survive. Can you name some natural resources? (water, air, soil, minerals) Today we are going to focus on water as a natural and renewable resource. What does renewable resource mean? (can be replaced). How is water a renewable resource? (it goes through the water cycle and falls as precipitation again and again)


Who is responsible for taking care of the earth's natural resources? (All of us!) How do we want to treat the water that we have? What are some ways that each of us can conserve or be careful not to use too much water every day? (take short showers, turn the faucet off when not using, save rainwater, etc.)

Activities (40 minutes)

-  **“Overview of Natural Resources” (5 minutes)**: Students complete a workbook activity on natural resources and conservation.
 1. Refer students to their workbook page  **Natural Resources**.
 2. Have students take turn reading the definitions of the words, Renewable Resource, Non-renewable Resource and Inexhaustible Resource from the workbook page  **Natural Resources**.
 3. Have students complete the workbook page activity either all together as a class or individually.
 - a. Answers: sun-inexhaustible; gold- non-renewable; flower-renewable; trees and water- renewable; gasoline- non-renewable.
 4. Discuss: *What type of resource is water? (renewable) What makes water a renewable resource? (it goes through a cycle and renews itself)*
-  **“Water Cycle Experiment” (10 minutes)**: Students conduct a simple experiment that illustrates evaporation, condensation and precipitation in the water cycle; the way water renews itself as a renewable resource.
 1. Provide a quick review of the water cycle. Consider drawing a diagram on the board to illustrate as you explain (see sample diagram on the next page). *The water cycle works like this: The sun heats water on earth. The heated liquid water turns into steam or vapor and rises into the air*

(evaporation). As the vapor rises, the temperature drops and it cools off, forming tiny droplets of water that turn into clouds (condensation). When the clouds get heavy and can't hold the droplets anymore, they fall as rain back onto the earth (precipitation). Then, it repeats again and again!



2. Refer students to workbook page  **The Water Cycle**. Consider having students work in small groups of about 5 students each.
 3. Pass out 1 styrofoam cup, 1 plastic cup and 1 handful of ice cubes to each group.
 4. Pour hot water into the Styrofoam cup. Instruct students to place the plastic cup upside down, tightly on top of the Styrofoam cup. Make sure that no vapor is released.
 5. Place ice on top of the clear plastic cup. Have students observe what occurs and complete the questions in their workbook.
 6. Discuss: *What processes of the water cycle did we observe in our experiment?* (Answer: evaporation, condensation, precipitation). *In our experiment, the hot water evaporated because it was heated by electricity. In nature, what causes water to evaporate?* (Answer: energy from the sun).
- **“Outside Saving Rainwater” (5 minutes):** Students go outside to the garden to discover different ways to save rainwater.
 1. Have students go outside and observe how they are conserving rain water for future use. Observe the rain barrels. *How else could we save rain water in the garden? At home? Do you use rainwater for irrigating at home?*
 - **Elder Discussion - Traditional beliefs about water and rain/preservation of water (20 minutes)**

Evaluation Questions (5 minutes)

1. *How is water a renewable resource?* (Answer: water renews itself through the water cycle)
2. *How can we save rain water for future use?* (Answer: rain barrels)
3. *What does evaporation mean?* (Answer: the water vapor created when the sun heats water on the earth rises into the air)
4. *Why is the sun important in the water cycle?* (Answer: the sun provides the energy to heat up the water and turn it into steam or vapor)
5. *How much water should you drink every day?* (Answer: at least 6 cups of water a day)
6. *How many fruits and vegetables should you eat every day?* (Answer: at least 5 fruits and vegetables a day)
7. *Does gardening connect you to your culture and help you learn new words in your language?* (Answer: yes)

Preparation for Future Lessons – Reminder for the Instructor

- Review the materials and preparation needed for the next lesson.
- Remember that an Elder guest instructor is needed for these Spring lessons: lesson 1 (Eating a Rainbow), lesson 4 (Conserving Water: A Renewable Resource), and lesson 9 (Plant Parts: Flowers and Pollination).

Notes
