

Is All Water the Same?

Lesson Focus: water quality

Learning objectives:

- Students will observe different types of water.
- Students will be able to identify if there is any difference in water quality among waters they use.

Enduring Understandings for the lesson:

- Not all water is composed of the same substances.
- Some water is safer to drink than other types of water.

Georgia Performance Standards Addressed:

- **SKCS5. Students will communicate scientific ideas and activities clearly.**
 - b. Begin to draw pictures that portray features of the things being described.
- **SKCS6. Students will understand the important features of the process of scientific inquiry.**
 - b. Tools such as rulers, magnifiers, and balance scales often give more information about things than can be obtained by just observing things without help.
- **SKE2. Students will describe the physical attributes of rocks and soils.**
 - c. Recognize earth materials – soil, rocks, water, air, etc.

Grade level: Kindergarten

Materials per student or student pairs:

- Copies of the “Water Investigation” Worksheet
- Pencil
- Crayons
- Water samples from tap water, bottled water, and river water
- Magnifying glass
- Saran wrap
- Projector

Time needed: 45 minutes

Background information:

Often people say if the water is clear, it is clean but that is not always true. Sometimes the cleanest water may have a little dirt that has not settled out yet or a tannic color like

that found in black water swamps. And sometimes the dirtiest water or water that is unsafe to drink can be crystal clear because it contains chemicals we cannot see. While all types of water may appear to be the same, they can vary greatly, depending on the source. Bottled water is often purified and thus pollutants removed that may be found in other waters. Tap water may appear to not contain anything, but can pick up many chemicals and other contaminants on its way to your kitchen sink such as lead, chlorine, and copper. Then there is river water. River water can contain anything from microscopic critters and plants and dirt to anything that is thrown into the river by people, such as trash, food, chemicals, and many other things.

Learning Procedure:

*Students will have to have prior knowledge on the scientific inquiry process, how to handle magnifying glasses, and how to sketch what they see through them.

1. Lead students in a discussion on water. Create a word web on the board and have students help list different places they see water (ex. the ocean, the Chattahoochee River, bottled water, a pool, the kitchen sink, etc.). After creating the word web, ask the students if they think that all water is the same.
2. Explain to students that they are going to be investigating the quality of three different types of water. Guide them in making predictions on what they will find if they looked closely at bottled water, tap water, and river water.
3. Give each student (or student pairs) a copy of the "Water Investigation" Worksheet. Then distribute three small pieces of saran wrap, and have students tape one piece of saran wrap in each of the three sections of the paper.
4. The teacher will deposit a sample of each type of water onto each piece of saran wrap. Remind students not to taste the water, just look.
5. Students will then use magnifying glasses to look closely at each sample of water. They will then sketch what they see in each of the designated sections of water. Teacher will be doing the same thing on the projector screen in the front of the room (this is important because more can be seen due to the lighting of the projector).
6. Students will share the findings that they discovered when closely observing each type of water. Have the class determine which sample is the 'cleanest' water. Also discuss why they may have found the differences in similar waters.

Evaluation:

1. Teacher will evaluate students' sketches of the different water findings.
2. Teacher will evaluate students' understanding of water based on answers during wrap up session.

Extensions:

- 1) Students can extend this project by testing more kinds of water, such as pool water, ocean water, drinking fountain water, fish tank water, and the school pond water.
- 2) For each kind of water investigated, ask the students to determine its source and to think about the path it may have taken from that original source to its present location. For example if a student is investigating water from a ditch they may find that the original source was rain. The path that water may have taken could be as follows: cloud, rain, roof top, lawn, driveway, street, storm drain, and finally ditch. Ask the students to draw this pathway and include what they might see along the way such as clouds, rain, water, mud, rocks, trees, logs, grass, soil, etc.
- 3) For each kind of water investigated, ask the students to predict where the water will go as it leaves its present location. For example if the student is investigating water from a ditch they may predict that the water will flow as follows: ditch, stream, creek, river, and finally ocean. Ask the students to draw this pathway and include things they may see along the way such as water, creek banks, river banks, trees, logs, rocks, sand, ocean, etc.

Lesson developed by: Katie Creamer, Manning Oaks Elementary School and Kim Morris-Zarneke, Georgia Aquarium



This activity is a product of the Rivers to Reef Teacher Workshop sponsored by the Georgia Aquarium and NOAA Gray's Reef National Marine Sanctuary that the author participated in. For more information about this workshop, Georgia Aquarium, or Gray's Reef National Marine Sanctuary, please visit our websites at www.georgiaaquarium.org or <http://graysreef.noaa.gov/>

Name:

WATER INVESTIGATION

BOTTLE WATER

TAP WATER

RIVER WATER