



It's Our Water!

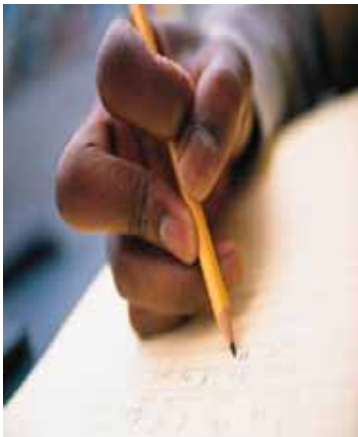
(Join us and schedule a workshop TODAY!)

N.C. Division of Water Resources

Volume 3, Issue 1

Fall 2007

Environmental Literacy and It's Our Water!



According to a recent report, only 1-2% of American adults have enough environmental knowledge to be considered environmentally literate.

Programs like It's Our Water! are trying to change this one student at a time through quality environmental education materials.

The National Environmental Education and Training Foundation in collaboration with the Roper Reports, surveyed Americans over a ten year span to assess their level of environmental literacy. When they surveyed respondents regarding non-point source pollution they found that, "Few people seem to grasp multi-step causal relationships even when they involve such critical concerns as water pollution caused by run-off from the land".

Quality environmental education programs have been shown to help bridge this gap, and are especially effective when they are based on consistent, long-term learning. It's Our Water! ten week format of hands-on, place-based learning was

designed to provide the in-depth knowledge, critical analysis skills, and opportunity to apply that knowledge that are key to fostering true environmental literacy.

When you incorporate It's Our Water! into your classroom, you are meeting many of the high school Environmental Science requirements and helping to equip you students will the skills necessary to make wiser environmental choices in the future!

Inside this issue:

Activity Adaptation: Get the Groundwater Picture Infiltration Demonstration 2

Activity Adaptation Continued 3

What is IOW? 4

Want to Host a Workshop 4

You can download a free copy of the entire report, *Environmental Literacy in America — What Ten Years of NEETF/Roper Research and Related Studies Say About Environmental Literacy in the U.S.*, at:

<http://www.neetf.org/public/index.htm>.



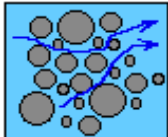


Activity Adaptation: Get the Groundwater Picture Infiltration Demonstration

Procedure:

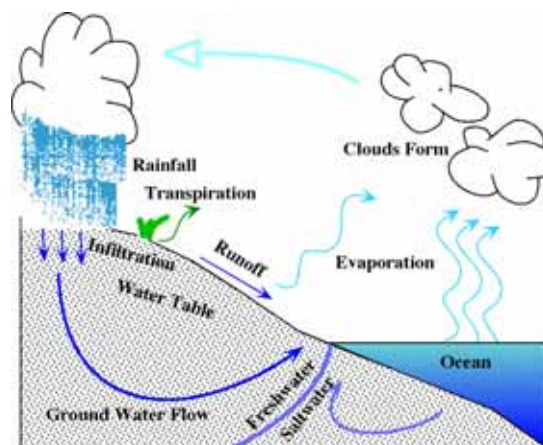
Explain to the audience that there are many types of substrates that make up the geologic strata underground (see diagram below). Water moves differently through these substrates as it infiltrates into the ground. Then explain that the three sizes of Styrofoam balls represent three types of substrate with gravel being the largest, sand the medium ball, and the smallest as clay.

Fill the large, clear, plastic container with large balls. Then show the audience a blue marble and tell them that it represents water. Ask them if they think that the water will drain through the gravel quickly or slowly and why. (The large spaces between the balls will allow the water to pass quickly through.) Pour the marbles over the balls and demonstrate how the marbles move easily through the balls. You may have to jostle the container slightly. Then remove the large particles from the container and drain the marbles back into their container.



Next, fill the clear container with the medium balls, explaining that they represent the sand. Ask the audience what they notice about these particles compared to the gravel. Can you fit more or less sand balls into the container (more)? Are the spaces between them larger or smaller than gravel (smaller)? Will water pass as quickly through the sand particles as they did through the gravel (no)? Why (because the spaces are significantly smaller)? Then pour the blue marbles over the balls and see as some move to the bottom while others are suspended throughout the container. Then, remove all the balls and drain the blue marbles back into their original container.

Then, remove all the balls and drain the blue marbles back into their original container.



Materials:

- 1-large, clear, plastic containers (at least 6"x6"x12")
- large bag of blue marbles
- 10 to 15 two-inch Styrofoam florist balls
- 15 to 25 one-inch Styrofoam florist balls
- 25 to 35 one-half-inch Styrofoam florist balls



Activity Adaptation: Get the Groundwater Picture Infiltration Demonstration Continued

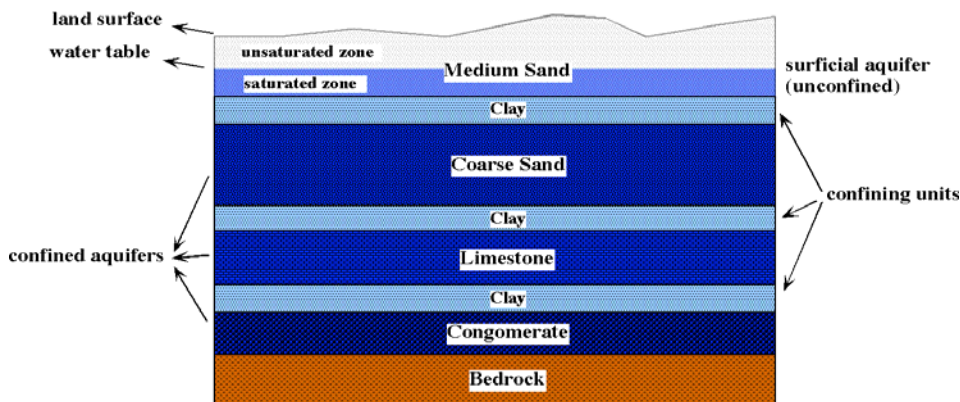
Fill the container with the smallest balls and explain that these represent the clay particles. Ask the audience whether they think the marbles will pass more or less quickly through the clay particles than the others (less). Ask them about the size of the spaces between the particles and note that there is very little space between these particles at all. Ask them what they think will happen when you pour the marbles onto the clay and then pour the marbles into the container. They will actually sit right on top.

Explain that clay is relatively **impermeable**, meaning that the particles are so close together that water cannot pass through them. Gravel is very **permeable** (water passes through) and sand is somewhat less permeable than gravel.

Because the bottom is impermeable, when water is poured over sand or gravel, the water will not be able to pass through it. It will begin to back-fill the spaces between the particles. Explain that if this container represented an aquifer, the area at the bottom where the spaces are filled with water would be the **zone of saturation**. (Refer participants to the Project WET diagram of an aquifer from Get the Ground Water Picture.) The beginning of the zone of saturation is called the **water table**. The area above where the spaces are filled with air is called the **zone of aeration**. When a well is constructed, it must reach down into the zone of saturation in order to extract the ground water.



According to the USGS, approximately 50% of North Carolinians get their drinking water from groundwater.





N.C. Division of Water Resources

It's Our Water!

NC DENR-Division of Water Resources
1611 Mail Service Center
Raleigh, North Carolina 27699-1611

Phone: 919-733-4064
Fax: 919-733-3558
E-mail: shelby.gull@ncmail.net

Sponsored by: The Environmental
Education Fund
www.eefund.org

www.ncwater.org

It's Our Water!...

- Is a North Carolina-specific high school Earth/ Environmental Science curriculum and resource guide for North Carolina students and teachers. It covers the importance of water quality and quantity, monitoring and maintaining water quality, and the impacts individual choices and actions have on water quality.
- Centers around field activities in a local stream that leads to a final report and recommendations by the class, coordinated with a series of videos, demonstrations, classroom activities, homework and quizzes.
- Is aligned with the new (2004) North Carolina Standard Course of Study for **high school Earth/Environmental Science**.

Would You Like to Host an It's Our Water! Workshop?

All you need to do is...

- Gather up 10 high school science teachers from your school or district.
- Pick a workday or other day you can meet for 6 — 10 hours.
- Find a place to have this meeting.
- Ask the school district or another sponsor to pay \$25 each for your materials (Including: It's Our Water! DVD and Curriculum Guide, Project WET, Healthy Water Healthy People Testing Kit Manual, and NC River Basin Booklet with inserts and posters, and more).
- Contact Shelby Gull Laird <shelby.gull@ncmail.net>, who will arrange for another facilitator or herself to come to your facility and work with your group learning about It's Our Water!

