Lesson 1

Water Connections

How are connections important to learning and understanding?
How do bodies of water connect?
What is the connection between surface water and ground water?

GOAL To understand that connections are important to learning.

OBJECTIVES Students will:

- ✓ create connections with water words
- ✓ expand water knowledge through developing associations
- ✓ recognize the flow of water bodies in Farmington River Watershed

MATERIALS **butcher block paper for 5 student groups, markers, pencils, Farmington River Watershed maps**

CORE CURRICULUM CONTENT STANDARDS

- **Language Arts 1(10,12), 2(4)**
- **Science 7(7), 8(1-3), 9(1,5)**
- **Social Studies 9(3),10(1-3), 12(4,5)**

VOCABULARY **ground water, water quality, tributary, erosion, reservoir, lake, hydrologic cycle, drinking water, surface water.**

PROCEDURES

1. Inform students that they will be participating in an activity that helps create water connections.
2. Post a large piece of butcher block paper in front of the classroom. Write the word “river” enclosed in a circle, in the middle of the paper (or on the board). Ask how rivers are formed. (*from a spring in the mountains, melting glacier, or precipitation*). Depending on what they answer, prompt students to continue to next step.
3. For example, if they answered precipitation, then write the word *precipitation* in a circle and connect to the *river* circle. Have students think of a verb that connects “river” and “precipitation” and write on the connecting line (*evaporate*).
4. Continue by asking students what the source of precipitation is (*clouds*). Write the word *cloud* in a circle and draw a line connecting the two words. Continue the process as long as it takes for students to understand water connections.
5. Break students into cooperative groups. Provide each group with a starting word and a piece of butcher block paper. Have them circle the word and create connections. The starting words are associated with water. Examples that may be used are: *underground water, water quality, tributaries, erosion, reservoirs and lakes, hydrologic cycle, drinking water, surface water.*
6. After students create connections, have them explain the connections to the class.
7. Discuss additional connections if they were not addressed in presentations, with stu-

dents. Ask what the connection of underground water is to a river. (*Rivers form under the ground in places where rocks pores or spaces are so full of water that they can not hold anymore water. The top layer is called the water table. If the water table reaches above ground levels because of rain etc. then a spring appears*.)

8. Discuss why the river water needs to be protected so that the underground water is not contaminated. (*Underground pockets of water held in rocks are called aquifers. This type of storage provides drinking water to many communities; if contaminated or polluted then there would be a problem with drinking water. Rivers can recharge aquifers and aquifers may recharge rivers.*)
9. Explain that surface water is stored in reservoirs. (*Reservoirs are man-made lakes that collect and store billions of gallons of water. Dams prevent the flow of water and establish catch basins*.)
10. Instruct students to formulate connections among some of the water way names in the Farmington River Watershed. Explain that a river within a watershed flows according to the topography or elevation of the land. It begins in higher elevations and continues downward connecting with other bodies of water. The main stem of the river has many tributaries or branches that flow into it.
11. Write the names of the following bodies of water on the board (listed in #12). Explain to students that these are water bodies that are in areas that they live. The Farmington River begins in Massachusetts and flows through Connecticut for 81miles.
12. Instruct students to create a connection among three bodies of water.
    The water ways include: Clam River (Otis, MA), Barkhamsted Reservoir (Barkhamsted, CT), Farmington River, Connecticut River (Hartford), Rainbow Reservoir (Windsor), Pequabuck River (Plymouth, Farmington), and Nod Brook (Avon, Simsbury).
13. Students may refer to a map of the watershed to help create connections and verify answers. Farmington River and Connecticut River may be used more than once. An example of a connecting waterway is Clam River, Farmington River, and Barkhamsted Reservoir. Clam River flows into Farmington River which connects to the Barkhamsted Reservoir.

EXTENSIONS

1. Have students refer to watershed map and create additional connections of waterways. List and identify.
2. Have students draw a diagram of the hydrologic cycle.

RESOURCES

Charles, Cheryl and Samples, Bob, *Project Wild Aquatic Educational Guide,*1992, Council for Environmental Education, Gaithersburg, MD 20878
Etgen. John, *Healthy Water, Healthy People, Water Quality Educators Guide*, 2003, The Watercourse, Bozeman, Montana 59717 - 0575

GLOSSARY

drinking water - a clear, odorless liquid suitable for drinking or swallowing
erosion - the group of natural processes, including weathering, dissolution, abrasion, corrosion, and transportation, by which material is worn away from the earth's surface
ground water - water within the earth that supplies wells and springs
hydrologic cycle - the cycle of evaporation and condensation that controls the distribution of the earth's water as it evaporates from bodies of water, condenses, precipitates, and returns to those bodies of water; also called water cycle
lake - a large inland body of fresh water or salt water
reservoir - a natural or artificial pond or lake used for the storage and regulation of water
surface water - water above the surface of the ground
tributary -a river or stream flowing into a larger river or stream
water quality - the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs; specifically broad designations of surface and ground water