

What's in your Water?

Time: 1 class period

**Objective:** Students will compare bottled water, spring water, well water, tap water, and distilled water in both taste and other tests to try and determine which one is which and what they prefer to drink. (softened water will be added as a mystery sample)

**GLCE's:** Standard V.2 The Hydrosphere (previous lesson)

All students will demonstrate where water is found on earth; describe the characteristics of water and how water moves; and analyze the interaction of human activities with the hydrosphere.

*The Hydrosphere includes all forms of water. Of particular interest in Michigan is the water environment in the Great Lakes region.*

All students will analyze the interaction of human activities with the hydrosphere:

1. Explain how water exists below the earth's surface and how it is replenished.  
Key concepts: Ground water—water table, spring, porous, saturate, filtration. Sources—snow melt, rain fall.

2. Describe how human activities affect the quality of water in the hydrosphere.

Key concepts: Human activities—agriculture, fishing, manufacturing, energy production.  
Quantity of water—rate of use, urbanization.

Real-world contexts: Examples of groundwater, including springs, wells, water soaking into the ground.

**Materials:**

Samples of Water A, B, C, D, & E (blind and switched around each class session)

Dip sticks to test Chlorine, pH, hardness, Alkalinity & metals;

small cups for tasting (Dixie cups),

test tubes,

Drink dispensers (like sun tea jars)

lab sheets,

writing utensil.

Softened water (mystery sample)

### **Instruction**

1. Review water cycle and amount of water on earth and down to amount of water available for human use (.003%) See previous lesson and poster.
2. Discuss with students what things are found in water through natural processes; filtering through rocks, percolating through soil, etc.. i.e. carbonates, sodium, etc.... and what things are added to drinking water through manmade systems, chlorine, fluoride, etc.
3. Discuss with students what make a good drink of water. i.e. taste, temperature, absence of chlorine, etc.
4. Challenge students to figure out which water came from which place.

### **Procedures:**

1. Gather and label small drinking cups A,B,C,D,E. Make sure you keep each cup for each corresponding sample (no cross sampling)
2. Put about 100ml from Dispenser A into cup A. At your lab station put a small amount into test tube A. Pour the rest into cups for your lab station partners.
3. You and your partners taste Cup A and record your observations about the taste and your preference.
4. Carefully but quickly dip the testing stick into the test tube and set is aside for 30 seconds.
5. Compare the colors on the dip stick to the chart and record your observations.
6. Repeat for B, C, D, & E.
7. See if you can figure out which sample is which based on your data and taste preference.
8. Get a mystery sample. Repeat steps 2 – 5.
9. Clean your lab station, rinse out each test tube and turn it upside down in the holder to dry, throw away your sampling cups.