Electrical Conductivity Protocol
Field Guide

Task

Measure the electrical conductivity of your water sample.

What You Need

- ☐ *Hydrosphere Investigation Data Sheet*
- ☐ Electrical conductivity meter
- ☐ Thermometer
- ☐ Distilled water in wash bottle
- ☐ Paper towel or soft tissue
- ☐ 2 100-mL beakers
- ☐ Latex gloves
- ☐ One clean 600-700 ml plastic water bottle with cap (for sample water)

In the Field

1. Fill out the top portion of the *Hydrosphere Investigation Data Sheet*
2. Put on latex gloves.
3. Record the temperature of the water to be tested. If water is between 20˚ – 30˚ C, go to step 5.
4. If your water is below 20˚ C or above 30˚ C, fill a clean sample bottle (600-700 mL) with the water to be tested. Cap and bring back to the classroom. Allow the water to reach 20˚ – 30˚ C, record the temperature and then proceed to step 5.
5. Rinse two 100-mL beakers two times with sample water.
6. Pour about 50 mL of water to be tested into two 100-mL beakers.
7. Remove the cap from the probe end of the meter. Press the On/Off button to turn it on.
8. Rinse the probe with distilled water. Blot it dry. Do not rub or stroke the electrode while drying.
9. Put the probe in the water sample in the first beaker. Stir gently for a few seconds. Do not let the meter rest on the bottom of the beaker or touch the sides.
10. Take the probe out of the first beaker. Shake gently to remove excess water, then put it into the second beaker *without* rinsing with distilled water.
11. Leave the probes submerged for at least one minute. When the numbers stop changing, record the value on the *Hydrosphere Investigation Data Sheet* by *Observer 1*.
12. Have two other students repeat the measurement using fresh beakers of water each time. The meter does not need to be calibrated for each student. Record these measurements as *Observers 2* and *3*.
13. Calculate the average of the three observations.
14. Each of the observations should be within 40 µS/cm of the average. If one or more of the values is not within 40 µS/cm, pour a fresh sample and repeat the measurements and calculate a new average. If all observations still are not within 40.0 of the average, discuss possible problems with your teacher.
15. Rinse the probe with distilled water, blot dry, and put the cap on the meter. Rinse and dry the beakers and sample bottle.