Using A pH Meter (Electrical Conductivity Greater than 200 mS/cm) Field Guide

Task

Measure the pH of your water sample using a pH meter.

What You Need

- ❑ *Hydrology Investigation Data Sheet*
- ❑ pH meter
- ❑ 100-mL beaker
- ❑ 25 mL of pH 7.0 buffer solution in a jar with a lid - this jar should be labeled *pH 7.0*
- ❑ 25 mL of pH 4.0 buffer solution in a jar with a lid - this jar should be labeled *pH 4.0*
- ❑ 25 mL of pH 10.0 buffer solution in a jar with a lid - this jar should be labeled *pH 10.0*

  Note: Each jar should have an opening large enough to immerse the pH meter
- ❑ Distilled water in wash bottle
- ❑ Clean paper towel or soft tissue
- ❑ Latex gloves
- ❑ Pen or pencil

In the Field

1. Fill in the top portion of the *Hydrology Investigation Data Sheet*. Check pH meter as your instrument.
2. Put on the latex gloves.
3. Remove the cap from the meter that covers the electrode (the glass bulb on the pH meter).
4. Rinse the electrode on the meter and the area around it with distilled water in the wash bottle. Blot the meter dry with a clean paper towel or tissue. **Note:** Do not rub the electrode or touch it with your fingers.
5. Rinse the electrode with distilled water and blot dry again.
6. Calibrate the pH meter according to the manufacturer's directions.
7. Rinse a 100-mL beaker three times with sample water.
8. Pour 50 mL of sample water into the 100-mL beaker.
9. Put the electrode part of the meter into the water.
10. Stir once with meter. Do not let the meter touch the bottom or sides of the beaker. Wait for one minute. If the pH meter is still changing numbers, wait another minute.

11. Record the pH value on the *Data Sheet* under *Observer 1*.
12. Repeat steps 4-10 twice using new water samples. Record data on the *Data Sheet* as *Observer 2* and *Observer 3*.
13. Rinse the electrode with distilled water and blot dry. Turn off the meter. Put on the cap to protect the electrode.
14. Calculate the average of the three observations.
15. Check to see if each of the three observations is within 0.2 of the average. If all three are within 0.2, record the average on the *Data Sheet*. If all three observations are not within 0.2, repeat the measurements. Calculate a new average. Check to see if all three observations are within 0.2. If they are, record the average. If they are not, talk to your teacher about possible problems.