

# Using pH Paper (Electrical Conductivity Less than 200 mS/cm)

## Field Guide

### Task

To use pH paper to measure the pH of your fresh water sample with electrical conductivity values less than 200 mS/cm

### What You Need

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| <input type="checkbox"/> <i>Hydrology Investigation Data Sheet</i>           | <input type="checkbox"/> Clean paper towel or soft tissue |
| <input type="checkbox"/> <i>Electrical Conductivity Protocol Field Guide</i> | <input type="checkbox"/> Latex gloves                     |
| <input type="checkbox"/> Tweezers  | <input type="checkbox"/> pH paper                         |
| <input type="checkbox"/> Salt crystals* or table salt                        | <input type="checkbox"/> Stirring rod or spoon            |
| <input type="checkbox"/> Electrical conductivity tester                      | <input type="checkbox"/> Thermometer                      |
| <input type="checkbox"/> Two 100-mL beaker or cups                           | <input type="checkbox"/> Pen or pencil                    |

### In the Field

1. Fill in the top part of your *Hydrology Investigation Data Sheet*. In the pH section of the sheet, check the box next to 'pH paper'.
2. Put on latex gloves.
3. Rinse tweezers in sample water and dry with paper towel.
4. Rinse two beakers or cups with sample water three times.
5. Fill one beaker or cup with about 50 mL of sample water
6. Using the tweezers, place one crystal of salt in the sample water. (If you do not have salt crystals, fill this letter O with table salt and pour that into the sample water).
7. Stir thoroughly with stirring rod or spoon.
8. Measure the electrical conductivity of the treated sample water using the *Electrical Conductivity Protocol*.
  - a. If the electrical conductivity is at least 200 mS/cm, record value on *Data Sheet*. Go to step 9.
  - b. If the electrical conductivity is still less than 200 mS/cm, go to step 6 and repeat until you get a value that is at least 200 mS/cm. Record conductivity value on *Data Sheet*.
9. Follow the instructions that come with your paper for testing the pH of the sample.
10. Record your pH on the *Data Sheet* as *Observer 1*.
11. Repeat steps 3-9 using new water samples and new pieces of paper. Record the data on the *Data Sheet* as *Observer 2* and *Observer 3*.
12. Find the average of the three observations.
13. Check to make sure that each observation is within 1.0 pH units of the average. If they are not within 1.0 units of the average, repeat the measurements. If your measurements are still not within 1.0 pH units of the average, discuss possible problems with your teacher.
14. Discard used pH paper and gloves in a waste container. Rinse the beaker with distilled water.

\* A note regarding salt crystals. Crystal of about 0.5 – 2.0 mm in diameter are much easier to work with than the very finely ground "table salt" used in some countries. In North America, the larger salt crystals are often marketed as "sea salt".