"Healthy Water, Healthy People" Experiment: Parameter – pH

pH Sensor (PS-2102)

Overview:

pH affects the solubility, and thus bioavailability, of many substances in water, some of which can be toxic to humans and aquatic life.

Equipment:

For each lab group:

- pH Sensor:
    PASPORT (PS-2102)
- Computer Interface:
    PASPORT Xplorer (PS-2000) | PASPORT Xplorer GLX (PS-2102)
- Deionized water if available
- Samples of soil from directly under and near a pine tree
- Two small glass jars with lids

Software Setup:

1. Click on one of the links below to download a pre-configured DataStudio file for this pH experiment, and then open the file.
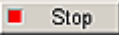
    File Format: Windows (.zip file) or Macintosh (.sit file)

    When the file is opened, you should see a graph display and a table display of pH vs. Solution #, as well as a digits displays of pH.

2. Connect the pH sensor to an Xplorer or Xplorer GLX.

Experimental Procedure:

Data Recording:

1. Collect a 10 g sample of soil from directly under a pine tree, and place into a beaker or glass jar with lid.

2. In a second beaker or glass jar, collect another sample from at least 50 feet away from the tree.

3. Add 10 ml of water to each sample.

4. Shake the soil samples for 1 minute, every 10 minutes. Repeat 3 times for a total of 30 minutes.

5. Place the pH Sensor into the first beaker.

6. If outdoors and not connected to a computer or laptop, press the (▶) on the Xplorer or GLX to begin collecting data. Watch the digits display for the temperature reading to stabilize, and note the result. Click the (▶) on the Xplorer or GLX to end data collection.

7. If indoors and connected to a computer or laptop, click the Start button (▶ Start) in DataStudio. Watch the digits display for the temperature reading to stabilize, and note the result. Click the Stop button (■ Stop) in DataStudio to end data collection.

8. Repeat steps 5-7 for each beaker.

9. Record the pH level for each beaker over the 30 minutes and identify changes between the time and/or soil sample.

10. If you have collected data remotely using Xplorer or GLX, your data can be downloaded to the computer automatically. Connect the Xplorer or GLX to the USB port on your computer using the cable provided, and follow the on-screen prompts to view your data in DataStudio.