pH MEASUREMENT

Materials Checklist

___ Power Macintosh
___ Lab pro, power supply and cable
___ pH Amplifier
___ Vernier pH Sensor
___ 250 beaker of distilled H2O (rinse)
___ 50-ml beaker (for pH 10 buffer)
___ pH 10 buffer solution

Testing Procedure

1. Prepare the computer for data collection by opening “Test 02 pH” from the Water Quality with Computers experiment files of LoggerPro. On the Graph window, the vertical axis has pH scaled from 5 to 10 pH units. The horizontal axis has time scaled from 0 to 10 seconds. There is also a Meter window which displays live pH readings.

2. Plug the pH Sensor into Channel 1 of the Lab Pro. Warm-up for 10 minutes

3. You are now ready to prepare the computer and pH Sensor for calibration.
   • Each day the sensor is used, it must be calibrated.
   
   First Calibration Point Reading 1
   a. Choose Calibrate from the Experiment menu and then choose Lab Pro: CH1: pH
   b. Select calibrate now
   c. The sensor is stored in pH-4 buffer (orange). Type “4” (the pH value of the buffer) in the edit box.
   d. When the displayed voltage reading for channel Input (volts) stabilizes, click [Keep].

   Second Calibration Point Reading 2
   e. Remove the sensor from the bottle by loosening the lid. The lid will stay on the probe.
   f. Rinse the sensor in distilled water beaker and place it in the pH-10 buffer solution. 15-20 mLs in 50 mL beaker.
   g. Type “10” (the pH value of the buffer) in the edit box.
   h. When the displayed voltage reading for channel Input (volts) stabilizes, click [Keep], then click Done.

4. You are now ready to collect pH data.
   a. Rinse the tip of the sensor in distilled water beaker.
   b. Place the tip of the sensor into the tank to a depth of 3-4 cm.
   c. If the pH value appears stable, simply record it on the data table.

5. If the pH value displayed in the Meter window is fluctuating, determine the mean (or average) value. To do this:
   a. Click [Collect] to begin a 10-second sampling run. Important: Leave the probe tip submerged for the 10 seconds that data is being collected.
   b. Click on the Statistics button, [ ], to display the statistics box on the graph.
   c. Record the mean pH value on the data table.

6. Store pH sensor in storage vial, close lid tight and stand up in dry beaker.