

**"Healthy Water, Healthy People" Experiment:
Parameter - Total Dissolved Solids**



Conductivity Sensor (PS-2116)



Overview:

Solids dissolved in water are often essential nutrients for plants and animals.

Equipment:

For each lab group:

- Conductivity Sensor:
[PASPORT \(PS-2116\)](#)
- Computer Interface:
[PASPORT Xplorer \(PS-2000\)](#) | [PASPORT Xplorer GLX \(PS-2102\)](#)
- Soil samples from various locations, such as agriculture land, wetlands, forest, garden, playground, etc
- Deionized water if available
- 500-mL beakers (or similar containers)

Software Setup:

1. Click on one of the links below to download a pre-configured DataStudio file for this Conductivity experiment, and then open the file.

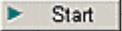
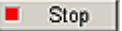
File Format: [Windows \(.zip file\)](#) or [Macintosh \(.sit file\)](#)

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

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

Experimental Procedure:

Data Recording:

1. Collect soil samples from various locations, such as agriculture land, wetlands, forest, garden, playground, etc.
2. Allow samples to air dry, being careful to prevent cross-contamination.
3. Place about 20 grams of dry soil from each sample in separate beakers and label the beakers accordingly.
4. Add 20 mL of deionized water into each beaker.
5. Stir the soil and water samples for one minute at 10 minute intervals, over a 30 minute period.
6. Place the Conductivity Sensor into the first beaker.
7. 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.
8. If indoors and connected to a computer or laptop, click the Start button () in DataStudio. Watch the digits display for the temperature reading to stabilize, and note the result. Click the Stop button () in DataStudio to end data collection.
9. Remove the Conductivity Sensor from the beaker and thoroughly rinse it with distilled water before measuring the next solution.
10. Repeat steps 6-9 for each beaker.
11. The measurements are an approximation of the soil salinity.
12. 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.