

# Activity 5: Microclimate Temperature Variation







Equipment*	Quantity
Xplorer GLX	1
Fast-response Temperature Probe	1

## Background

In this activity, you will measure and record the air temperature at different outdoor locations within a small area to investigate how ground cover and nearby objects affect air temperature.

## Before You Begin

Start a new experiment on the GLX.

1. Press  to go to the Home Screen.
2. Use the arrow keys to highlight the Data Files icon and press  to open the Data Files screen.
3. Press  to open the Files menu and press  to select New File.
4. When the GLX asks if you would like to save the previous file, press  to save or  not to save.

## Procedure

### *Preparation*

Sketch a map of the area you will be investigating. Mark several locations on the map and assign each a different number. For each location, note the type of ground cover (concrete, grass, bare earth, etc.) and nearby objects, such as buildings or trees.

### GLX Set-Up

#### 1. Connect a temperature probe.

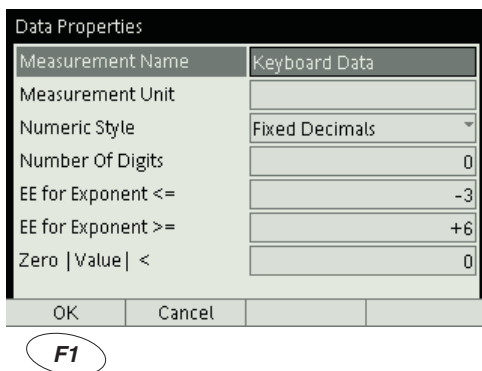
- a) Connect a fast-response temperature probe to one of the temperature ports on the left side of the GLX.
- b) If there are other sensors connected to the GLX, remove them.

#### 2. Put the GLX into Manual Sampling mode.

- a) Press to return to the Home Screen; press to open the Sensors screen.
- b) Press to open the Mode menu.

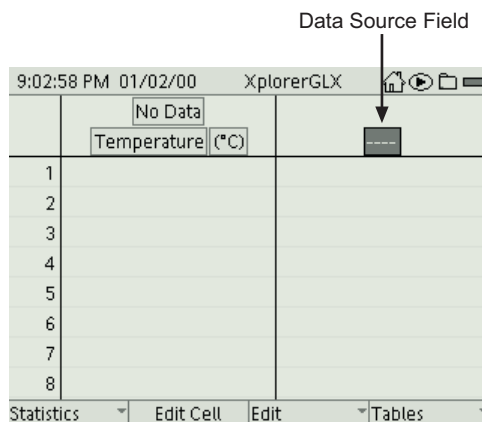


- c) Press the down arrow key to highlight Manual and press .
- d) The Data Properties window will open with the Measurement Name set to “Keyboard Data.” Press to accept this setting.

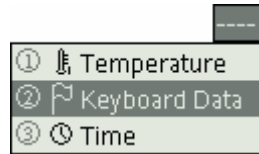


#### 3. Set up a Table to display recorded Temperature and keypad-entered location number.

- a) Press to return to the Home Screen; press to open the Table. The Table will be automatically set up to display Temperature in the first column.
- b) Press to activate the highlight, then press the right arrow key repeatedly to highlight the data source field of the second column (as pictured to the right).



- c) Press to open the data source menu; press the down arrow key to highlight Keyboard Data and press .



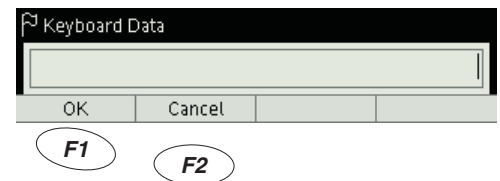
The Table is now configured to display Temperature and location number.

### Data Collection

1. Press . The GLX is now measuring temperature, but not recording it.
2. Take the GLX to one of the locations marked on your map. (It is not necessary to go in numeric order.)
3. Hold the probe about 1 m above the ground, but do not touch the end of the probe. Shield the probe from direct sunlight. Wait about 15 seconds to allow the probe to equilibrate.
4. Press to record a single temperature measurement.
5. The GLX will prompt you for Keyboard Data. Type the number corresponding to the location on the map and press .
6. Repeat steps 2 through 4 for all of the locations marked on your map.
7. After you have recorded the temperature at every location, press to complete data collection.

	No Data Temperature (°C)	 Keyboard Data
1		
2		
3		
4		
5		
6		
7		
8		

**Table prepared to display Temperature and Keyboard Data**



### Analysis

1. Copy the recorded temperatures from the GLX to your map.
2. Based on your data, describe how different types of ground cover and nearby objects appear to affect the air temperature.

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