

Experiment M-6

Weather Measurements



Objectives

- To learn about weather, temperature and sky conditions.
- To identify basic patterns of weather during an 8 week time frame by measuring temperature and light intensity every week.

Modules and Sensors

- PANDA-1 Panda Multi-sensor 

Introduction

The weather is an important part of our lives; it is the daily state of the atmosphere, or air, in a given place. Climate is the average of weather conditions in a specific area over a long period of time (usually over 30 years).

Weather affects comfort, food supply and safety of the people in the area. A meteorologist is a person who studies the weather and can make weather forecasts.

Weather is made up of multiple parameters, including air temperature, atmospheric (barometric) pressure, humidity, precipitation (rain, snow), sky conditions (sunny, cloudy) and wind.

In this experiment you will study the weather conditions in your area in a period of 8 weeks. You will measure light intensity and temperature every week and create a graph from the measured values. You will also write notes about what you feel and what you see.




Procedure

Experiment setup

1. Pick the day and hour of the day you plan to measure the light intensity and temperature. Every measurement should take place around the same time of day.
2. Select a location in the shade to measure temperature and a location that is not shaded to measure light intensity.

Do not use the Panda outside when it is raining. It is important to not get the Panda wet!

Settings

3. Press on the **Sound sensor** icon  on the top left of the screen.
4. Use the arrows   to select the temperature sensor.
5. If a “°C” button is seen on the top right of the screen, press it and choose “°F”.




Testing and measurements

6. Go to the shaded location where you will measure the temperature.



7. Wait until the value is stable (does not change) and write down the value in the following table.

Date	Hour	Temperature (°F)	Light intensity (lx)	What do you feel and what do you see? (Is it hot, cold, cloudy, sunny, windy)
Example: 11.14.16	3:15 pm	72.1	6791	Neither hot nor cold (in the sun and shade), a little bit cloudy, no wind

8. Press on the **Temperature sensor** icon .
9. Use the arrows   to select the light sensor.
10. Press on the “lx” button on the top right of the screen.
11. Press on the **0-60,000 lx** button (if you see you need a higher range during the experiment, change it to “**0-240,000 lx**”).
12. Go to the location that is not shaded and point the sensor towards the sky (vertical to the ground).
13. Fill the measured value in the table on the previous page.



14. Fill in the column of “What do you feel and what do you see? (Is it hot, cold, cloudy, sunny, windy)”. For instance, you can specify if it was hot/cold in the shade or in the sun, or both. If you notice anything else about the weather, you can write it in the column.
15. Repeat this measurement every week until the 8 week period is over.

Summary questions

1. Create a graph from your results:



2. Describe how the weather has changed throughout the period you have measured it.
3. Did the results of what you felt (cold/hot) match with what you saw (sunny/cloudy)?
4. Did your results match your local climate?