



Outreach & Education Resources

Weather & Climate in Palau: Teacher's Guide

Duration

Gather materials: 1 week (for students)
Presentation: 15-20 minutes
Making instruments: 30-45 minutes
Recording: 5-10 minutes every day, for a week

Timing

We recommend that teachers complete the presentation and students make the weather station instruments on either Thursday or Friday. Students can start recording the next Monday (Day 1) to Friday (Day 5). They can then use the rest of the class on Day 5 to complete worksheet.

Objective

Students learn about weather by making their own weather station instruments to measure, record and graph weather variables of temperature, wind speed and direction, air pressure and rain.

Learning Outcomes

Students will learn:

- Weather is atmospheric conditions on a daily basis or short term.
- Weather can change every day.
- Weather and climate are both atmospheric conditions, but cover different time scales.
- Learn to measure and record weather variables of temperature, wind, pressure and precipitation.
- Graph weather data to make it presentable.

I. Introduction and Presentation

A presentation is provided so that teachers can introduce key concepts for students to understand the activity. Teachers should feel free to change or modify the presentation according to their needs.

Key concepts to cover in the beginning:

1. Location: Palau's location is very important in understanding the type of weather Palau has. Point out that Palau is located near the equator, in the western Pacific, near Indonesia and Philippines. This location is important for explaining the type of weather later on.
2. Compass direction: students should become familiar with the compass direction (North, South, East, West). Be sure to point in the East direction (where the sun rises) and West

direction (where the sun sets) so that students can learn these directions. To determine all directions, if it is in the morning, point your left hand to the sun (that is east, where the sun rises) and your right hand towards the west (where the sun sets). You are facing South, and your back is towards North.

3. Towards the end of the presentation, there are two links in the slides. One link goes to the Coral Reef Research Foundation weather station, where you can show students real time weather conditions (updated every hour). It would be good for kids to see what kind of weather information is reported.

The 2nd link goes to windy.com, a very pretty website that covers weather forecasts. The default should show the wind movement near Palau. If you click on Ngerulmud, a table will show below; this table is the forecast for the week.

After the presentation, begin the activity/experiment. Students should have the worksheet to get started and a way to watch the videos. If students have school tablets, you should download the videos on the tablet (from MOE server) or you can watch the videos on YouTube (https://www.youtube.com/playlist?list=PL7fSRQQI_xh96OFGDeTxawJgTxkN7VKbEx).

II. Activity

After covering weather using the presentation, students will make their own weather instruments following the instructional videos. A wall thermometer is provided to measure air temperature. Students will make the wind anemometer, wind vane, barometer and rain gauge using available household goods. For example, they can save cups and straws used for milkshakes or smoothies for the wind anemometer and wind vane. Give students a week to gather materials before the activity.

All instruments, except for rain gauge, should be kept in the classroom until they are ready to record weather data. The rain gauge should be left out in the open outside, in a place where it will not be disturbed. Putting it on a table outside would probably be best.

Students should measure at the same time every day for a week or more. It is up to the teacher how long they want to record. Our recommendation is that at the start of science class, take 5 minutes to record weather data. The minimum duration should be 1 week, but for more data, 2 weeks is preferable.

Data Recording

See worksheet.

Graphing Data

Graph templates are in the worksheet. Students will make bar graphs for air temperature and rainfall by coloring in cells. For wind speed, students will make a line graph by coloring circles and connecting the colored circles with a line. Students will then draw in arrows to indicate wind direction.

It is important to identify what the x and y axis represent. For this activity, x axis (or the horizontal line) will represent the date the data was collected, starting with the first date on the left and labelled in chronological order moving to the right. The y axis (vertical line) will represent the variables being graphed.

Student Worksheet

The student worksheet will guide the students through the activities. It is important that students are given time to copy from the other groups so that their data tables are complete. It would probably be easy if a table was made on the white board, and groups can write in their data every day. Other students can just copy from the white board.

Answer Key for Activity 1

1. Weather, 2. Climate, 3. Weather, 4. Climate, 5. Climate

Contact

If you have questions, comments or suggestions, please call Coral Reef Research Foundation at (680)488-5255 or email sw.patris@gmail.com. You can talk to either Gerda Ucharm or Sharon Patris. We welcome feedback!