4.10 YEAR END WEATHER SUMMARY AND LOCAL CLIMATE

OBJECTIVES

The students

- Summarize monthly and seasonal weather data about local weather conditions including wind speed and direction, rainfall, temperature, and cloud cover.
- Compare average monthly wind speed and direction.
- Identify the prevailing wind direction(s).
- Compare the depth of rain falling in different months and seasons.
- Make generalizations about relative temperature for morning and afternoon.
- Make hypotheses and generalizations about temperature and months and seasons.
- Compare the amount of cloud cover in different months and seasons.
- Identify and describe local seasonal weather patterns.
- Describe the local climate based on their collected and summarized data.

CLIMATE EDUCATION FRAMEWORK

- 3-5Weather.A.1 By measuring weather conditions (temperature, amount and kind of precipitation, amount and kinds of clouds, wind direction and wind speed), scientists learn how the weather changes from day to day, month to month, and during the year.
- 3-5Weather.A.2 Scientists analyze records of the weather that has happened in different places in the different times of the year. There are patterns to the kinds of weather that happen in a place and at different times of the year.
- 3-5Climate.A.1 Climate is the description of the pattern of weather in an area over many years. Different locations on our planet have very different climates.
- 3-5Climate.A.2 Pacific islands that are near the equator have warm climates. The temperature does not change very much from day to night. Temperatures do not change very much from month to month over the course of a year.
- 3-5Climate.A.3 Many tropical Pacific islands have a wet season and a dry season.
- 3-5Climate.A.4 Many tropical Pacific islands that have at least one high mountain have one part of the island that gets a lot of rain, and other areas that get very little rain.

BACKGROUND

In this activity the students summarize the weather data they have collected during the school year. They use their monthly summaries to analyze the weather throughout the year. They look for correlations between the various weather elements.

Use either seasons appropriate to the local community or the astronomical seasons as the students summarize their data and make comparisons. They look for patterns to describe the seasonal weather. It is suggested that the teacher work with the whole class to summarize the data.

This year-end summary builds the foundation for describing local climate. It provides a last opportunity to revise their working definitions as needed. A final activity is a discussion about the importance of studying and knowing about weather. Student ideas are recorded in the Connections Book.

STUDENT ROLES

Meteorologist

MATERIALS

Chart paper and markers
Monthly weather data on kind of weather, rainfall, temperature, wind speed and direction, and cloud cover from 4.4 MONTHLY WEATHER SUMMARY
Student Page 4.10 SEASONAL WEATHER
Internet or other resources with descriptions of the local climate
Working Dictionary
Wonder and Discover Book
Connections Book

PRODUCTS

Year-end weather data summary
Seasonal weather descriptions
Class Chart about Weather Data Comparisons
Weather Prediction Chart
Working Definitions of weather related terms

PROCEDURES

1. **At the end of the school year have the students compare their monthly and seasonal types of weather data. Make a class chart, Weather Data Comparisons, to record and compare this information. See Figure 1 for an example.**
   Ask such questions as
   • Which month had the most sunny days? Fewest sunny days? Season?
   • Which month had the most rainy days? Fewest rainy days? Season?
   • Which month had the most cloudy days? Fewest cloudy days? Season?
   ✔ Ask about other types of weather conditions as appropriate to the local environment.
   - How do you predict the weather in the coming (summer) months will compare with other months (seasons)?
     ✔ Optional: Make a class chart about weather predictions. Record their predictions from the following procedures about the coming summer weather on the chart.

2. **At the end of the school year have the students compare their monthly and seasonal wind data. Record their ideas on the class chart, Weather Data Comparisons.**
   Ask such questions as
   - Which month(s) was the windiest? Season?
   - Which month(s) had the least amount of wind? Season?
   - Do the winds seem to come mostly from certain directions? What are they?
   - Do the winds mostly come from one direction in certain months? Seasons?
     ✔Have students identify this information.
   - Are the winds stronger when they come from one direction than from others?
     ✔Have students identify this information.
   - How do you predict the wind speed and direction in the coming (summer) months will compare with other months (seasons)?

3. **At the end of the school year have the students compare their monthly and seasonal temperature data. Record their ideas on the class chart, Weather Data Comparisons.**
   Ask such questions as
   - Which months had the hottest temperatures? Season?
   - Which months had the coolest temperatures? Season?
   - Do you see any connections between clear weather months and temperatures? Rainy months? Cloudy months?
   - How do you predict the temperatures in the coming (summer) months will compare with other months (seasons)?

4. **At the end of the school year have the students compare their monthly and seasonal rainfall data. Record their ideas on the class chart, Weather Data Comparisons.**
   Ask such questions as
   - What was the wettest month? Season?
   - What was the driest month? Season?
   - How do you predict the rainfall in the coming (summer) months will compare with other months (seasons)?

5. **At the end of the school year have the students compare their monthly and seasonal humidity data. Record their ideas on the class chart, Weather Data Comparisons.**
   Ask such questions as these:
   - What months (seasons) seem to have the least humidity?
   - What months (seasons) seem to be the most humid?
   - How do temperatures compare between months with high humidity and months of low humidity?

6. **At the end of the school year have the students compare their monthly and seasonal cloud data. Record their ideas on the class chart, Weather Data Comparisons.**
   Ask such questions as
   - What was the cloudiest month? Season?
   - What was the month with the most clear days? Season?
   - Do you see any connections between cloudy months and rainy months?
   - Do you see any connections between clear months and dry months?
   - What do you think causes this?
   - How do you predict the cloud cover in the coming (summer) months will compare with other months (seasons)?

7. **At the end of the year help the students correlate temperature with time of day, seasons, and the amount of cloud cover.**
   Ask such questions as
   - How does the amount of cloud cover seem to affect temperature? Why might this be?
   - How does the time of day seem to affect temperature? Why might this be?
   - How does temperature relate to seasons?

8. **Have the students describe the weather for each season. Use either locally defined seasons or the four astronomical seasons. Have them include statements about the most likely kind(s) of weather, wind speed(s) and direction(s), rainfall, humidity level, temperature range (high and low), and cloud cover. Use SP 4.10 if desired.**

9. **Have the students make concept maps about their local island climate. Then have them use these to write a description of their local climate. Have them compare their descriptions to those they find for their island on the Internet or in other resources.**
   Ask such questions as
   - Does your description reflect what you have learned about the local climate by collecting and summarizing weather data?
   - Do you think your description includes your entire island or just your school location?
     ✔(Optional) Have them revise to include their whole island.
   - Did you include the same weather elements as other descriptions you found?
   - How are the descriptions the same? Different?
   - Why do you think they have differences?

10. **Have the students revise their working definitions for weather words including weather, wind, rain, humidity, temperature, clouds, and climate. Have them include their description of the local climate in their definition.**

11. **Have the students review their questions in the Wonder and Discover Book and answer any they now have new information about. Any remaining unanswered questions can be assigned as research or investigated in later grades.**

12. **Have the class discuss the importance of knowing about weather and record their ideas in the Connections Book.**
    Ask such questions as
    - Who needs to know about weather?
    - Why is knowing about the weather important?
    - How can you use weather information?
    - Who else uses weather information? How do they use it?

Weather Data Comparisons													
Weather Data	Month	A	S	O	N	D	J	F	M	A	M	J	J
	Season	-mer		Fall			Winter			Spring			Sum-
Kind of Weather													
Wind Speed													
Wind Direction													
Average AM Temp.													
Average PM Temp.													
Rainfall Total													
Average Humidity													
Cloud Cover													

Figure 1. Example of a class chart for comparing weather data.

SEASONAL WEATHER SP 4.10

Name:_____

Date:_____

Describe the weather for each season. Include the usual kind or kinds of weather, wind speed and direction, amount of rainfall, humidity level, high and low temperatures, average cloud cover, and storm activity you would expect during each season.

Season:_____ Months:_____

Season:_____ Months:_____

Season:_____ Months:_____

Season:_____ Months:_____