SANTA CRUZ MUSEUM of natural history

Weather Record

Topic:
NGSS

- **Performance Expectation:** 3-ESS2-1 - Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
- **Disciplinary Core Idea:** ESS2.D - Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
- **Cross-Cutting Concept:** Patterns.
- **Science & Engineering Practice:** Analyzing and interpreting data.

Lesson Length: 10-15 minutes per day, 30 minutes at the end of the 5-day cycle.
Group Size: Individual student data collection, and group analyzing and interpreting.
Link With: “Observing Clouds” activity.

Overview

Using a datasheet to keep track of their observations, students will record local weather conditions, including temperature, wind, cloud cover, and rainfall. This data can be compared between students and aggregated to create charts that show averages across the class. Students can also compare the data they collect with historical patterns both locally and worldwide to understand that weather and climate are different across space and time.

Materials

1. Datasheets sent digitally or physically to students, or printed out at home.
2. Access to online weather sites.
3. **Optional:** thermometers or rain gauges for better quantitative data.

Procedure

1. Ensure that students have access to data sheet and optional tools.
2. Instruct students to record their observations about the weather each day. Most observations will be qualitative, but some will be quantitative.
3. Tell students to follow the instructions here to build their own rain gauge, and that if they or their families own thermometers that they can use them to record air temperature by holding them up in the air for 60 seconds.
4. **Ask:** how could you measure wind? Try to come up with a way to measure wind or clouds, or at least to take consistent qualitative data.

5. Tell students that each day they should send you what they record, so you can begin creating graphical displays of the data.
6. As students send data, create graphs for each day showing trends in temperature, rainfall (if any), as well as their qualitative responses regarding amounts of clouds and wind.
7. At the end of the week, share graphs with students, showing the weekly trends in their responses and data from online. Average weather trends for Santa Cruz can be found here.
8. **Ask or send out prompts for students to submit written answers:**
    a. Is this weather normal for this season? Why do you think it is or is not?
        i. Compare student data or data from online to data in other seasons.
    b. Do you think things like clouds or wind affect temperature? Why or why not?
    c. What *is* the normal weather this time of year? Students can either answer right away or do some research first to see if what they are observing is typical for the past several years or more.

Optional extension:

1. Compare local weather trends with more regional trends, or have students choose other locations to compare their data to.