LESSON PLAN

Weather, Weather Everywhere!

Overview

Students will use the weather station to collect quantitative data and observations to collect qualitative data to summarize weather conditions.

Engage & Explore

Take students outside to the garden/weather station area. Ask students to describe the weather. What tools do meteorologist use to measure and track the weather over time? Allow students time to explore the outdoor classroom and familiarize themselves with the weather station. Ask them what they think each instrument is used for.

Activity

Explain to students they are going to become meteorologists. They will collect quantitative data and qualitative data over a 2 to 3 week period and then use the data to predict the weather. Students will create a short video of themselves delivering the weather report.

Grade Level: 2 & 5

Subject Area: Science

Time Frame: 1 class period to ongoing

Materials:
Weather station instruments
Soil thermometer
Thermometer
Bucket or container of water

Resources:
Temperature log
Qualitative weather data sheet
Quantitative weather data sheet
Weather tracking data sheet
Cloud types

Standards:
2.E.1.1
2.E.1.2
2.E.1.3
2.E.1.4
5.E.1.1
5.E.1.2
5.P.3.1
5.P.3.2

1. Prior to taking students outside, place a soil thermometer in one of the garden beds and the other thermometer in a bucket of water.

2. Model the correct way to use each of the weather instruments and record the data. (an anemometer measures wind speed, a wind sock or weather vane measures wind direction, a thermometer measures temperature and a rain gauge measures precipitation). Show students how to read each of the thermometers.

3. Explain the difference between quantitative and qualitative data: It is hot outside (qualitative); the temperature is 95°F today (quantitative). Watch a weather report and identify both qualitative and quantitative data.

4. Hand out the data collection sheets. Model how to collect and record the data. Students may work in groups to collect their own data or the data may be collected as a class. Weather Tracking Data sheet may be used for younger students.

5. Explain to students that they will collect both quantitative and qualitative data twice a day, once in the morning, and again in the afternoon, every day for 2 to 3 weeks. Each group will choose one temperature (air, water, or soil) to graph each day.

6. At the end of each week, help students look for patterns in the weather data.
   - How does the morning temperature compare with the afternoon temperature each day?
   - Throughout the month, do temperatures increase or decrease?
   - Compare the temperature of a sunny day with a cloudy or rainy day.
   - What happened to the barometric pressure on sunny days? Rainy days?
   - What type of clouds did you see on a sunny day? Windy day? Rainy day?
   - How does the air, soil, and water temperature compare in the morning? Afternoon?
   - How does the material affect the temperature? How does the temperature of the air, water, and soil compare?
   - How much rain in the rain gauge would equal a light rain/heavy shower?
   - What direction does the wind usually blow?

7. At the end of the allotted time period review some of the patterns you have seen. Model a weather forecast. Set expectations of what data you expect in their weather forecast. Students should include both qualitative and quantitative data in their forecast.
   - Option A: Groups will create a video weather forecast for the following day based on the weather patterns observed.
   - Option B: Groups can create a live weather forecast for the class.

Your Notes & Ideas

Temperature Log

Name: _____

Circle one: Air Water Soil

Date	Low temperature	High temperature

Qualitative Weather Data

Name: _____

Date	Time	Description

Weather Tracking Data

Name: ____________________

Date:

100	100	100
95	95	95
90	90	90
85	85	85
80	80	80
75	75	75
70	70	70
65	65	65
60	60	60
55	55	55
50	50	50
45	45	45
40	40	40
35	35	35
30	30	30
25	25	25
Current	High	Low

(reset thermometer after recording)

Cloud coverage:

Clear

Partly cloudy

Cloudy

Wind speed:

None

Light

Breezy

Windy

Wind direction:

North

West East

South

Rainfall (inches)

(empty rain gauge after recording)

Date:

100	100	100
95	95	95
90	90	90
85	85	85
80	80	80
75	75	75
70	70	70
65	65	65
60	60	60
55	55	55
50	50	50
45	45	45
40	40	40
35	35	35
30	30	30
25	25	25
Current	High	Low

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Cloudy

Wind speed:

None

Light

Breezy

Windy

Wind direction:

North

West East

South

Rainfall (inches)

(empty rain gauge after recording)

Date:

100	100	100
95	95	95
90	90	90
85	85	85
80	80	80
75	75	75
70	70	70
65	65	65
60	60	60
55	55	55
50	50	50
45	45	45
40	40	40
35	35	35
30	30	30
25	25	25
Current	High	Low

(reset thermometer after recording)

Cloud coverage:

Clear

Partly cloudy

Cloudy

Wind speed:

None

Light

Breezy

Windy

Wind direction:

North

West East

South

Rainfall (inches)

(empty rain gauge after recording)

Quantitative Weather Data

Name: _____

		Temperature (°F)						
Date	**Time**	**Air**	**Soil**	**Water**	**Precipitation (in / cm)**	**Wind direction**	**Wind speed (mph)**	**Cloud type**

Courtesy of LifeLab

Cirrus Clouds

Stratus Clouds

Cumulus Clouds

Cumulonimbus Clouds