

Weather: Piecing It All Together

4th Grade

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1. References:

- “Describing Weather” lesson plan from 4th grade curriculum guide

2. Benchmarks:

ES-4, ES-5 & ES-7 (Benchmark D): Describe weather by measurable quantities such as temperature, direction, wind speed, precipitation, and barometric pressure. Record local weather information on a calendar or map and describe changes over a period of time. Describe the weather which accompanies cumulus, cumulonimbus, cirrus, and stratus clouds.

3. Objectives:

One does not need to be a meteorologist to study the weather, thus the students themselves can collect, record and analyze data using simple weather instruments or using weather resources to understand weather.

4. Materials:

- Thermometer
- Wind Vane
- Rain Gauge
- Barometer
- Anemometer
- Cloud Finder
- Weather Journal

5. Initial Demonstration:

Show the students the last weather instrument they will learn, which is a rain gauge. Explain that a rain gauge is used to measure precipitation and measures in inches using a scale on the gauge. To show how a rain gauge works, have one brave student volunteer to sit in their chair in front of the room and hold the rain gauge in their hands. Have a cup full of water to represent the rain. Begin dipping a hand in the cup and sprinkling the water above the student. This is done to show that not all precipitation goes into the gauge, but every once in a while, precipitation finds its way into the gauge. The amount is then measured by reading the scale. Sprinkling the water will not result in much water in the gauge, so begin to pour the water out of the cup above the student, making sure some goes into the rain gauge.

6. Target Observations:

- Rain gauges are to be placed in areas away from trees and buildings, as well as high traffic areas.

7. Target Model:

- Using measurable quantities such as temperature, direction, wind speed, precipitation, and barometric pressure, weather can be measured. Through observations of the weather, one can describe the changes over a period of time.

8. Procedure:

Have the students turn to **Page 23-24** in their weather journals. Explain to the students that they will be recording weather data for the next five days. They must include the date that the observations were made. As a class, we will go outside to observe the various weather conditions. The students will be working in pairs to collect the weather data, and each pair should have their Cloud Finder and a thermometer. The students should first sit in a circle around the instructor to collect the wind direction using a classroom wind vane. The barometric pressure can be measured with a classroom barometer by having one student tell the entire class what the pressure reads. The wind speed will be measured using the classroom anemometer by standing in the center of the circle. With the students sitting, have them count the number of revolutions the anemometer makes. The students should then scatter out to measure the air temperature and determine the cloud type and conditions. Lastly, the class should investigate the rain gauge to check for precipitation. As the students make their observations, each should be recorded in their journal. Return to the classroom to discuss the observations that everyone had collected.

9. Target Observations:

- Simple weather instruments can be used to understand the local weather.
- Cloud types can help predict the weather.

10. Revised Target Model:

- Even if there is no precipitation, there is always water in the air that we cannot see.
- Weather conditions measured in the morning could change quite drastically from the afternoon weather..

11. Summary:

The students themselves will collect, record and analyze data using simple weather instruments, as well as use cloud types to predict weather conditions.

