

Weather Watch

Activity 6

Making weather
measurement instruments

Life Skill:

Acquiring/Evaluating
Information – Creating data
gathering processes

Earth Stewardship Skill:

Understanding the relationship
between weather and living
organisms

Science Process Skill:

Collecting data

Success Indicator:

You will be able to:

1. Make some instruments to measure the weather
2. Keep a weather log and note changes in the weather
3. Describe connections between the weather and people, plants and animals

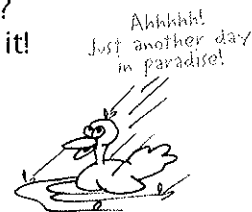
National Science Standard:

Tools help scientists make better observations, measurements and equipment for investigations

Materials:

- pencil
- thermometer
- coffee can
- ruler
- rain gauge: narrow olive jar or some other kind of clear jar with straight sides and a flat bottom, two-liter plastic soda bottle, scissors, wide clear tape, rain scale
- pinwheel: straight pin (with a flat head or push pin), construction paper, pencil with eraser, scissors

How do people, plants and animals act in different kinds of weather? Just watch the **weather** and then see what these things do in different kinds of weather. For example, do you notice that ducks are out and about during the rain? Or maybe you see that people run and hide when it rains. What happens if it is windy? How do plants react? The best way to learn about weather is to watch it!

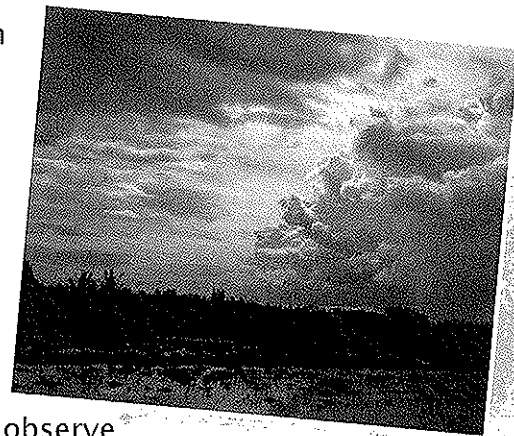


You can become weather-wise by creating and using your own weather instruments. In this activity you will measure and observe **precipitation**, wind and **temperature**.

Precipitation

Make a **rain gauge** to measure precipitation. Precipitation is rain, snow, sleet and hail—all forms of water that fall to the earth. Place your rain gauge outside where it won't be disturbed. Find a way to keep it upright. After it has rained, read the rain scale on your rain gauge to record the amount of rain that fell. If it rained overnight, be sure to check your rain gauge early in the morning so that the water doesn't have time to evaporate.

If it snows you can set out an old coffee can to collect the snowfall. Measure the depth of the snow. Then bring the can indoors and let the snow melt. Pour the resulting water into your rain gauge and see how much water the snow made.



Wind

Make a pinwheel to help you observe the **wind**. The pinwheel won't tell you how fast the wind is blowing, but you can look at it to guess the wind's speed. Is your pinwheel moving fast? Slow? Kind of fast? Not moving at all?

Wind is air moving across the earth's surface. Sometimes the wind is gentle, but sometimes it is very strong and destructive. Winds are named by the direction from which they blow. If a wind blows from the west to the east, it is called a west wind. A north wind blows from the north. It's hard to describe wind, but you can see its effects. If you have ever had your hair blow in your face, had a paper you were holding blow away or watched a leaf float by, you've seen what the wind can do.



Use the rain gauge and the pinwheel to measure the weather. Also, use a thermometer to

measure the **temperature**. Record your measurements in the Weather Log or in your journal. Then watch how people, plants and animals act in this weather and record your observations.

Graph the results from your weather measurements so you can see changes over time.

Also, make some predictions about tomorrow's weather. Look at local newspapers or listen to the television news for **forecasts** of tomorrow's weather. Compare these to your own predictions. Were you correct?



Measuring the Wind and the Rain

Materials needed:

- Straight pin (with a flat head) or push pin.
- A square of construction paper ($8\frac{1}{2} \times 8\frac{1}{2}$ is a good size to work with)
- A pencil with attached eraser
- Scissors

To make a pinwheel:

- Draw diagonal (from corner to corner) lines on your paper square. (See figure 1)
- Use your scissors to cut along diagonal lines about two-thirds of the way to the center. Fold one of the corners to the center point. (See figure 2)
- Then repeat for the other three corners. Overlap all four points at the center. Stick the pin through all layers of the paper and into the pencil eraser. Now your pinwheel is ready for the wind.

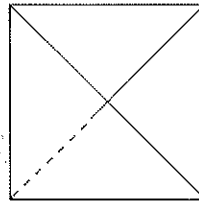


Figure 1

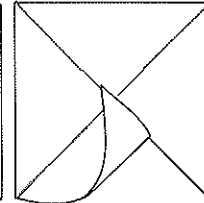


Figure 2

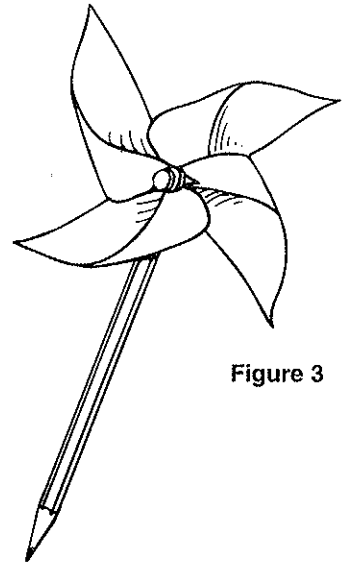


Figure 3

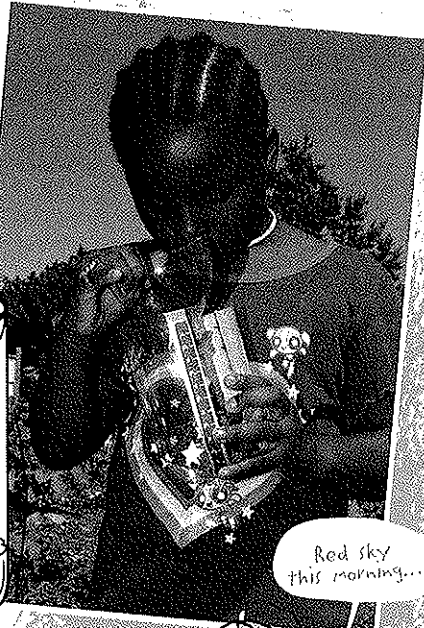
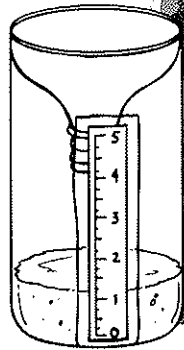
Weather Log

Date and time	Temperature	Precipitation (rain or snow?)	Wind speed	How are people, plants and animals acting?	Weather forecast for tomorrow



To make a rain gauge:

- Cut the top off of a two-liter, plastic soda bottle.
- Cut out the scale at the bottom of page 20.
- Attach the scale to a clear jar with wide clear tape. Make sure that the 0 mark is lined up with the bottom of the jar or the bottle.
- Put the bottle top upside down in the jar to serve as a funnel.
- Your rain gauge is ready to measure rainfall!



Making Connections

Talk It Over

- What kinds of weather did you observe?
- How did the weather change throughout the course of a day? Was it cooler in the evening or in the afternoon? What part of the day was the warmest?

Let's Reflect

- How did people, plants and animals act during this weather?
- What kind of pattern in the weather did you notice? For example, does it usually rain during certain temperatures?

So What?

- How does weather help show that everything is connected to everything else?
- What is the average temperature for a particular week (add up all of the temperatures then divide by the number of measurements you took)? How does the average temperature change over the course of a year?

Issues to Discuss

- What is your favorite kind of weather? In what kind of weather do you not like to be outside? Do you act differently in different types of weather?
- A meteorologist studies the weather and then tries to forecast it. Forecasting means predicting what the weather will be. Describe a time when you relied on a weather forecast to make a decision.

Web Connections

For more information on the weather visit www.n4hccs.org and link to:

- Weather Channel



Prepare a display of your weather log. Include drawings or photos of the weather.

Dig In Deeper



Forecast
Precipitation
Rain gauge
Temperature
Weather
Wind

1. Clouds come in different shapes and sizes. They can help you predict what the weather will be like. Cumulus, cirrus and stratus are just three cloud types. See if you can find out what these clouds look like and what kind of weather they indicate.

2. Research weather lore, stories and superstitions that people have used now and in the past in weather forecasting. For example, one saying goes like this: "Red sky at night, sailors delight. Red sky in morning, sailors take warning."

3. Find out about the difference between weather and climate. Share what you learn with your project helper.