

TV Meteorologists

GENERAL INFORMATION

OBJECTIVES

Students will examine multiple variables contributing to weather conditions, such as energy, wind, and the water cycle.

QUESTIONS

What are some of the factors in determining a weather report? What is the difference between climate and weather? Why is it important to know weather conditions? To whom is this type of information most important? What is the water cycle and what are the different parts of it? What is evaporation? What is condensation? How do you interpret a weather map?

VOCABULARY

Weather, climate, precipitation, thermometer, humidity, air pressure, anemometer, evaporation, condensation, cirrus clouds, cumulonimbus clouds, nimbostratus clouds, cumulus clouds, rain gauge, meteorologist

ACTIVITY MATERIALS

Cloud chart, barometers, rain gauges (kept outside), thermometers, anemometers, wind vane, psychrometers, water cycle diagram, blank paper/notebooks, pencils, clipboards

METHODS

INTRODUCTION

Gather the students together and have them sit on the ground. Ask: **What does a meteorologist do** (a meteorologist is a scientist that studies weather to make predictions)? Ask: **What information do they need to know to make a weather prediction** (temperature, wind speed, wind direction, humidity, air pressure, cloud cover and precipitation). Humidity is the amount of water that is in the air. Think of how sticky it gets in the summer. That is humidity. Air pressure is a column of air that pushes down on the Earth's surface. It can be used to predict storms. Precipitation is any form of water that falls to the Earth from clouds). Explain that meteorologists use special instruments to take measurements. Ask: **What are some instruments used to measure temperature, wind speed, wind direction, humidity, air pressure, cloud cover, and precipitation?** Show each of the tools as you explain how they work: use a thermometer to measure temperature, an anemometer for wind speed, a wind vane for wind direction, a psychrometer for humidity, a barometer for air pressure, a chart for cloud cover, a rain gauge for precipitation. Explain that the students will have a

Teacher's Corner

Grade Level(s)

6th and 7th grade

State Performance Indicators

SPI 0607

-Inq.2: Select tools and procedures needed to conduct a moderately complex experiment.

-8.2: Recognize the connection between the sun's energy and the wind.

-8.4: Interpret meteorological data to make predictions about the weather.

SPI 0707

-Inq.2: Select tools and procedures needed to conduct a moderately complex experiment.

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INTRODUCTION (cont.)

chance to collect data using these instruments, but first they need to understand an important cycle in predicting the weather: the water cycle. Ask: **Can someone tell me what the water cycle is** (it is the continuous movement of water between the atmosphere and the Earth's surface)? Show the water cycle diagram and explain how water moves through the cycle. Engage the students by asking: **What is evaporation?** Discuss that it is the process of liquid water going back up into the atmosphere as water vapor, such as when you leave a glass of water out and the level of the water is lower after sitting all day. **What is condensation?** Discuss that it is the process of water vapor becoming liquid water, such as when you find dew on the grass in the morning. Explain that temperature can effect evaporation and condensation. Tell them to think about this when they are collecting their data

ACTIVITY

Divide the group into teams. Pass out the data sheets, clip boards, and pencils. Explain that the students can use any of the instruments to determine a weather report for today and to make predictions about tomorrow's weather. Encourage them to use also their senses and personal observations because these instruments are not the only way that weather factors can be measured (i.e. how sunny is it, cloud cover, cloud color, etc.). Also tell them to take measurements in different places and even at different heights as this will affect their results (temperature in the sun, in the shade, at ground level, at height level, etc.). Remind students to consider the water cycle and how temperature can impact evaporation and condensation. After 15-20 minutes, gather the students as a group again. Allow each team of students to present their weather report to the group. Ask: **Based on your findings, what do you think the weather will be like tomorrow? What additional information might they need to make an accurate prediction?**

DISCUSSION

Review the following points: What are some instruments used to measure weather and what exactly do they measure? To whom do you think weather reports are important and why are these reports so important? What are the different parts of the water cycle? How do you think condensation and evaporation are effected by changes in temperature?

BRINGING IT TO THE CLASSROOM

Have students take additional measurements using instruments found in the classroom (or to make instruments, see Chapter 12 in the textbook). Have them take measurements over several days or weeks and plot their data on a graph. Begin a discussion about weather and climate. Ask the students to describe the type of climate we live in today. Review national and world weather maps and climate maps to illustrate the discussion.

ACKNOWLEDGEMENTS

- Copyright © 2008 Healing Stones Foundation. All rights reserved.
- Activity developed by Melissa Squirlock; July 2007.
- Science Explorer: Grade 7. (2003). Unit 3: Atmospheric Cycles. Prentice Hall: Saddle River.