

#8950

WEATHER: A FIRST LOOK

Grade Levels: 2-5

17 minutes

AIMS MULTIMEDIA 2000

3 Instructional Graphics Enclosed

DESCRIPTION

Introduces an overview of weather, what it is, how and why it changes, and how it affects us. Reports on different kinds of weather and basic related vocabulary. A meteorologist explains his job and some of the instruments he uses. Includes simple demonstrations for measuring temperature, precipitation, and wind.

ACADEMIC STANDARDS

Subject Area: Earth and Space Sciences

- ◆ Standard: Understands atmospheric processes and the water cycle
 - Benchmark: Knows that short-term weather conditions (e.g., temperature, rain, snow) can change daily, and weather patterns change over the seasons
 - Benchmark: Knows that water exists in the air in different forms and changes from one form to another through various processes
 - Benchmark: Knows that the Sun provides the light and heat necessary to maintain the temperature of the Earth

INSTRUCTIONAL GOALS

1. To study the effects of heat from the sun on weather.
2. To demonstrate the effects of water on weather.
3. To present the effects of air on weather.
4. To examine what is *climate*.
5. To examine how and why weather changes with the seasons.
6. To describe different kinds of precipitation.
7. To demonstrate how weather affects lives.
8. To illustrate how meteorologists collect data on weather.



VOCABULARY

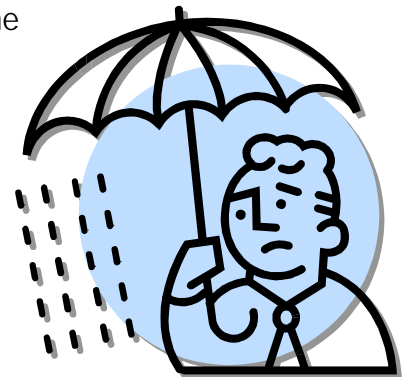
1. anemometer
2. atmosphere
3. climate
4. cloud
5. condensation
6. desert
7. equator
8. hurricane
9. meteorologist
10. rain
11. rain gauge
12. season
13. sleet
14. snow
15. temperature
16. thermometer
17. water vapor
18. weather
19. wind
20. wind vane



AFTER SHOWING

Discussion Items and Questions

1. What is *weather*? (*Weather* is what the atmosphere is like at a particular time and place with respect to conditions such as temperature, moisture, wind, and barometric pressure.)
2. What is *climate*? (*Climate* is the average weather over along period of time.)
3. What are some ways in which weather can be different? (Temperature, different kinds of precipitation, different kinds of wind, amount of cloud cover, humidity, and other factors.)
4. Why is the climate warmer around the equator than near the poles? (Sunlight is more concentrated at the equator.)
5. Why do seasons occur? (As the earth orbits the sun, the tilt of the earth causes some parts of the earth to get more sunshine during part of the year than at other times. For example, the northern part of the earth is tilted towards the sun during the summer, and away from the earth during the winter.)
6. What is *temperature*? (*Temperature* is how hot or cold it is.)
7. How can you measure temperature? (You can measure temperature with a thermometer.)
8. What is *condensation*? (*Condensation* occurs when water in the form of a gas or vapor turns into a liquid.)
9. How do clouds form? (Clouds form when water vapor in the atmosphere condenses to form tiny droplets.)
10. Why does it rain? (Tiny droplets of water in clouds come together to form bigger droplets that fall to the earth.)
11. Why does it snow? (It snows when water in clouds freezes.)
12. What is a *rain gauge* and how does it work? (A *rain gauge* measures the amount of rainfall by collecting water in a container where it can be measured.)



13. What is a *hurricane*? (A *hurricane* is a very strong wind with a speed of over 74 miles or 119 kilometers an hour.)
14. What is an *anemometer* and how does it work? (An *anemometer* measures wind speed by catching the wind in cups that spin around. By measuring how fast the cups spin, wind speed is measured.)

Applications and Activities

1. Shine a flashlight on a globe to show how a beam light is more concentrated around the equator than near the poles. Use a pencil or erasable marker to trace an outline on the globe to mark where the light hits near the middle of the globe and where it hits the top or bottom. This will make it even clearer how the same amount of light is spread out over a larger surface at the earth's poles than at the equator.
2. Schedule a tour at a weather station or invite a meteorologist to speak to the class.
3. Use a thermometer that has both Celsius and Fahrenheit markings to compare the two scales.
4. Match the names of tools used to study weather with its picture. (See INSTRUCTIONAL GRAPHICS.)
5. Identify countries with warm or cold climates. (See INSTRUCTIONAL GRAPHICS.)

SUMMARY

One of the first things we do each day is find out what kind of day it is. Is it sunny or raining? Is it windy? How cold or hot is it? We call what it's like outside "weather."

Explains that long-term weather patterns are what make up a locale's climate, and how climate, too, affects how we live. Contrasts the climate in southern Arizona to that of Vermont.

Describes how the sun is the source of heat on the earth and explains how seasons affect climate.

Introduces a television weatherman who describes how he depends on information gathered by meteorologists to make his forecasts. Shows how meteorologists use information from satellites, radar, and weather balloons. Shows how students can measure air temperature using a thermometer and explains how a thermometer works.

Focuses on why water is an important component of weather. Demonstrates how air is full of water even when it looks sunny.

Explains and demonstrates how clouds are formed. The weatherman shows how a rain gauge at a weather station works and how to create a rain gauge.

Lastly, shows different kinds of wind and explains that wind is moving air. Dramatic images of a hurricane show what happens when a wind is very strong. Explains how an anemometer measures wind speed at a weather station. Also demonstrates how students can make their own simple instrument to compare different kinds of wind. Ends with a summary.

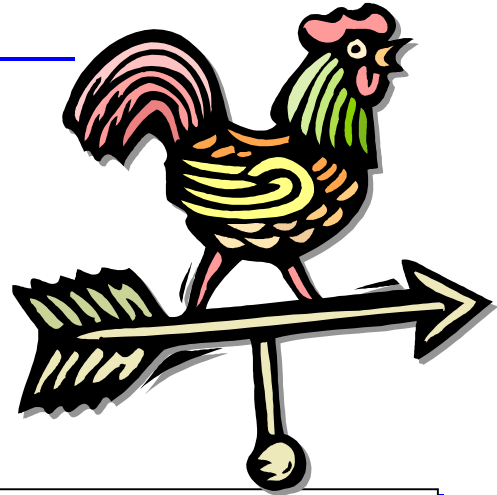


RELATED RESOURCES



Captioned Media Program

- Clouds #3021
- Meteorology: The Mystery of the Wind #8815
- Rain #3504
- Rainshower #2216
- Weather, A Film for Beginners #2141
- Wind: A First Film #3197



World Wide Web



The following Web sites complement the contents of this guide; they were selected by professionals who have experience in teaching deaf and hard of hearing students. Every effort was made to select accurate, educationally relevant, and "kid-safe" sites. However, teachers should preview them before use. The U.S. Department of Education, the National Association of the Deaf, and the Captioned Media Program do not endorse the sites and are not responsible for their content.

- **COOL CLOUDS FOR "KIDS" OF ALL AGES**

<http://pals.agron.iastate.edu/carlson/main.html>

Categories of photographs include "Clouds That Look Like Things," "Unusual Clouds," "Pretty Clouds," and more.

- **WEATHER RESOURCE FOR KIDS**

<http://www.wxduke.com/kidres.html>

Resource materials for kids to learn more about weather and other sciences. Click on "How to Become a Meteorologist," "Magic School Bus Interview About Water Cycle," print out "Weather Coloring Books," and more.

- **WEB WEATHER FOR KIDS!!**

<http://www.ucar.edu/40th/webweather/>

Predict weather. Make a thunderstorm, know how a tornado is formed, learn how lightning suddenly zaps down out of a cloud. Clear and simple instructions on how to do these activities.

- **MAKE YOUR OWN WEATHER STATION**

<http://www.fi.edu/weather/todo/todo.html>

"Keep Your Own Weather Journal," "Make Your Own Rain Gauge," "Make Your Own Weather Vane," and other projects to click on.

- **ARE YOU READY FOR A HURRICANE?**

<http://www.redcross.org/disaster/safety/hurrican.html>

From the Red Cross, explains the difference between a “watch” and “warning,” how to prepare for high winds, what to do when a watch or warning is issued, and more information.

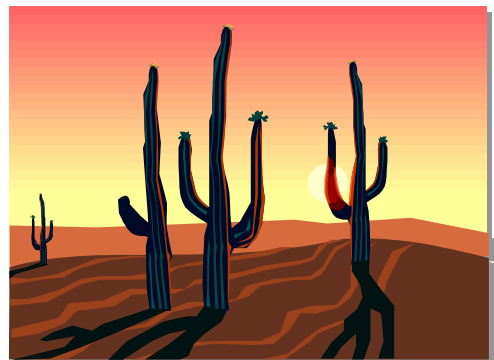
- **HURRICANE: STORM SCIENCE**

<http://www.miamisci.org/hurricane/hurricane0.html>

Easy-to-follow clickable photographs to learn what the inside of a hurricane is like, read each family member’s feelings on surviving a hurricane, learn about weather instruments, and other information.

INSTRUCTIONAL GRAPHICS

- WEATHER TOOLS
- CLIMATE SEARCH
- ANSWER SHEET



Weather Tools

We use many tools to study the weather.

Directions: Match the name of each tool on the left with its picture at the bottom.

1. **ANEMOMETER** uses spinning cups to measure the speed of the wind. 1. ____
2. **RADAR** shows where rain or clouds are located. 2. ____
3. **RAIN GAUGE** container that measures how much rain has fallen. 3. ____
4. **STEVENSON SCREEN** box that blocks sunlight from a thermometer and keeps it from getting too hot. 4. ____
5. **THERMOMETER** tells us the temperature. 5. ____
6. **WEATHER BALLOON** collects weather information in the sky and sends it back to the ground. 6. ____
7. **WEATHER VANE** shows the direction of the wind. 7. ____



A



B



C



D



E



F

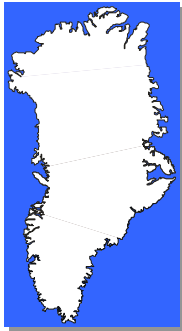


G

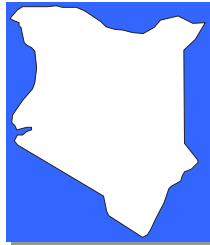
Climate Search

The equator is an imaginary line around the Earth, halfway between the North and South Poles. Places near the equator are warm. Places near the Poles are cold.

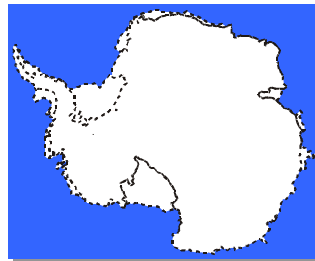
Directions: Find each place below on a map or globe. Write a "W" for places that are **WARM**. Write a "C" for places that are **COLD**.



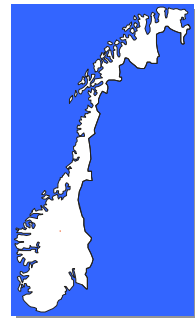
1. _____
Greenland, a large island in the Atlantic Ocean



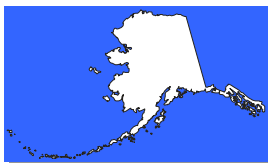
2. _____
Kenya, a country in Africa



3. _____
Antarctica, a continent



4. _____
Norway, a country in northern Europe



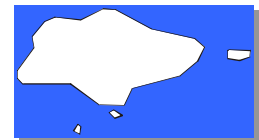
5. _____
Alaska, a state in the United States



6. _____
Costa Rica, a country in Central America



7. _____
Brazil, a country in South America



8. _____
Singapore, a small island country in Asia



Answer Sheet

Weather Tools

1. G **Anemometer** uses spinning cups to measure the speed of the wind.
2. E **Radar** shows where rain or clouds are located.
3. C **Rain gauge** container that measures how much rain has fallen.
4. A **Stevenson screen** box that blocks sunlight from a thermometer and keeps it from getting too hot.
5. F **Thermometer** tells us the temperature.
6. D **Weather balloon** collects weather information in the sky and sends it back to the ground.
7. B **Weather vane** shows the direction of the wind.

Climate Search

1. C **Greenland**, a large island in the Atlantic Ocean
2. W **Kenya**, a country in Africa
3. C **Antarctica**, a continent
4. C **Alaska**, a state in the United States
5. C **Norway**, a country in northern Europe
6. W **Costa Rica**, a country in Central America
7. W **Brazil**, a country in South America
8. W **Singapore**, a small island country in Asia