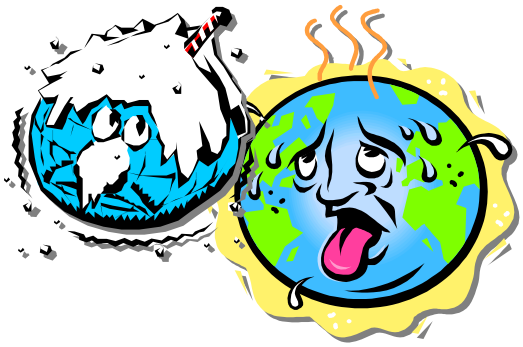

#8697

DETAILS OF WEATHER AND CLIMATE

Grade Levels: 4-10
20 minutes
CLEARVUE/EAV 1999

DESCRIPTION

What is the difference between weather and climate? What are the four variables that affect the earth's atmosphere? What are the major types of climates? Answers these questions while stressing the importance of weather and climate on the distribution of people, plants, and animals across the planet.

ACADEMIC STANDARDS

Subject Area: Earth and Space Sciences

- Standard: Understands atmospheric processes and the water cycle
  - Benchmark: Knows ways in which clouds affect weather and climate (e.g., precipitation, reflection of light from the Sun, retention of heat energy emitted from the Earth's surface)
  - Benchmark: Knows the composition and structure of the Earth's atmosphere (e.g., temperature and pressure in different layers of the atmosphere, circulation of air masses)

INSTRUCTIONAL GOALS

1. To name and give examples of the four major variables that define the conditions of the atmosphere and explain how they affect weather.
2. To differentiate between short-term conditions of weather and long-term conditions of climate.
3. To name the major types of clouds and discuss their impact on atmospheric conditions.
4. To describe how tornadoes and hurricanes develop and the conditions that produce them.
5. To name and define the three types of biomes in the United States.
6. To name and give examples of the different types of climates around the world.
7. To define *meteorology* and *climatology* and explain how these sciences help us to understand our atmosphere.
8. To discuss how weather and climate affect population distribution around the world and how technology has changed this distribution.
9. To discuss how climate may be affected by human activity.

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VOICE 800-237-6213 – TTY 800-237-6819 – FAX 800-538-5636 – WEB www.cfv.org
Funding for the Captioned Media Program is provided by the U. S. Department of Education

BACKGROUND INFORMATION

This video series is designed to teach and reinforce basic geography principles. *Details of Weather and Climate* will give an in-depth look at the earth's many different climates and the atmospheric conditions that cause them.

A discussion of the atmosphere and the major variables that define its conditions introduces the complexity of weather and climate. Many examples and footage from the earth's varied climate regions show the range of atmospheric conditions that exist at any given time across the planet. Learn about clouds and their impact on atmosphere, as well as the powerful storms that are associated with them such as tornadoes and hurricanes. Also learn about the importance of meteorology and climatology and how these sciences affect our lives.

A narrator takes a tour of the world's climates from the hot, dry desert to the humid tropics to the polar region's year-round chill. This program will give a new insight into everyday surroundings and help understand the impact that humans have on climate and weather.

VOCABULARY

1. atmosphere
2. biomes
3. climate
4. climatologists
5. clouds
6. cumulus clouds
7. deciduous trees
8. desert biome
9. desert climate
10. equator
11. fog
12. geography
13. global warming
14. highland climate
15. hurricanes
16. hydrography
17. Mediterranean climate
18. meteorology
19. moisture
20. polar climate
21. prairie biome
22. pressure
23. stratus clouds
24. subarctic climate
25. subtropical climate
26. temperate climate
27. temperature
28. tornadoes
29. tropical climate
30. weather
31. wind
32. woodland biome

BEFORE SHOWING

1. Ask students if they know in what climate they live. What is the name of the climate? Can they define *climate*? What are some other types of climate? Then ask them what the weather is like in their area.
2. Have any students lived in a very cold climate or very hot climate? What was it like? Have the students ever visited another country with different weather conditions?

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AFTER SHOWING

Discussion Items and Questions

1. What is the *atmosphere*? How do we know it is there?
2. What are the major variables that define the condition of the atmosphere? What are some examples of atmospheric conditions?
3. What is one of the main atmospheric features we can see that tells us about the weather on a given day? What kinds of clouds are there? What weather phenomena are most often associated with clouds?
4. What is a *tornado*? What is a *hurricane*? Ask the students if any of them have seen a tornado or hurricane in real life. Have they seen stories on the news about devastating storms? Encourage students to talk about the dangerous situations they may have seen and the overwhelming power of these storms. What is the distribution of storms across the planet?
5. What is *climate*? How is climate different from weather? What climate do they live in? What is the weather today? Is it consistent with the area's climate?
6. How does climate affect geographic features? What is *hydrography*?
7. What are *biomes*? What are the three major biomes in the United States? What is the difference between a biome and a climate?
8. Divide students into seven groups, giving each of them one of the climates outlined in the program. Have them discuss and write down:
   a. the description of their climate.
   b. the areas of the world where they know or think this climate exists.
   c. what would it be like to live there, including the clothing they would have to wear, the house in which they might live, and other factors.

   Then discuss each group's answers as a large group. Is there any climate in which students would prefer to live?
9. What is the study of weather phenomena? What is the study of weather patterns and their changes over time? How do many climatologists feel about human treatment of the planet as it relates to climate?
10. How has climate had an effect on human population distribution? What are some of the most and least populated areas in the world? Where does the majority of the world's population live?
11. What human activities may have an influence on climate? What could result from these activities? Promote a class discussion on the threat imposed by human destruction of the environment. What will it mean to have the climate and weather change? How will that affect humans and other organisms? Is there anything we can do to prevent that from happening?

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RELATED RESOURCES

Captioned Media Program

- Atmosphere: On the Air #3213
- Global Temperature and Climate #8737
- Weather: The Chaos Which Surrounds Us #3532

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.

- **BAY KIDS' WEATHER PAGE**

http://tqjunior.thinkquest.org/3805/

Various topics to chose from this ThinkQuest Junior site. "Weather Events," "Weather Jokes," "Weather Myths," "Weather Recipes," and more.

- **CLOUDS THEME PAGE**

http://www.cln.org/themes/clouds.html

Click on "All About Clouds," "Cloud Gallery," "Observing Clouds," and more to learn about clouds.

- **THE WEATHER CHANNEL**

http://www.weather.com/

Keep up to date with "Breaking Weather," read top stories, know your local pollen count, and more.

- **NATIONAL WEATHER SERVICE**

http://www.nws.noaa.gov/

Direct access to the United States' official weather forecast and observations. Know the national and international weather, 20-minute update from the "Storm Prediction Center," weather maps, and other information.

- **GLOBAL HYDROLOGY AND CLIMATE CENTER**

http://www.ghcc.msfc.nasa.gov/

A joint venture between government and academia to study the global water cycle and its effect on climate. Click on "Climate Impacts" to know the long- and short-term effects.