



#3672

TORNADO

Grade Levels: 4-12

30 minutes

AMBROSE VIDEO PUBLISHING 1996

DESCRIPTION

Tornados, the most violent weather phenomena on earth, can occur anywhere in the world. Most, however, happen in the United States in Tornado Alley, the states of Texas, Oklahoma, and Kansas. Briefly relates the weather conditions necessary to produce tornados. Ride with storm chasers as they pursue these violent storms. Eyewitness accounts, time-lapse photography, and film footage capture the destructive power of tornados.

ACADEMIC STANDARDS

Subject Area: Geography

- ◆ Standard: Knows the physical processes that shape patterns on earth's surface
 - Benchmark: Understands how physical processes affect different regions of the United States and the world (e.g., effects of hurricanes in the Caribbean Basin and the eastern United States or of earthquakes in Turkey, Japan, and Nicaragua; effects of desertification and soil degradation, flash floods, dust storms, sand movement, soil erosion and salt accumulation in dry environments) (See Instructional Goal #4)

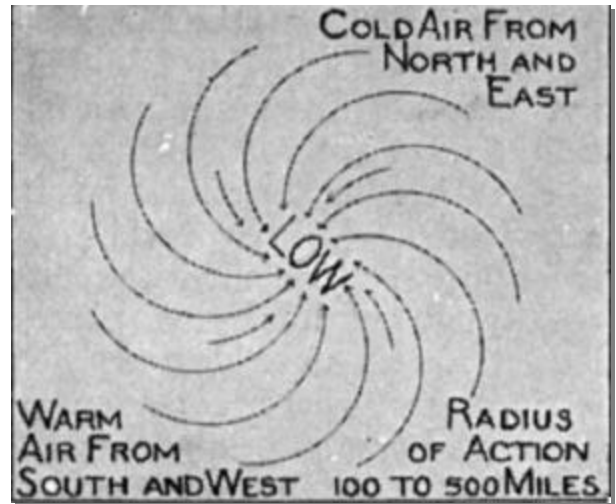
Subject Area: Science

- ◆ Standard: Understands basic features of the earth
 - Benchmark: Knows that short-term weather conditions (e.g., temperature, rain, snow) can change daily, and weather patterns change over the seasons (See Instructional Goal #1)
 - Benchmark: Knows that weather and climate involve the transfer of energy in and out of the atmosphere (See Instructional Goals #1, #2)
- ◆ Standard: Understands the scientific enterprise
 - Benchmark: Knows that people of all backgrounds and with diverse interests, talents, qualities, and motivations engage in fields of science and engineering; some of these people work in teams and others work alone, but all communicate extensively with others (See Instructional Goal #3)

- ◆ Standard: Understands the nature of scientific inquiry
 - Benchmark: Knows that scientists use different kinds of investigations (e.g., naturalistic observation of things or events, data collection, controlled experiments), depending on the questions they are trying to answer (See Instructional Goal #3)

INSTRUCTIONAL GOALS

1. To explain the characteristics of tornados and how they are formed.
2. To depict the destructive capabilities of tornados.
3. To show how scientists and others work together to study tornados and to show the equipment and technology they employ in their study.
4. To identify the region of the United States that is most affected by tornados.



VOCABULARY

- | | |
|---------------------|-------------------------|
| 1. American Midwest | 6. phenomena/phenomenal |
| 2. storm chasers | 7. violent |
| 3. funnel | 8. radar |
| 4. thundercloud | 9. forecast |
| 5. Tornado Alley | 10. convection |

BEFORE SHOWING

1. Elicit background knowledge about tornados and their destruction.
2. Share personal stories related to tornados. Include tornado preparations, safety, and the aftermath.
3. Locate Tornado Alley in Texas, Kansas and Oklahoma on a map of the United States.

DURING SHOWING

1. View the video more than once, with one showing uninterrupted.
2. Pause after the introduction of both of the storm chaser groups. Point out how well the groups are equipped. Impress on the viewers that storm chasing can be dangerous and requires training.



3. Pause after the first survivor explains how he laid under an overpass during a tornado. Safety experts recommend getting down in a ditch, not into an overpass. Point out the danger of being in a car.

AFTER SHOWING

Discussion Items and Questions

1. Discuss why tornados are considered the most violent weather phenomena on earth.
2. Identify the three states of the Tornado Alley. List the three months that are considered the worst for tornados.
3. Explain how tornados are formed. Describe some of the different shapes tornados can have.
4. Out of 100 tornados, how many are weak, how many are strong, and how many are exceptionally powerful?
5. About how many tornados occur in Tornado Alley each year?
6. Describe the different kinds of equipment the storm chasers used. Discuss how deaf people could participate in a project like this.
7. What did the bank employees do that probably saved their lives?
8. Why is finding a tornado like "looking for a needle in a haystack"?



Applications and Activities

1. Research tornado safety precautions. Make safety posters or create a book of safety rules for various situations. Role-play the safety recommendations.
2. Locate tornado statistics for specific states or regions. Make a chart to compare the statistics. Rank the areas in order to show the most dangerous areas and the safest areas.
3. Invite someone with personal tornado experience to speak to the class.
4. Visit a weather station. Ask the meteorologist to explain the various pieces of equipment. Get a close look at a weather balloon. Discuss storm specifics for the local area.
5. Research specific tornados over the last few years. Compile the statistics and compare the data.
6. Identify tornado myths or misconceptions.
7. Review cloud formation and how cold and warm fronts of air interact. Study weather maps on the TV news or in the newspaper. Practice predicting storm fronts. Role-play weather forecasting.
8. Contact a local disaster agency or the Red Cross for disaster emergency plans for the local area.
9. Compile statistics for different types of storms, noting their causes, locations, and effects. Analyze the data and compare the storms.

10. Make a "tornado" vortex in a bottle.
 - a. Fill an empty two-liter soda bottle about two-thirds full of water. As an option, add bits of paper or a little food coloring.
 - b. Tape a second empty two-liter soda bottle to the first bottle, mouth-to-mouth, with electrical or duct tape. A washer with a 3/8-inch (9.5 mm) hole may be inserted between them.
 - c. Turn the bottles so that the filled bottle is on top and rapidly rotate the bottles in a circle a few times.
 - d. Place the bottle assembly on a table. Observe the formation of a funnel-shaped vortex.
 - e. Flip the bottle assembly over to repeat the experiment.



RELATED RESOURCES



Captioned Media Program

- Improving Weather Management #2188
- Lightning #3628
- Understanding Weather: Storms #2692
- Weather: The Chaos Which Surrounds Us #3532
- The Wonderful Weather Machine #2344

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.

- **TORNADOES: NATURE'S MOST VIOLENT STORMS**

www.nws.noaa.gov/om/tornado.htm

This National Weather Service and NOAA Web site has much information about the basics of preparedness and safety. It loads in text format or full graphic format.

- **STORM SPOTTER'S GUIDE**

www.srh.noaa.gov/oun/skywarn/spotterguide.html

The National Oceanic and Atmospheric Administration provides detailed information about tornados along with their storm spotter training information. Photographs and graphics.

- **THE TORNADO PROJECT ONLINE**

www.tornadoproject.com/index.html#top

This commercial site has a great deal of basic tornado information. It also deals with tornado statistics, safety, storm chasing, personal stories, myths, and more.

- **THE WHY FILES: TORNADOES**

<http://whyfiles.news.wisc.edu/013tornado/index.html>

This site, designed for students, covers these topics: what are tornados, tornado energy, prediction, and safety.

- **TWISTERS**

<http://tjjunior.thinkquest.org/4232/index.htm>

ThinkQuest Junior offers this student Web site that covers general information about tornados, how they are measured, survivors' stories, and a photograph gallery.

