



Lesson Plan: The Fury of Nature: Hurricanes and the Gulf Coast (Social Studies and Science, Grades 9-12)

Objective

Using prior knowledge of natural disasters, students will interpret primary source footage and documents through analyzing the impact of Hurricane Beulah on the Gulf Coast. Students will further analyze natural disasters by comparing the effects and responses to Hurricane Beulah and Hurricane Katrina.

Process

Prior Knowledge

1. The following activity assumes that students have a basic understanding of extreme weather and natural disasters such as hurricanes, tornados, and floods.
 2. Students should know that Texas' diverse landscape is susceptible to many types of extreme weather.
 3. Students should have a basic familiarity of both current and historical hurricane activity in the Gulf Coast. A basic working knowledge of Hurricane Katrina and Hurricane Sandy is assumed.
- OPTIONAL: Have students complete the *Natural Disaster Frayer Model* worksheet (<http://www.texasarchive.org/lessonplans/ndfm.pdf>) to engage their prior knowledge of natural disasters.

Hook

1. Ask students to recount any experiences they have had with hurricanes or other major natural disasters. Ask questions that elicit details, such as: What did each student do to prepare for the event? Did the student stay in his home or go somewhere else for shelter? How did the student and her family decide to what to do? What was the student's experience before, during, and after the event? How did the student feel?
2. As a class, brainstorm the ways one prepares for a hurricane or other natural disaster. After creating the list, ask the students to think about how they know to do these things. Ask them to think critically about who has the knowledge of impending natural disasters and what methods the community has for alerting and informing the population. Ideally, how should local, state, and federal resources respond before, during, and after the event?



TEXAS ARCHIVE
OF THE MOVING IMAGE

Lesson

1. Students will watch three films showing the devastation caused by Hurricane Beulah, found at the Teach Texas Category page/ Fury of Nature
 - a. *Angry Waters: Worst Flood in Texas History*
([http://www.texasarchive.org/library/index.php/Angry_Waters - Worst Flood in Texas History](http://www.texasarchive.org/library/index.php/Angry_Waters_-_Worst_Flood_in_Texas_History))
 - b. *Floods: Hurricane Aftermath Kills 11 in Texas*
([http://www.texasarchive.org/library/index.php/Floods - Hurricane Aftermath Kills 11 in Texas](http://www.texasarchive.org/library/index.php/Floods_-_Hurricane_Aftermath_Kills_11_in_Texas))
 - c. *Mexican Refugees Return Home*
([http://www.texasarchive.org/library/index.php/Mexican Refugees Return Home](http://www.texasarchive.org/library/index.php/Mexican_Refugees_Return_Home)).
2. Questions for discussion: have students respond to questions a and b with the instructor, and answer c and d on their own paper.
 - a. Why do communities commonly flood after hurricanes?
 - b. How can flooding be prevented?
 - c. After viewing the film(s), what similarities do you see between this footage and scenes from Hurricane Katrina or another recent natural disaster?
 - d. What is the reaction of the children in the video? Why is this surprising?
 - e. How is the government responding to the aftermath of the hurricane? How is the community responding?
 - f. What is the importance and significance of emergency relief in disaster situations?
3. Reading to understand:
 - a. Have students read the following articles. The first article recounts local survivors of Hurricane Beulah, while the second describes the experiences of a man who lived through Hurricane Katrina in 2005.
 - i. Nelsen, Aaron. "40 Years Later: Memories of Hurricane Beulah Still Vivid in Minds of Survivors." Brownsville Herald 16 Sept. 2007. 2 July 2009
(<http://www.brownsvilleherald.com/articles/hurricane-80279-storm-beulah.html>)
 - ii. Homan, Michael. "One of the Millions of Hurricane Katrina Stories." Weblog post. Michael Homan. 5 Sept. 2005. 2 July 2009
(<http://michaelhoman.blogspot.com/2005/09/one-of-millions-of-hurricane-katrina.html>).
 - b. Students will answer the following questions on their own for use with small group or class discussion:
 - i. What was the most devastating part of the storm for the survivors of Hurricane Beulah?



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- ii. How did the stories of people in Hurricane Beulah differ from one another? Who seemed to be the most affected by it?
- iii. What social factors explain why some people were greatly affected and others were only mildly worried?
- iv. Provide three examples of how Hurricane Beulah and Hurricane Katrina were similar.
- v. Provide three examples of how the two hurricanes were different.
- vi. After viewing the film and reading backgrounds about the survivors, how have reactions towards hurricanes changed in the past 50 years?
- vii. How did Hurricane Beulah directly affect hurricane response in Texas?
- viii. Why do disaster relief and recovery seem to take such a long time? How do you think Hurricane Katrina has affected the future of American response to a natural disaster?
- ix. How can the tragic aftermath of Hurricane Katrina be prevented the next time a major storm threatens the United States?

Films

- *Angry Waters: Worst Flood in Texas History:*
[http://www.texasarchive.org/library/index.php/Angry_Waters -
Worst Flood in Texas History](http://www.texasarchive.org/library/index.php/Angry_Waters_-_Worst_Flood_in_Texas_History)
- *Floods: Hurricane Aftermath Kills 11 in Texas:*
[http://www.texasarchive.org/library/index.php/Floods -
Hurricane Aftermath Kills 11 in Texas](http://www.texasarchive.org/library/index.php/Floods_-_Hurricane_Aftermath_Kills_11_in_Texas)
- *Mexican Refugees Return Home:*
[http://www.texasarchive.org/library/index.php/Mexican Refugees Return Ho
me](http://www.texasarchive.org/library/index.php/Mexican_Refugees_Return_Home)

Accompanying Worksheets

- *Natural Disaster Frayer Model:*
<http://www.texasarchive.org/lessonplans/ndfm.pdf>

Resources

- http://www.climate.noaa.gov/index.jsp?pg=/education/edu_index.jsp&edu=literacy: National Oceanic and Atmospheric Administration (NOAA) Education Web page featuring a downloadable Climate Literacy Guide, streaming climate literacy presentations, and other environmental literacy educational materials



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- <http://www.climate.noaa.gov/education/hurricanes/stormsurge.pdf>: NOAA document *Storm Surge* contains student activities and teacher resources related to hurricane flooding
- <http://environment.nationalgeographic.com/environment/natural-disasters/forces-of-nature.html?section=h>: National Geographic site with an interactive lab, a map of historical hurricanes, and a case study featuring photos and video footage of the 1900 Galveston hurricane
- <http://earthobservatory.nasa.gov/Features/Hurricanes/>: NASA Web site detailing the science behind hurricanes
- <http://www.lamer.lsu.edu/resources/hurricanes.htm>: links to educational resources about hurricanes on the Web, including sites for kids, general hurricane information, teacher resources, data and research, hurricane images, and special sections on Hurricane Katrina
- http://serc.carleton.edu/research_education/katrina/: Internet resources for teaching about Hurricane Katrina topics including physiography, human impacts and development, aftermath of the storm, and human health concerns

TEKS

US History Studies Since 1877

3C - Analyze social issues affecting women, minorities, children, immigrants, urbanization, the Social Gospel, and philanthropy of industrialists

14A - Identify the effects of population growth and distribution on the physical environment

29A - Use a variety of both primary and secondary valid sources to acquire information and to analyze and answer historical questions

29C - Understand how historians interpret the past (historiography) and how their interpretations of history may change over time

World Geography

2A - Describe the human and physical characteristics of the same regions at different periods of time to evaluate relationships between past events and current conditions

3A - Explain weather conditions and climate in relation to annual changes in Earth-Sun relationships



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3B - Describe the physical processes that affect the environments of regions, including weather, tectonic forces, erosion, and soil-building processes

8B - Describe the interaction between humans and the physical environment and analyze the consequences of extreme weather and other natural disasters such as El Niño, floods, tsunamis, and volcanoes

19B - Analyze ways technological innovations such as air conditioning and desalinization have allowed humans to adapt to places

21A - Analyze and evaluate the validity and utility of multiple sources of geographic information such as primary and secondary sources, aerial photographs, and maps

United States Government

2A - Give examples of the processes used by individuals, political parties, interest groups, or the media to affect public policy

8G - Explain the major responsibilities of the federal government for domestic and foreign policy such as national defense

8H - Compare the structures, functions, and processes of national, state, and local governments in the U.S. federal system

Environmental Systems

3D - Evaluate the impact of research on scientific thought, society, and the environment

5E - Analyze and evaluate the economic significance and interdependence of resources within the environmental system

8A - Analyze and describe the effects on areas impacted by natural events such as tectonic movement, volcanic events, fires, tornadoes, hurricanes, flooding, tsunamis, and population growth

U.S. History

12A - Analyze the impact of physical and human geographic factors on the settlement of the Great Plains, the Klondike Gold Rush, the Panama Canal, the Dust Bowl, and the levee failure in New Orleans after Hurricane Katrina



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14A - Identify the effects of population growth and distribution on the physical environment

14B - Identify the roles of governmental entities and private citizens in managing the environment such as the establishment of the National Park System, the Environmental Protection Agency (EPA), and the Endangered Species Act

29A - Use a variety of both primary and secondary valid sources to acquire information and to analyze and answer historical questions

29B - Analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing and contrasting, finding the main idea, summarizing, making generalizations, making predictions, drawing inferences, and drawing conclusions

29H - Use appropriate skills to analyze and interpret social studies information such as maps, graphs, presentations, speeches, lectures, and political cartoons