When Nature Strikes: Natural Hazards Safety Booklet

Students learn important life-saving tips about natural disasters and create informative booklets.

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Grade Level: 6-8
Duration: 3-4 class periods

National Geography Standards

ELEMENT TWO: PLACES AND REGIONS
4. The physical and human characteristics of places.

ELEMENT FIVE: ENVIRONMENT AND SOCIETY
15. How physical systems affect human systems.

Arizona Geography Strand

Concept 3 Physical Systems
Grade 6
Science Strand 3 Concept 1
Evaluate the effects of, and describe how people plan for and respond to natural disasters.

Grade 7
Science Strand 6 Concept 2
Relate plate tectonics to the resulting landforms and earthquakes.

Concept 5 Environment and Society
Grade 6
PO 4 Identify the way humans respond to/prepare for natural hazards (i.e., lightning, flash floods, dust storms, tornadoes, hurricanes, floods, and earthquakes) in order to remain safe.

Grade 7
PO 2 Describe the consequences of natural hazards (e.g., Dust Bowl hurricanes, droughts, earthquakes).

Grade 8
PO 3 Explain how changes in the natural environment can increase or diminish its

Other Arizona Standards

Reading Standards for 6-8 for Literacy in History/Social Studies
Key Ideas and Details
6-8.RH.1 Cite specific textual evidence to support analysis of primary and secondary sources.
6-8.RH.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

Integration of Knowledge and Ideas
6-8.RH.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

Writing Standards for 6-8 for Literacy in History/Social Studies, Science, and Technical Subjects
Text Types and Purposes
6-8.WHST.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas.
capacity to support human activities (e.g., global warming, pollution, mining, natural disasters, water table).

PO 6 Explain how societies and governments plan for and respond to natural disasters (e.g., evacuation routes, changing farming techniques, warning systems).

d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
e. Establish and maintain a formal style and objective tone.
f. Provide a concluding statement or section that follows from and supports the information or explanation presented.

Production and Distribution of Writing
6-8.WHST.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
a. Produce clear and coherent functional writing (e.g., formal letters, envelopes, procedures, labels, timelines, graphs/tables, experiments, maps, captions, charts, diagrams) in which the development, organization, and style are appropriate to task, purpose, and audience.
6-8.WHST.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Research to Build and Present Knowledge
6-8.WHST.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
6-8.WHST.9 Draw evidence from informational texts to support analysis, reflection, and research.

Strand 2 World History
Concept 9: Contemporary World
Grade 7 and 8
PO 3. Analyze how world events of the late 20th century and early 21st century (e.g., terrorism, globalization, conflicts, interdependence, natural disasters, advancements in science and technology, environmental issues) affected, and continue to affect, the social, political, geographic, and economic climate of the world.

Science Standard
Strand 3 Science in Personal and Social Perspectives
Grade 6
Concept 1 Changes in Environments
PO 1 Evaluate the effects of the following natural hazards:
  • sandstorm
  • hurricane
  • tornado
  • ultraviolet light
  • lightning-caused fire
Overview

Physical systems often affect human systems. This is especially evident when the impact of natural disasters on humans is observed. It is important for students to be aware of the dangers of environmental hazards such as flash floods, tornadoes, hurricanes, and earthquakes. Since these disasters often strike with little warning, students who know what to do in the face of such dangers, will be more likely to avoid property damage and, most importantly, personal injury.

Purpose

In this lesson, students will complete a reading on environmental hazards and safeguards, take notes, and create a safety booklet. Use of the Internet is encouraged.

Materials

- Safety Booklet Tips
- Pencil, colored pencils, drawing paper, and notebook paper
- Natural Hazards Safety Tips T-chart for notetaking
- How to Stay Safe When Nature Strikes Web diagram for notetaking
- Natural Environment Safety Hazards Article
- Safety Booklet Project Guidelines
- Safety Booklet Project Diagram
- Safety Booklet Project Scoresheet
- When Nature Strikes Writing Rubric

Objectives

The student will be able to:

- read for details about various natural disasters.
- take notes using a T-chart or web diagram.
- create an illustrated natural hazards safety booklet. (The booklet will both illustrate and describe how natural disasters are related to the Human/Environment Interaction theme of geography.)

Procedures

SESSION ONE

1. Assist the class in brainstorming types of natural hazards and list them on the board or overhead.

2. Ask students how many of them have personally experienced one or more of these dangerous conditions. As students respond, put check marks next to the conditions.

3. Briefly review the Five Themes of Geography (Location, Place, Human Environment Interaction, Movement, and Regions) with students. Ask the question: "Living with natural hazards is most closely related to which theme of geography?" Answer: Human Environment Interaction. HEI encompasses the ways that humans depend upon, change, and adapt to their environment. Conversely, HEI also includes the environment's impact, both positive and negative, on humans. Note: Students may also suggest other themes. For example, there are certain regions of the world where various natural hazards are most prevalent such as Tornado Alley in the Midwest or the San Andreas Fault in California.

4. Adapt or Change? Remind students that humans can either change their environment or adapt to it. For example, people adapt to their environment by wearing warm clothing in cold weather. People who live in the desert must adapt by finding ways to irrigate their crops. Sometimes humans are able to change their environment. For example, people can build a road through a mountain by blasting a tunnel or they can cut down a forest to build cities or to clear the land for farming.
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Ask students to look at the list of natural hazards that was generated at the beginning of class. Then pose the following question: "Do humans adapt to natural hazards or can they change them?" Discuss student answers.

5. Response Corners: Select 4 of the natural hazards (e.g., tornadoes, flash floods, hurricanes, and lightning) and label the four corners of the room with the names of these hazards. Then pose the following: "In many cases, humans cannot prevent natural disasters from occurring, therefore they have to adapt to them. Would you know what precautions to take and how to keep yourself and your family safe in hazardous conditions? Look at the four natural hazards posted in the corners of the room. Of these four, which do you feel you know the most about when it comes to safety?"

Direct students to jot down their choice. Instruct students to walk to the corner of the room that corresponds with their choice. Briefly discuss student choices.

6. Outline Note-taking: Explain that students are not likely to encounter all of these natural hazards in their own neighborhoods. Because students never know in what part of the state, nation, or country they are likely to find themselves, it is important for them to know how to keep safe in each situation. Distribute the Natural Environment Safety Hazards article. Explain to students that while they read the article, they need to take notes using either a web diagram or main idea/detail T-note format. It is suggested that students include in their notes at least 4 safety points for each natural hazard. (Note: If students are not familiar with note taking, this is a good lesson in which to introduce it.) Natural Hazards Safety Tips T-chart for notetaking is provided, as well as How to Stay Safe When Nature Strikes Web diagram.

SESSION TWO

1. Natural Hazards Safety Booklet: Explain to students that they will write and illustrate a safety booklet that will inform others about the precautions that must be taken in the face of natural disasters. Distribute copies of the Safety Booklet Project Guidelines and Safety Booklet Project Diagram to students, explaining step by step how to create the Safety Booklet. Students should use their T-notes or Web Diagram of safety precautions/tips as a resource for the written sections of their safety booklets.

2. Emphasis on Writing Skills: Before students begin writing, decide which writing skills should be emphasized for this project and review them with the class. Below are several recommended areas of focus.
   ~ Write in complete sentences.
   ~ Start each sentence with a capital letter.
   ~ End sentences with periods or other punctuation.
   ~ Use a comma for introductory clauses.
   (Example: If you are near a flash flood area, get to higher ground.)

   ~ Watch for these spelling errors: a lot (two words) vs. alot your vs. you're (remember how these are used) their vs. there vs. they're weather vs. whether

3. Distribute the Safety Booklet Student Checklist and discuss the criteria for the components of the Safety Booklet. Remind students that the booklet will be graded on all six writing traits on the When Nature Strikes Writing Rubric A score of 4 or higher indicates mastery level for that particular writing trait.

SESSION THREE

1. If needed, allow students to continue working on their safety booklets. If Internet access is available, students might research the topics further using the sources cited later. They can incorporate internet information and photos into their booklets. Be sure to remind them to note their website sources.

Assessment

Natural Hazards Safety Tips T-chart for notetaking and How to Stay Safe When Nature Strikes Web diagram for notetaking can be graded for accuracy and completeness.

The Safety Booklet can be assessed on all six writing traits based upon the When Nature Strikes 6-point rubric. A score of 4 or higher indicates mastery level for that particular writing trait. OR The Safety Booklet can be graded with the Safety Booklet Project Scoresheet. Mastery will be considered 80% or higher.

Extensions

Nature in the News: Post a map of the world in the classroom and encourage students to read newspapers and newsmagazines for current event articles about natural disasters. Students then post
the articles near the map and mark the location of each event with a color-coded map sticker to indicate each type of disaster. Encourage students to look for various regional patterns.

Visit the website called "Web Weather for Kids!" at the address: http://www.ucar.edu/40th/webweather/ This site provides opportunities to make thunderstorms, lightning, hear thunder, and make tornadoes, as a way of helping them learn how these processes work.

Sources

Internet Sources
USGS Natural Hazards
https://geohazards.usgs.gov/
The Natural Hazards Mission Area is responsible for coordinating USGS response following disasters and overseeing the bureau's emergency management activities. Includes links to information on earthquake hazards, geomagnetism, landslide hazards and volcano hazards.

USGS Water Resources of the US
http://water.usgs.gov/floods/resources/

Map Resources
Disastrous Flash Floods: Number of Fatalities in 2013

Disastrous Heat Extremes: Number of Fatalities in 2013

Disastrous Lightning: Number of Fatalities in 2013

Disastrous Tornadoes: Number of Fatalities in 2013

Book Sources


