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MELTDOWN AT CHERNOBYL

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World Geography Academy – Session I
Thursday, October 11, 2012
University of Oklahoma, Norman

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MELTDOWN AT CHERNOBYL

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Grade Level: 6th – 8th Grade

Purpose/Overview:

Students will define what a nuclear explosion is.

Students will locate where the Chernobyl Nuclear Disaster occurred on a map.

Students will analyze the affects such an event would have on the environment, not only where it takes place, but in distant places as well, by viewing a video and examining a National Geographic article.

Students will determine the changes in the environment of places distant from the explosion site, and organize these affects in a poster project.

National Geography Standards from *Geography for Life*

Geographic Elements & Standards:

Environment and Society --

14: How human actions modify the physical environment

Oklahoma C³ Standards:

Grade 7 World Geography: Eastern Hemisphere

Literacy Skills Standard 1: The student will develop and demonstrate Common Core Social Studies reading literacy skills.

A.1. Cite specific textual evidence to support analysis of primary and secondary sources.

A.2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.

Content Standard 5: The student will analyze the interactions of humans and their environment in the Eastern Hemisphere.

2. Evaluate the effects of human modification of and adaptation to the natural environment including the

E. Benefits and dangers of nuclear power generation as exemplified by the environmental disaster at Chernobyl.

Geographic Themes: Location, Place, Movement, and Human-Environment Interaction

Objectives:

Students will:

1. Analyze the facts surrounding the accident at the Chernobyl nuclear complex in 1986.
2. Identify the causes and consequences of the accident at Chernobyl.

3. Examine the potential benefits and environmental risks of nuclear power and the effects of a nuclear accident.

Materials:

NOVA Video – *Back to Chernobyl part 1* on YouTube

NOVA Video Questions Worksheet

“*Chernobyl – One Year After*” from *National Geographic Magazine*, May 1987

Outline Map of Europe

Nystrom Classroom Atlas

Colored Pencils

Pencils

Internet access

LCD projector, computer and screen

Time Frame: 3 class periods

Procedures:

Day 1

1. Ask students if they know what nuclear power or energy is. Brainstorm how this type of energy could be helpful and/or harmful to humans and the environment.
2. Ask students if the knowledge of a radioactive leak would change their views on visiting or doing things that were affected by this, such as going to a beach, drinking water or milk, or playing out in the rain. Discuss.
3. Show the NOVA Video "Back to Chernobyl – part 1" from YouTube (10 minutes).
4. Have students answer the questions on the NOVA Video worksheet as they view the video.
5. Review the answers to the video questions. Have students make any corrections in their answers in a different color pencil on their papers as the class discussion continues.
6. Explain to students that this explosion of radioactive contaminants still has hazardous affects today. Ask students to give examples of what some affects could be.

Day 2/3

1. Hand out an outline map of Europe and classroom atlases. Have students identify the location of the Ukraine on the map and color it RED.
2. Ask students to shade lightly in PINK the area on the map they think was affected by the radioactive contaminants. (The shaded area should extend to the northwest from Chernobyl over Eastern Europe and Scandinavia.) Show an actual map of the affected area for comparison and make corrections on their maps if necessary.
3. Determine how far the affects of the disaster reached by having students make symbols to place on their maps to identify human effects, livestock effects, and agricultural effects.
4. Discuss patterns revealed by the symbols on the students' maps. Discuss how this incident affected other countries and physical features in that area.
5. Identify chains of events that took place after the accident by discussing some of these questions:
 - a. Which countries and bodies of water were affected?

- b. How were daily lives of its people affected in these places?
- c. What environmental changes occurred near Chernobyl?
- d. What environmental changes occurred farther from Chernobyl?
- e. How much time must pass before places affected by a nuclear disaster have returned to the way things were before the accident?

Assessment Options:

Have students use the map created in class to choose a country affected by the nuclear disaster at Chernobyl. Create a poster showing the affected of the disaster of this chosen country using pictures and descriptions of what we see.

Extension and Enrichment:

Conduct an online search to learn the latest affects of the Chernobyl disaster or to see if and/or how the area affected initially has recovered over the years.

Connections:

Science, History

Resources:

Publications

“Chernobyl – One Year After” -- *National Geographic Magazine*, May 1987

Videos

NOVA *Back to Chernobyl part 1* on YouTube

<https://www.youtube.com/watch?v=ct1NaSAmiuQ>

Websites

World Nuclear Association: Chernobyl Accident 1986

<http://www.world-nuclear.org/info/chernobyl/inf07.html>

National Geographic Education Beta - MapMaker

<http://education.nationalgeographic.com/education/mapping/interactive-map/>

World Atlas - Europe

<http://www.worldatlas.com/webimage/countrys/eu.htm>

Back to Chernobyl part 1

Video Questions

1. What is a “nuclear disaster” according to the video? Describe below.
2. Where did this nuclear disaster happen?
3. When did this nuclear disaster occur?
4. What caused this nuclear disaster?
5. Who, if anyone, is to blame?
6. What were the immediate results of the disaster?
7. Who was affected by this nuclear disaster?
8. How were they affected by this disaster?
9. What were the long term results of this nuclear disaster?
10. Could a disaster like this happen in the United States?
11. How could we make sure that such an event does not happen here?



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