

# QUESTIONING CHERNOBYL

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**Grade Level:** 7<sup>th</sup> Grade

## **Purpose/Overview:**

The nuclear accident at Chernobyl, Ukraine, had immediate as well as long-lasting affects on people throughout the western part of the former Soviet Union as well as throughout Europe. Students will study the reasons for using nuclear power as an energy source as well as the potential dangers.

## **National Geography Standards from *Geography for Life***

### **Geographic Elements & Standards:**

Environment and Society –

14. How human actions modify the physical environment

## **Oklahoma Academic Standards for the Social Studies:**

### **Grade 7 World Geography: Eastern Hemisphere**

#### **7.PALS.1.A.1:**

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.

#### **7.CS.1.2:**

Content Standard 1: The student will analyze data from a geographic perspective using the skills and tools of geography.

2. Integrate visual information, draw conclusions, and make predictions from geographic data and analyze spatial distribution and patterns by interpreting that data as displayed on globes, graphs, charts, satellite and other forms of visual imagery including data from bar and line graphs, pie charts, thematic maps, population pyramids, climographs, cartograms, contour/relief maps, GIS systems, and diagrams.

#### **7.CS.5.3.E:**

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

3. Integrate visual information to analyze regional problems and policies having spatial dimensions in the Eastern Hemisphere including the
  - E. Benefits and dangers of nuclear power generation as exemplified by the environmental disaster at Chernobyl.

**Geographic Theme:** Human-Environment Interaction

## **Objectives:**

Students will strengthen their skills in asking meaningful questions about topics, and will analyze written information, finding evidence in order to answer those questions. The students will also

evaluate the similarities and differences between the causes and effects of the Chernobyl and Fukushima nuclear power plant accidents.

**Materials:**

Computer/Projector

“Thin and Thick Questions” student paper, one per student (or one per pair, if you prefer)

PowerPoint: “Inquiring Minds Want to Know – Thick and Thin Questions”

“Chernobyl Nuclear Power Plant: The Accident” four-page article, enough copies for all students OR loaded as a document onto tablets

PowerPoint: “In the Shadow of Chernobyl: Ghost Town of Pripjat”

PowerPoint: “Chernobyl Nuclear Power Plant Accident”

PowerPoint: “Fukushima”

“Life in Fukushima radioactive exclusion zones” three-page article, enough copies for all students OR loaded as a document onto tablets

Compare/Contrast graphic organizer, one per student

**Time Frame:** one to two 50-minute class periods

**Procedures:**

1. Do NOT tell students that the lesson is about Chernobyl or about any type of disaster.
2. If the teacher desires to have students work together, pair students before lesson begins.

*Thick and Thin Questions*

3. Distribute “Thick and Thin Questions” papers to students.
4. Show the PowerPoint, “Inquiring Minds Want to Know – Thick and Thin Questions” – and be mysterious!
5. Show the first photo of the PowerPoint, the one with abandoned bumper cars. (Do NOT tell them what it is.) Give them 90 seconds to write down as many questions as they would like to ask about the photo.
6. Discuss their “most interesting” questions, as directed on the next photo of the bumper cars. (Still do not tell them what the picture is. You will not tell them what any of the photos actually are until later in the lesson.)
7. Move on to slide #4 (broken pianos). Discuss how the two questions differ from one another.
8. Use slides #5-8 to talk through the differences between “thick” and “thin” questions.
9. Although slides #9 and #10 have sample questions, wait for students to give their own examples before showing those examples.

10. Show slide #11, but remain mysterious about “the story”!
11. Show slides #12-13, stopping at each one to give students time to write a “thin” and a “thick” question. After slide #13, stop and have students volunteer their questions. You may have some students still confused about what “thin” and “thick” mean. Student examples are a great way to clarify.
12. Show slides #14-15, following the same procedures. Discuss.
13. Proceed with slides #16-17, as above.
14. Show slide #18. If you have students who seem to know “the story” (Chernobyl), suggest that student write down their guesses at the bottom of their papers. (When students are "dying to tell," it usually means they want credit for figuring it out on their own. By having students writing down their guesses prior to your telling the class later, they can get that credit without disrupting the suspense and curiosity you are creating.)

#### *Looking for answers*

15. Distribute the four-page article, “Chernobyl Nuclear Power Plant: The Accident.” Have students work in pairs (or individually) to find answers to their own “thick” questions. They will NOT find the exact same photos in the article as are in the PowerPoint. However, there is sufficient information in the article that answers to most of their “thick” questions can be inferred, if not directly answered, from the handout.
16. Circulate (!) as students look for answers. Keep them curious and encouraged.
17. When students are ready, go back over the four photos, asking what answers they found.

#### *Background information*

18. Go over the PowerPoint, “Chernobyl Nuclear Power Plant Accident,” adding more background information and context, and clarifying information as needed.
19. Just because it is full of fascinating photos, show the PowerPoint, “In the Shadow of Chernobyl: Ghost Town of Pripyat” if time permits.

#### *Fukushima connection*

20. Show the PowerPoint “Fukushima.”
21. Distribute the article, “Life in Fukushima radioactive exclusion zones.”
22. Discuss ways in which the Chernobyl and Fukushima nuclear accidents were similar and different.

### Assessment Options:

Students will do a compare/contrast of Chernobyl and Fukushima accidents. A traditional Venn Diagram may be used, or a chart like the one below may be used. Students may also use this as a framework for writing a compare/contrast paragraph.

#### Compare and Contrast Chart

| <b>CHERNOBYL</b>  | <b>FUKUSHIMA</b> |
|---|------------------|
| <div style="display: flex; justify-content: space-around; align-items: center;"><div style="width: 30%;"></div><div style="width: 10%; text-align: center;">↓</div><div style="width: 30%;"></div><div style="width: 30%;"></div></div> <p><b>How are they alike?</b></p> <div style="border: 1px solid black; height: 100px; margin-top: 5px;"></div>  |                  |
| <div style="display: flex; justify-content: space-around; align-items: center;"><div style="width: 30%;"></div><div style="width: 10%; text-align: center;">↓</div><div style="width: 30%;"></div><div style="width: 30%;"></div></div> <p><b>How are they different?</b></p> <div style="display: flex; justify-content: space-between; margin-top: 5px;"><div style="width: 45%; border: 1px solid black; height: 150px;"></div><div style="width: 45%; border: 1px solid black; height: 150px;"></div></div> |                  |