

Nuclear Proliferation Lesson Plan
Contemporary Conflicts in Light of the Cold War
Summer Workshop – UCSB – August 2-6

Title: The “Atomic Age” Online

General Goals:

- In the Information Age there is an increasing wealth of resources available online for nuclear news, the history of the atomic age, non-proliferation and disarmament activities, and educational opportunities in the physical sciences. It is never too soon to expose students to these resources so that they may ultimately become better-informed voters.
- To identify the reasons why nations have historically pursued nuclear technologies (including weapons), and conversely, to understand why nations, NGOs, and individuals support non-proliferation and disarmament.
- To identify the strategies that were used during the Cold War to prevent proliferation in all of its guises, and how those strategies were or were not successful.
- To understand how nuclear proliferation dangers have changed since the end of the Cold War, in order to appreciate the current challenges facing worldwide non-proliferation efforts.

Objectives:

- Test the students' reading comprehension.
- Improve the students' analysis of textual sources (i.e., to identify an author's overall argument, to identify the author's key pieces of evidence, and to evaluate that author's use of evidence).
- Encourage students to take an active interest in the history of science, the history of international diplomacy, and current non-proliferation and disarmament efforts.

College Course Level:

- Third year, upper division (such as HIST 105).
- For HS students, upperclassmen (juniors or seniors)

Time Structure:

- 50 minutes. Instructor should prepare a quiz and a 20-25 mini-lecture based upon the assigned readings.
- Ideally, this exercise will last for up to two weeks, from start to finish (i.e, from the time that the required readings are distributed to the time that the paper assignment is due). Individual readings can be analyzed from day to day, if the class meets that often.

Materials:

Readings:

- William C. Potter, “Nuclear Proliferation: U.S.–Soviet Cooperation,” *The Washington Quarterly*, Vol. 8 no. 1 (Winter 1985): 141-154.

- William C. Potter, "Prospects for U.S.–Russian Cooperation to Counter WMD Proliferation and Terrorism," *The Aspen Institute Congressional Program Conference on U.S.–Russia Relations: Opportunities for Cooperation*, Moscow (August 10-16, 2003).
- William C. Potter, *Nuclear Power and Proliferation: An Interdisciplinary Perspective* (Cambridge, MA: Oelgeschlager, Gunn, and Hain, 1982), Chapter Two (35-58) and Appendix A, "Treaty on the Non-Proliferation of Nuclear Weapons" (243-248).
- William Epstein, *The Last Chance: Nuclear Proliferation and Arms Control* (New York: Free Press, 1976), 98-119.
- Ian Anderson, "Australia declares war on nuclear weapons," *New Scientist* (August 24, 1996), 7.
- Ian Traynor, "Defiant Putin lifts curbs on Russian nuclear exports," *The Guardian* (June 1, 2000).
<http://www.guardian.co.uk/russia/article/0,2763,326881,00.html>
- "Europe and Iran: A common flop," *The Economist* (July 3, 2004), 42. [Should be available via LexisNexis].
- excerpts from David Holloway, *Stalin and the Bomb* [optional].

Pre-Class Preparation:

- Distribute required readings to students at least one week ahead of time (or however much in advance you feel may be necessary).
- Inform students that they will be quizzed the following week.

Talking Points:

- Be aware of the date of publication for each article, so that students will gain a sense of how events developed over time (i.e., from the end of WWII, to the rise and fall of the Cold War, to the present day).
- See example quiz and discussion questions below for key vocabulary terms, which include but are not limited to: nuclear proliferation ("vertical" and "horizontal"), NPT, IAEA, Atoms For Peace, secrecy/denial, technology control, limited test ban treaty, comprehensive test ban treaty, braindrain, Smyth Report, Baruch Plan, McMahon Act, etc. (Each instructor will presumably shorten or expand this list).
- Other key terms that an instructor might want to include in a mini-lecture on the Cold War arms race include: ballistic missile, massive retaliation, mutual assured destruction (MAD), flexible response, NSC-68, deterrence, plutonium and enriched uranium, nuclear fission, nuclear fusion (hydrogen bomb), yield (kiloton/megaton), PNEs (peaceful nuclear explosions), SALT and START treaties, tactical nuclear weapons, MIRV, counter-force/counter-value targets, INF, (SDI, "Star Wars," ABM, BMD)

Activity/Activities:

Quiz:

- When students return to class the following week, they are given a short quiz [*SEE: EXAMPLE QUESTIONS BELOW*].
- Collect quizzes and then read the correct answers [10 minutes, total].
- After the correct answers have been provided, and several main themes have thereby been introduced, present your own 20-25 minute mini-lecture/Q&A.

Example Quiz Questions [correct answers italicized]:

- 1) Which one of the following statements is TRUE?
 - a) the U.S. and USSR never cooperated on nuclear non-proliferation during the Cold War
 - b) the superpowers openly shared information on nuclear science & technology during the Cold War
 - c) since the end of the Cold War, non-proliferation efforts between Russia and the U.S. have been well-coordinated and very successful
 - d) *during the Cold War neither the U.S. nor the USSR wanted other nations to develop nuclear weapons, once each nation already had them*
- 2) “Vertical proliferation” means that a nation:
 - a) *improves its existing stockpile of weapons*
 - b) launches all of its ballistic missiles at the enemy
 - c) signs and ratifies the Non-Proliferation Treaty
 - d) sells highly enriched uranium on the black market
- 3) The Non-Proliferation Treaty (NPT) of 1968, which was ratified in 1970:
 - a) discriminated between nations that already had nuclear weapons and those that did not
 - b) allowed for signatory nations to “withdraw from the Treaty if... extraordinary events... jeopardized [the nation’s] supreme interests”
 - c) *both A and B*
 - d) none of the above

Example Discussion Questions:

- What is the NPT? What is the IAEA? Are they the same thing? What is the difference between "vertical" and "horizontal" proliferation? Give an example or two of a "nuclear weapons free zone."
- Regarding efforts to prevent nuclear proliferation, what has changed between William Potter’s 1985 article, when it was the United States and the USSR seeking to curb proliferation, and his 2003 article, after the collapse of the Soviet Union and the end of the Cold War? Have Potter’s concerns changed? If so, how? Does Potter seem more or less optimistic about preventing the spread of nuclear technologies that might be used to manufacture weapons?
- How did Soviet and American threat perceptions differ during the Cold War? How do Russian and American threat perceptions differ today? Why?
- Why might a nation decide to "go nuclear" today? What are the most compelling arguments *against* such a decision? What non-proliferation strategies do you think would be most effective? What strategies do you think might be particularly ineffective?

Written Assignment:

- For the last third of the class, distribute list of websites to the students.
- In 5 minutes, the instructor should briefly present each website and introduce their respective paper topics.
- In next 5-10 minutes, the instructor should grades quizzes (if they have not already been graded); students should take this time to ponder the websites they might be interested in evaluating.
- Instructor should then return the quizzes, and before class lets out [last 5 minutes], the students should choose a website/paper topic on a sign-up sheet – perhaps according to quiz score rank? (If desired, feel free to inform the students that the number of correct answers on their quizzes will merely count toward extra credit on their paper.)
- The homework, in other words, is the *real* assignment. Now that they have been exposed to the history of nuclear non-proliferation, hopefully the students will be interested in current events.

Potential Paper Topics/List of Websites:

- NWFZs in the Middle East, Northern Europe, Latin America, and South Pacific
- Alternative Nuclear Fuel Cycles (may require greater science aptitude?)
- Environmentalism vs. Nuclear Energy

- Effects of Nuclear Weapons
- Cold War “Civil Defense” and War on Terror “Homeland Security”

Example #1: Nuclear Age Peace Foundation: <<http://www.wagingpeace.org/>>
 California Energy Commission –
 Nuclear Energy in CA: <<http://www.energy.ca.gov/nuclear/index.html>>

Question: What is the Nuclear Age Peace Foundation’s position on the potential environmental effects of nuclear technologies? How does it compare to the information available from the California Energy Commission?

Example #2: International Atomic Energy Agency: <<http://www.iaea.org/>>
 U.S. Arms Control & Disarmament Agency: <<http://dosfan.lib.uic.edu/acda/>>
 Bulletin of the Atomic Scientists: <<http://www.thebulletin.org/>>

Question: Using the search engines on these websites, find information about at least two nations other than the United States, and compare/ contrast their policies regarding the pursuit or use of nuclear energy, or their efforts to obtain nuclear weapons.

Example #3: Cold War Civil Defense Museum: <<http://www.civildefensemuseum.com/>>
 Atomic Archive: <<http://www.atomicarchive.com/index.shtml>>

Question: Surf the following websites. (At the “Atomic Archive,” see the “Example scenario” in the Science section.) Compare/contrast the Cold War fear of nuclear war to current fears of terrorist use of WMDs.

Example #4: The Bureau of Atomic Tourism: <<http://www.atomictourist.com/>>

Question: Go to this website and choose three potential destinations. Why or why not might you want to visit these sites?

For other websites that could serve as the basis for homework assignments, SEE:

<http://www.nuclearfiles.org/> – Operated by the Nuclear Age Peace Foundation, this website offers a wealth of primary sources, timelines, biographies, etc. Highly recommended.

<http://www.lanl.gov/worldview/> – Los Alamos National Laboratory

<http://www.ornl.gov/> – Oak Ridge National Laboratory

Note: The websites for most of the National Labs – such as Argonne, Sandia, Lawrence Berkeley, Fermilab, and Brookhaven National Laboratories – contain additional resources such as instructional materials for teachers and scholarship opportunities for students.

<http://cns.miis.edu/> – Monterey Institute of International Studies, Center for Nonproliferation Studies (CNS)

<http://www.isis-online.org/> – Institute for Science and International Security [includes satellite images of alleged nuclear sites]

<http://www.ceip.org/> – Carnegie Endowment for International Peace

<http://www.ransac.org/> – Russian American Nuclear Security Advisory Council

<http://nti.org/> – Nuclear Threat Initiative

<http://www.fas.org/main/home.jsp> – Federation of American Scientists
<http://disarmament2.un.org/> – UN Department for Disarmament Affairs

<http://www.ne.doe.gov/> – Department of Energy, Office of Nuclear Energy,
<http://www.hanford.gov/> Science & Technology [See also: Hanford, WA,
<http://www.rfets.gov/doe/> and Rocky Flats, CO]

<http://www.1nuclearplace.com/> – One Nuclear Place, Nuclear News and Info.
<http://www.vce.com/atomcentral.html> – Atomic Central; also recommended

Assessment: The following week students should submit their written assignments [2-4 pages].