

BENCHMARK II

In Benchmark I you analyzed the motivations that would drive a nation state to want to possess nuclear weapons. You also came to an understanding of the kinds of physical and intellectual resources a nation would need in order to develop these weapons.

In Benchmark II your task is to investigate issues of nuclear weapons in the world today. You will once again identify the world's nuclear powers, the "wannabes," and those countries that do not want this capability. You will also work to understand the ways in which the world community has chosen to try to control nuclear weapons. And you will identify and explain what you have already learned, the current concerns of the global community regarding the development and proliferation of nuclear weapons in various regions of the world.

Research and gather data within the context of the four domains (scientific/environmental, economic, social/cultural, and political/geo-political) that help you to build an understanding of the current world situation and the usefulness of the various treaties and agreements now in use.

Objective I – Current Regions of Interest

You will do research to understand where current "stable spots" and "trouble spots" are in the world in terms of nuclear proliferation/nonproliferation. You will develop an understanding why these areas are considered problems. You will consider the following nations:

- "Old" nuclear nations: (United States, Russia, United Kingdom, France, China)
- "New" nuclear nations: (India, Israel, Pakistan)
- "Possible" nuclear nations: (Iran, North Korea)
- "Rejecting" nations: (Argentina, Brazil, Libya, South Africa)
- "Denuclearized" nations (South Africa, Ukraine, Belarus, Kazakhstan)
- "Non-nuclear" nations: (many choices)
- Nations belonging to Nuclear Weapons Free Zones (NWFZ)

Suggested Activities

1. What are the scientific and technical requirements to transform a nuclear power program into a nuclear weapons program?
2. List possibilities that would cause a nation that was determined to use nuclear energy for peaceful purposes to change its mind and embark on a weapons program. Consider these questions in relation to Iran and North Korea.
 1. What would that have to do in the scientific area? In the area of technology? Diplomatically?

2. How would the rest of the world find out about these changes? Would science and technology play a part? Intelligence gathering? Other methods?
3. What could the rest of the world do about this nation diplomatically? Economically? Using science or technology?
3. Describe the processes to enrich uranium and to reprocess plutonium. For what peaceful purposes might a country enrich uranium or reprocess plutonium? How can it be determined when these processes are for peaceful purposes, and when the country is trying to make a bomb? Consider these questions in relation to Iran and North Korea.

Objective II – Treaties and other Agreements

You will develop an understanding of the implications of international treaties dealing with the proliferation/nonproliferation of nuclear weapons and their verification processes. You will examine these treaties from the perspective of one nation in each of the categories in Objective #1.

Suggested Activities

1. Prepare for your investigations of nonproliferation issues by reviewing one or more of the following: the "Arms Control and Treaties" lesson from the LLNL Education Program paper (link), the Arms Control Association, <http://www.armscontrol.org/treaties>, The CNS developed NPT tutorial http://www.nti.org/h_learnmore/npttutorial/index.html and the CIF website "Resources" collection.
2. Consider the various international treaties negotiated to control nuclear arms proliferation? Again, use one or more of the resources on international nuclear treaties in the CIF website resources collection. How effective is each?
 - a. What are the relationships among the NPT, CTBT, SALT series, START series, NWFZ's, and other treaties and recent bilateral agreements that are not codified as "treaties"?
 - b. Some treaties have international organizations that monitor the member nations in the treaty. For the NPT the organization is the International Atomic Energy Agency (IAEA). Prepare a short paper describing the organization of the IAEA, its roles and duties, and its responsibilities.
 - c. What does a nation sacrifice by joining the NPT? Joining the CTBT? Joining an NWFZ? Joining any other nuclear weapons related treaty?
 - d. What would a nation gain by joining any one or all of these agreements?
 - e. How should the states permitted to have nuclear weapons by the NPT respond to claims that the NPT amounts to "nuclear apartheid"? Consider these questions in relation to India, Iran and North Korea.
 - f. It is a common conception that if there is a "breaking of the rules", that there must be some sort of punishment. What kinds of punishments are available when nuclear treaties are broken? What kinds of punishments can be administered to nations who have not signed current treaties if they

3. Which areas seem to be weak and in need of strengthening?
 4. What can be done to strengthen them?
2. What role does verification play in international treaties? What technical measures are available to verify compliance with various nuclear weapons treaties?