

Critical Issues Forum  
Benchmark I  
(2006-2007)

\* The purpose of Benchmark I is for you to build definitions and other basic, but necessary, background knowledge about space and how it is being used for both civilian and military applications.

\* You are to develop these definitions and background knowledge in the context of the four CIF domains (scientific/environmental, economic, social/cultural, and political/geo-political).

\* In your investigations you will need this knowledge to understand the topics you will investigate in Benchmarks II and III.

\* Make sure you carefully reference all materials you use in your text and in a bibliography.

Objective 1 - Definitions:

You are to produce overall definitions and understanding of space and of uses of space. Further, you are to produce possible explanations of the motivations that drive people's interest in space and its possibilities, both civilian and military.

Suggested Activities:

1. Develop representations of a) our known planetary universe, b) space in the vicinity of Earth, and c) the atmosphere adjacent to Earth.

2. Based on your representations, create a definition of space that you will want to use throughout the CIF project.

3. Locate and watch the opening 3 or 4 episodes of the TV series "Cosmos" or a similar series. Prepare commentary to deliver to your class.

4. Make a list of the kinds of objects that have been put into space (satellites, space stations, etc.)

5. Make a list of the kinds of objects that might be put into space in the future.

6. Define "space weapons." Create a list or a database of existing, possible, and imagined "space weapons."

7. Research and define the terms "militarization of space" and "weaponization of space." In a short paper, compare and contrast these terms. Describe who uses these terms, how, and why.

8. Research and define "space-based" defense. In your definition delineate what it is and also what it is not.

9. Research and create a definition of "space security."

10. Invite a knowledgeable speaker(s) to come to your class. The speaker(s) could be from any profession that deals with space and/or space issues, for example, a nearby university professor, a science writer, a military representative, your local Congressman or other political official - any person or subject matter expert who can help you gain knowledge of space.

11. Research books that were written about space before the 20th Century. How far back can you go? Choose one and write a report on it. Your book could be fiction or non-fiction. Make sure to look at books that were written in a wide variety of countries.

12. Research books written about space between 1900 and the present. Choose one and write a report on it. Make sure to look at books that were written in a wide variety of countries.

13. Create a website, database, chart or other visual comparing and contrasting the books you chose in numbers 11 and 12.

14. Deliver a speech on why you believe space is of interest to or fascinating to people.

## Objective 2 – Background: History of Man in Space

You are to develop an understanding of the history of people's knowledge of space. You are to learn about ways that space has been used to date. And you will learn about the technologies that are needed for use in space. This objective focuses on civilian uses of space.

### Suggested Activities

1. Make an historical timeline of people's concepts of space. What did the ancient Greeks think about space? People in the Middle Ages? The Renaissance? And so on.

2. Create a database of the history of people's exploration of space.
3. Research and write a paper comparing the development of people's concepts and exploration of space with the development of science and scientific understanding. Which sciences were important in this development? Why?
4. Construct a database of products that were originally designed for space programs that have crossed into commercial use, or that have been modified for the general market.
5. Create a database of some of the objects that have been put into space in your lifetime. Indicate which countries put them there and the intended use of the object. Finally, delineate if the object is civilian, military, or dual use.
6. Using the books you researched in Objective One, make a list of objects now in space that had been predicted in the past.
7. Research and prepare a report on how human needs are met in space. Explain how science and technology are important in meeting these needs.
8. Make a database of technologies that are necessary for use in space. Give two examples of how each technology is used.
9. To learn more about the science of getting into space, with adult help and supervision, assemble and shoot off small amateur rockets. Before you decide to launch a rocket, determine the laws and rules for doing this activity in your local area. Make charts and graphs to express the mathematics and science in your experiment. You might check the movie *October Sky*.

### Objective 3 – Space as an Area for Military Competition

You are to develop an understanding of possible military uses of space. You are to learn about ways that space has been used to date. And you will learn about the technologies that are needed for use in space.

#### Suggested Activities:

1. Research and create a database of military events in space.

2. Construct a database of products that were originally designed for space programs that have crossed into military use.

3. Using the books you researched in Objective One, make a list of military-use objects now in space that had been predicted in the past.

4. Make a database of military technologies that are necessary for use in space. Give two examples of how each technology is used.