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Earth and Beyond!

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Grade Level 6-8, 9-12

Subject Area space science

Curriculum Focus

astronomy, earth science, technology, environmental studies

Duration one week per activity

Objective

Students will investigate one or more of the following topics and develop a plan for the future regarding it: global warming, lunar exploration, space travel, Mars exploration, or terraforming.

Materials

Information sources including Internet sites, magazines and books, electronic encyclopedias and databases

Procedure

Bring students online for any combination of these five activities:

1. [Mother Earth](#)
Because of the length of the global warming audio file

<http://school.discoveryeducation.com/lessonplans/activities/earthandbeyond/>

★ Related Materials

Discovering Algebra With Graphing Calculators: Graphing a Line DVD

Product Type: DVD
Price: 69.95

This program shows how to graph a line on the graphing calculator.



(45 minutes), you may wish to play it in parts or assign it as homework. Then, hold a class discussion on the questions that accompany it. Possible answers to the first two questions follow:

What is global warming? What human activities might be contributing to it? What are some nonhuman factors?

Global warming is a trend of higher overall mean temperatures for the planet. One causal factor for global warming could be the release of toxins such as CFCs. Another factor might be short-term changes in the sun's cycle.

What's ozone? Why are there holes in the ozone layer over the north and south poles? Is there a relationship between global warming and the holes in the ozone layer?

Ozone is a toxic, unstable compound made up of three oxygen molecules that reacts with ultraviolet light.

2. To the Moon

After listening to the Kennedy speech, have a class discussion using the open-ended questions that accompany the audio file. You may wish to have students prepare a time line with highlights of manned spaceflight to enhance their future plan presentations.

3. A Tribute to Alan B. Shepard, Jr.

Use this video tribute to kick off a class discussion on human spaceflight. [Answers](#) to the questions accompanying the video are provided.

4. Comparing Earth to Mars
[Answer Key](#)

5. Terraforming Mars

Have a class discussion using the open-ended questions that accompany the audio file and excerpt. In addition to discussing the technological considerations of terraforming, you may wish to have your class debate the idea of nationalism on Mars. Would certain areas of Mars be claimed as sovereign territory? Would the historical precedent of colonial rebellion manifest itself there?

To enjoy the audio and video files, you need the RealPlayer plug-in. [Download](#) it now. And be sure to bookmark this page for convenience.

Related Links

[Searching for Evidence of Water on Mars \[PDF\]](#)

Find information and additional activities on this topic at the Johns Hopkins Applied Physics Lab website.

[It's About TIMED \[PDF\]](#)

Find information and additional activities on this topic at the Johns Hopkins Applied Physics Lab website.

[Space Exploration and Resources Exploitation Headquarters for the Mars Direct Manned Mission Students for the Exploration and Development of Space](#)

Credits

Our thanks to Lee Ann Hennig, an astronomy teacher at Thomas Jefferson High School for Science and Technology in Alexandria, Virginia, for her consultation.

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