

GLOSSARY

ANALYZED

Studied something methodically by breaking it up into parts or elements to determine the nature of the whole.

COMPOUND

A substance formed by the union of two or more elements.

DEPLOYED

Put into use or action.

FUSION

The process by which the nuclei of two atoms are joined together.

GREENHOUSE GASES

Gases that keep heat from draining off the earth and into space.

ORBIT

A path followed by one body or artificial satellite in its revolution about another body.

POPULATION

The number of people living in a specified area.

RADIATION

Rays of energy emitted from space

TERRAFORMING

Making an alien world more like earth.

VELOCITY

The rate of motion, speed.

May be reproduced for use in the classroom.

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Show Me Science

The Wonders of Astronomy & Space

K4560DVD

Space Exploration

Advanced Teachers Guide

SYNOPSIS:

This program looks at developments in space technology from building the International Space Station to plans for terraforming Mars and mining the asteroids. Students will see how a new age of exploration will begin, opening up a whole new world of possibilities.

CURRICULUM UNITS:

- Astronomy
 - Biology
 - Botany
 - Chemistry
 - Computer Science
 - Earth Science
 - Physics
 - Physical Science
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CAREER OPPORTUNITIES:

- Astronaut
- Astronomer
- Biologist
- Chemist
- Computer Scientist
- Engineer
- Physicist
- Robotics Engineer

PROGRAM OVERVIEW:

This program takes an in-depth look at the space program and some of its goals. First steps in the form of faster, lighter rockets that will reduce costs by a factor of ten have already been taken. The moon's low gravity makes it an ideal launching pad and plans to include missions to Mars that will put a human being on the red planet by the year 2020. Eventually it may be possible to change the atmosphere of Mars by heating up the planet with greenhouse gases and solar reflectors, melting the ice caps and creating an ocean. By adding nitrogen to its atmosphere, we can encourage plant life to grow. This process of terraforming the planet may take 150 years to accomplish, but our descendants may inherit a new and unpopulated world in which to live.

ISSUES & CRITICAL THINKING:

- 1) After showing the program, ask the class the following:
 - a) What are we doing about increasing the population.
 - b) If you were a scientist what problem would you be working on?
 - c) What are some problems on earth the program did not mention?
 - d) How will going into space help us here on earth?
- 2) Have students compare the earth to a spaceship.
- 3) Have students research plans for colonizing Mars and report their findings.
- 4) Assign an essay in which students describe the future as they imagine it to be.
- 5) Discuss how the future is created by the actions of today and ask students to suggest methods that might influence the outcome.