

NASA AT 50

2007: Phoenix Lander Sent to Mars

Teacher's Guide



Grade Level: 6–12 **Curriculum Focus:** Science, Social Studies **Running Time:** 6 minutes

Introduction

NASA at 50 acquaints students with key innovations and milestones in chemistry, physics, engineering, and space exploration from NASA's fifty-year history. Each clip serves as a gateway for extended lessons in science and history, promoting critical thinking and inquiry as essential components of scientific literacy.

Program Description

Examines the Phoenix Lander mission, which NASA hopes will provide new information about Mars and the possibility of life on the Red Planet. The Phoenix Lander will touch down in Mar's polar region and examine the thick layer of ice directly below the planet's surface. NASA scientists believe that the research conducted by Phoenix will provide clues as to the existence of life on Mars as well as prepare the agency for a possible manned mission to the planet.

Learning Objectives

After viewing the program and participating in discussion, students will be able to:

- Explain how the Phoenix Lander mission is a revolutionary space travel endeavor for NASA;
 - Describe how ice on Mars could potentially support life;
 - Identify how the Phoenix Lander works to collect data.
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Classroom Connections

What are the goals of the Phoenix Lander mission?

How is this mission different than that of the Viking missions during the 1970s?

Once the Phoenix Lander reaches Mars, how will it collect data?

How could ice on Mars equate to life on Mars?

Predict the next steps in space exploration for NASA.

Classroom Activities

Peter Smith, principal investigator for the Phoenix Lander mission, admits that space exploration costs a substantial amount of money. However, he explains what NASA and space exploration mean to the world of research and technology. Students should research arguments that support or oppose the continuation of space exploration and NASA. Students should then prepare for a mock debate.

Compare the 2007 Phoenix Lander mission with the 1976 Viking missions. How are they alike and different? What was NASA's goal for the Viking missions? Has the goal changed drastically for the Phoenix mission?

Target Vocabulary*

behoove - to be necessary, proper, or advantageous for

microorganisms - an organism (as a bacterium or protozoan) of microscopic or ultramicroscopic size

propulsion - The action or process of propelling

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Academic Standards

National Science Teachers Association

The National Science Teachers Association (NSTA) has developed national standards to provide guidelines for teaching science. To view the standards online, go to

<http://www.nsta.org/publications/nse.aspx>.

This guide addresses the following standards:

- Science and Technology
- Earth and Space Science

- People, Places, and Environments
- Science in Personal and Social Perspectives
- History and Nature of Science

National Council for the Social Studies

The National Council for the Social Studies (NCSS) has developed national standards to provide guidelines for teaching social studies. To view the standards online, go to

<http://www.socialstudies.org/standards/strands/>.

This guide addresses the following standards:

- Time, Continuity, and Change
- People, Places, and Environments
- Science, Technology, and Society
- Individuals, Groups, and Institutions