

Postcards from Mars

Suggested Grade Level: 3–8

Summary

Students will imagine themselves visiting Mars and write about their experiences and their observations.

Standards

- NM Science Content Standards: Strand II, Standard III, Earth and Space Science
- NM Language Arts Standards: Strand III, Expressive Language, Writing
- National Science Standards: Content Standard D, Earth and Space Science; Content Standard G, History and Nature of Science

Background Information

The rovers of the Mars Exploration Rover (MER) mission have traveled a greater distance over the surface of Mars than any prior mission to the planet and have sent chemical data on rocks and hundreds of thousands of pictures back to Earth from many different sites. The scope of the mission has been compared to that of the Lewis and Clark expedition of 200 years ago. These historic robotic explorers have taken the first steps in the long-range exploration of Mars, observing and analyzing new features; but someday humans will also make the journey. Current plans include human exploration by 2020 to 2030.

Materials for Each Team

1. Color or black and white copies of postcards from Mars, included in this activity
2. Copies of blank postcards from Mars, included in this activity
3. Crayons or markers
4. Pencils or pens

Preparation

1. Print the Postcards from Mars picture and text sheets included in this activity on plain white paper or card stock. You may print in color or black and white.
2. You may choose to print two-sided copies with the pictures on one side and the text on the other, or print out both sides separately and paste or photocopy the text side onto the picture side. Make certain that you use the numbers to link the correct text sheets with the correct postcard pictures.
3. Cut the postcard sheets into individual cards.

Introduction for Students

Like any eco-tourist, the landers and rovers we send to Mars send back pictures and messages. Someday, humans will also travel to Mars and send messages back to Earth. If you were a scientist-astronaut on Mars, or perhaps a tourist at some future time, what would you say about this new world in your own messages to friends or family members?

Procedure

1. Each student should choose one of the prepared postcards (either a blank or a picture postcard).
2. Older students can research the scene that the card shows. If you wish, you can print the postcard without the captions and have students research the scene and write their own caption. Younger students can draw their own scene on a blank postcard.
3. The student should select a person as a recipient of his/her postcard from Mars and write a message on the back of the card describing what he/she has seen or expressing feelings about visiting Mars.

Process/Closure

Ask students to read their messages. Discuss some of the messages written by the students. Ask the students how they would feel after seeing another planet. What would be different? What would be familiar? What would they need to pack in their luggage and take with them in order to survive?

Extension/Enrichment

Divide the class into three groups. Have one group write their messages as though they were the robotic rover; have the second group write their messages as initial astronaut explorers seeing things for the first time; have a third group write as tourists visiting Mars in the year 2090.

Have students use the blank postcards to draw or create their own image of the surface of Mars using different artistic mediums and write their message. Have students research Mars and bring in published photographs of Mars to paste onto the blank postcards. Have them write both the caption and their message.

Have students form a Mars travel agency and prepare brochures and lists of the following: (1) the tourist attractions of Mars; (2) the essential items that tourists must pack; (3) planned tour packages for different groups; (4) sample postcards from different tour packages.

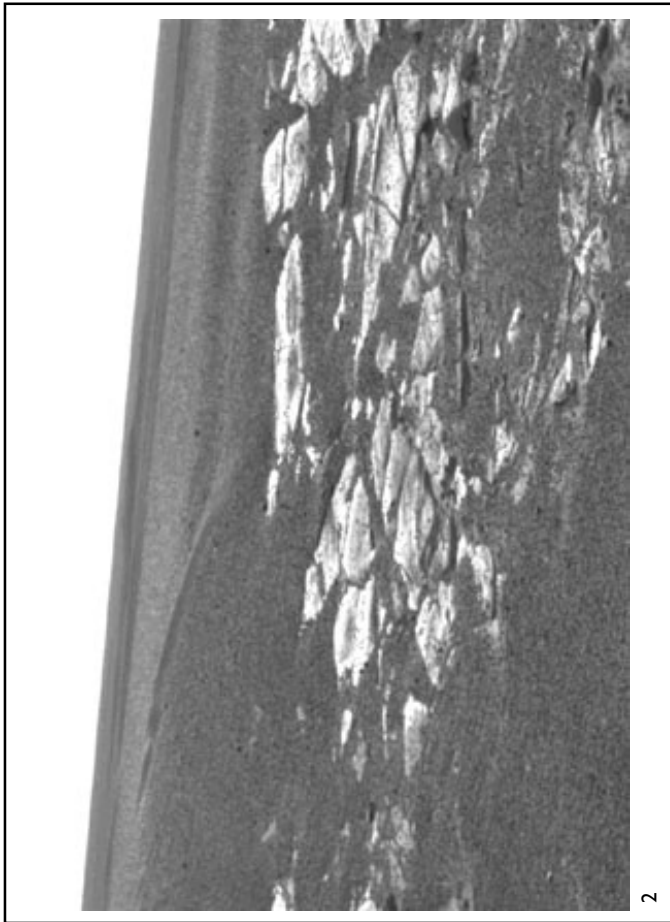
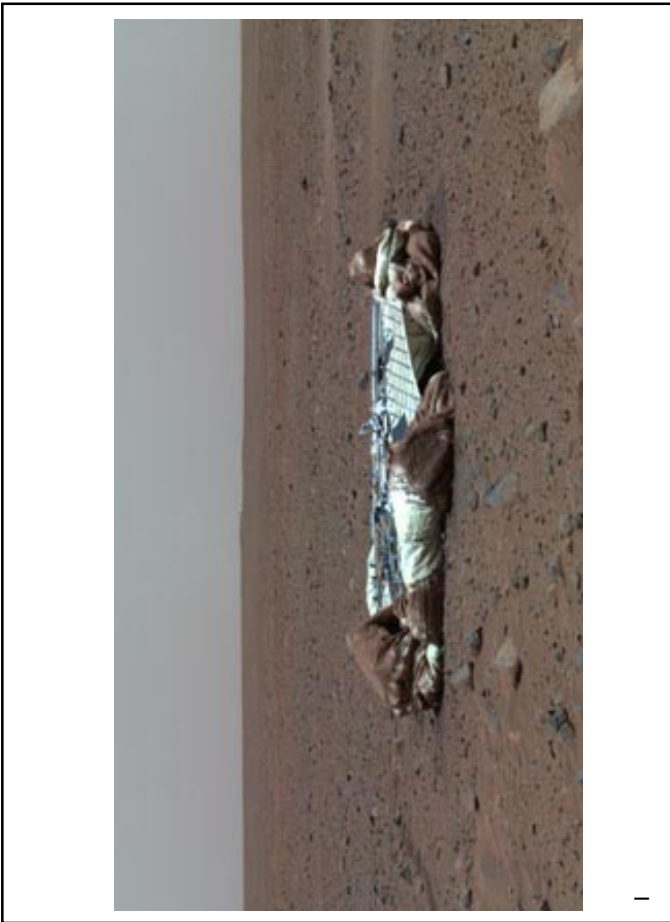
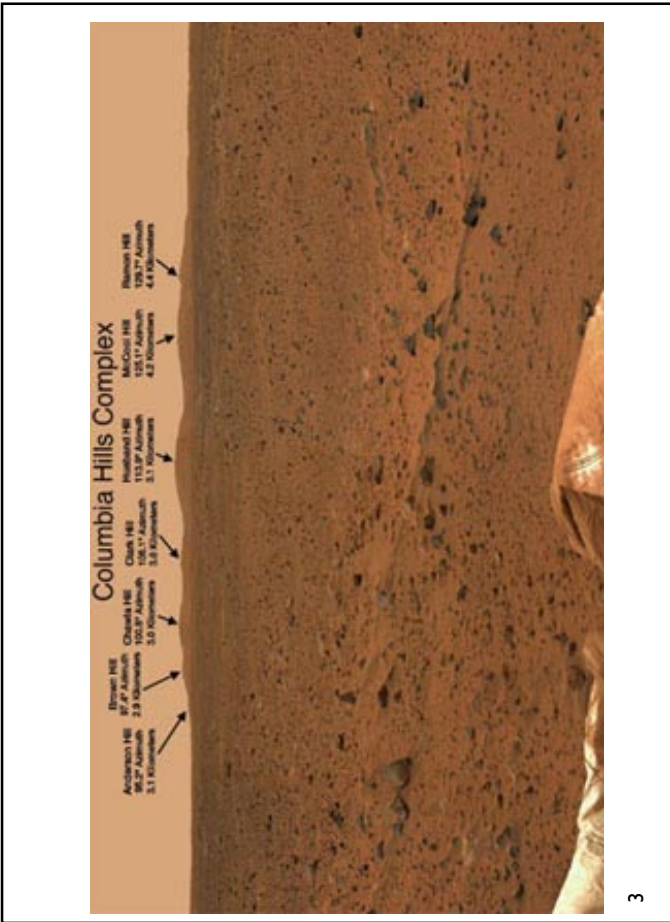
Link to literacy through reading and discussing the book, *Postcards from Pluto: A Tour of the Solar System* by Loreen Leedy (ISBN#0-439-23868-4).

Other books that could be used for a literacy connection include:




- *Discovering Mars: The Amazing Story of the Red Planet* by Melvin Berger, Scholastic Press
- *Mars* by Elaine Landue, Watts Library
- *Mission to Mars* by Franklyn M. Branley; foreword by Neil Armstrong, Harper Trophy Discover Mars by Gloria Skurzynski, National Geographic

Credits

This activity was created by Amy Grochowski and Jayne Aubele, New Mexico Museum of Natural History & Science. Literacy connection extension by Judy Stanley, LodeStar Astronomy Center.






Here is a look back at Spirit's lander as it begins the long drive to the crater 1000 feet away.
 Image credit: NASA/JPL/Cornell




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Opportunity landed in a small bowl-shaped impact crater in Meridiani Planum. Surrounding the rover is a thick blanket of fine material. Nearby is an unusual outcrop of layered rock.
 Image credit: NASA/JPL/Cornell




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An image taken from Spirit's PanCam looking east depicts the nearby hills dedicated to the final crew of the space shuttle Columbia.
 Image credit: NASA/JPL/Cornell

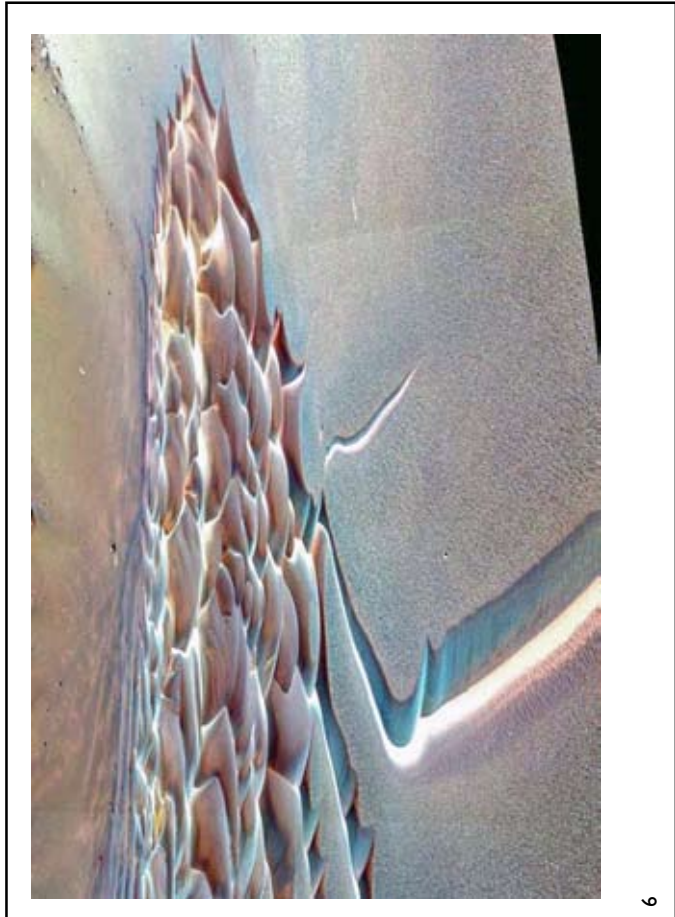




3




Opportunity reaches out with its geologist's tool kit to examine the surface. This image was taken by the HazCam (hazard camera) mounted between the front wheels.
 Image credit: NASA/JPL/Cornell











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This sharp, close-up image taken by the microscopic imager on Opportunity shows a layered rock dubbed Robert E. and one of the hematite concretions, nicknamed "blueberries," located on the outcrop at the landing site in Meridiani Planum, Mars.
Image credit: NASA/JPL/Cornell/USGS


















Sand dunes form an interesting pattern at the bottom of the impact crater named Endurance Crater in Meridiani Planum. This artistic view was taken by the rover named Opportunity on sol 2111 as it roamed within the interior of the crater.
Image credit: NASA/JPL/Cornell/USGS


















Making tracks on Mars! The historic tracks of the robotic field geologist Spirit are visible as it begins its epic long-distance journey of exploration in Gusev Crater. The large rock between the tracks, named Adirondack, was the first rock on Mars to be examined with the rock abrasion tool.
Image credit: NASA/JPL/Cornell















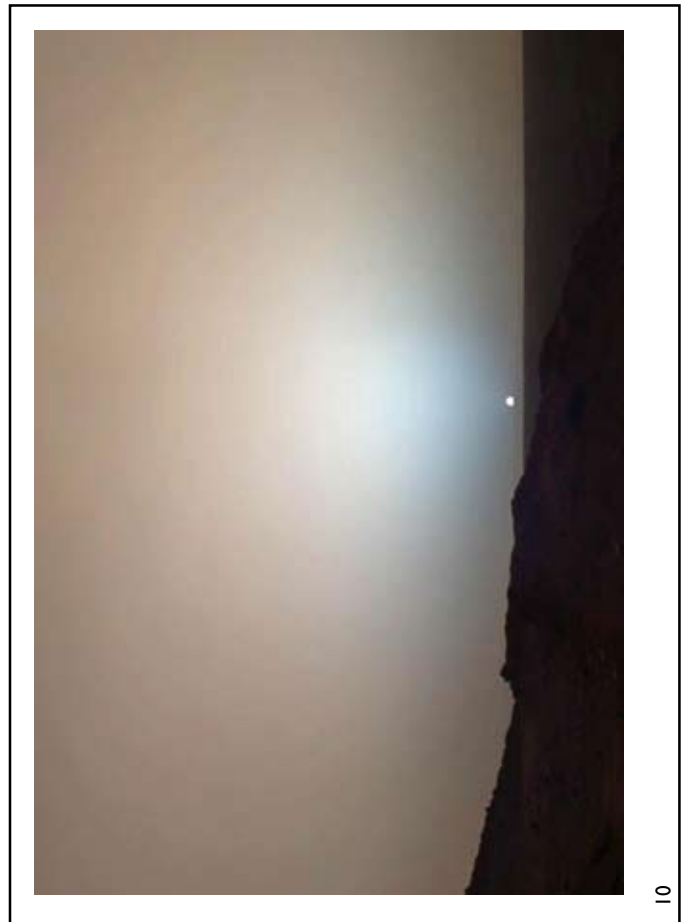
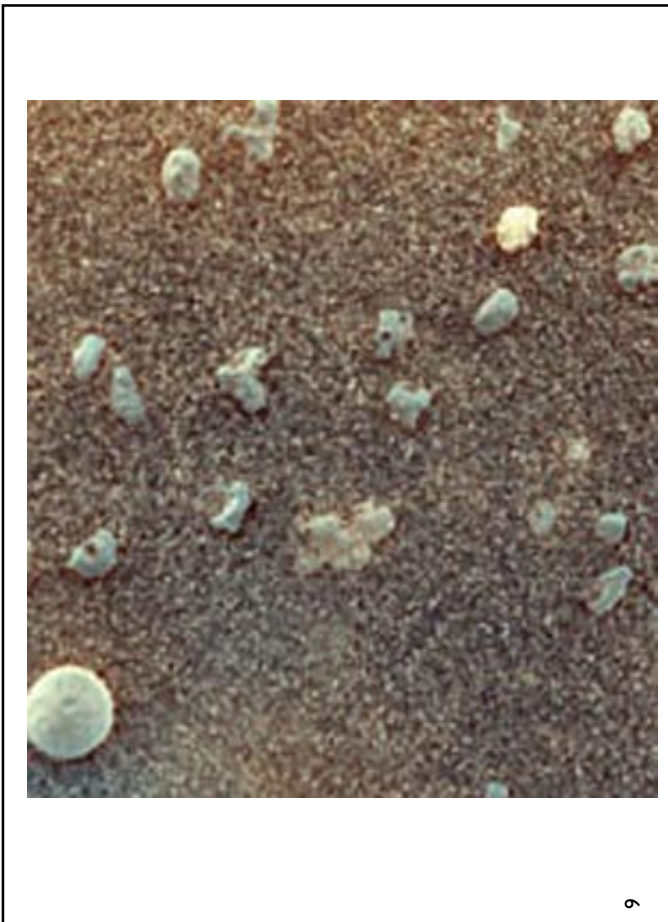
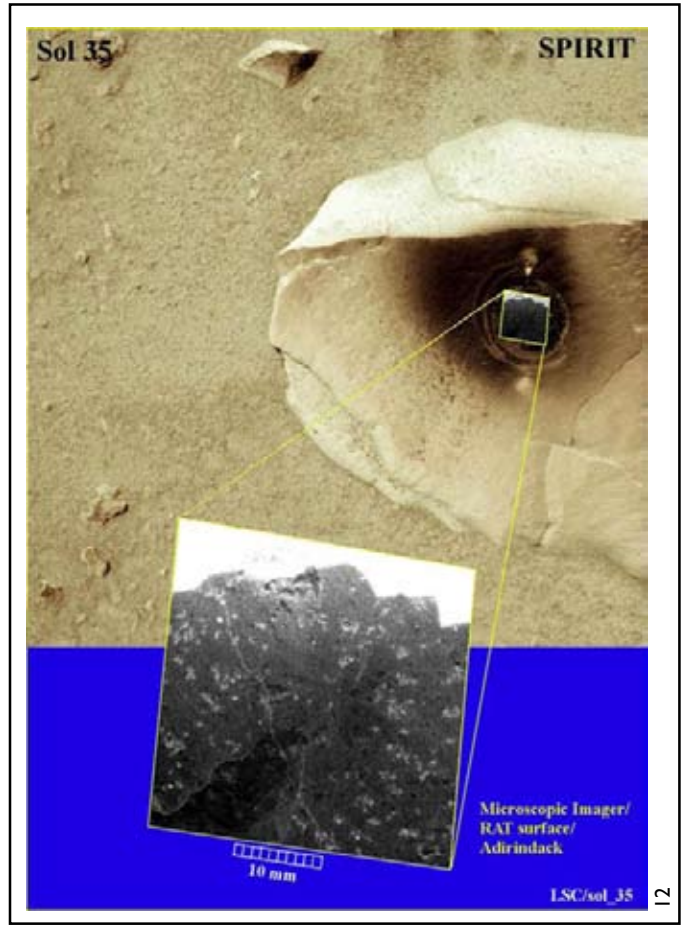




This image taken by Spirit's microscopic imager shows a close-up view of the material in the target nicknamed Squiggle Dunes. The rover imaged this area, which measures 3 centimeters (1.2 inches) across, just before it drove 24.4 meters (80.1 feet) on the 39th sol of its journey.
Image credit: NASA/JPL/Cornell/USGS










This magnified look at the martian soil at Meridiani Planum shows large spherical grains sprinkled over a fine layer of sand. The spherical grains can be formed by a variety of geologic processes, including cooling of molten lava or impact droplets and accretion of concentric layers of material around a particle or "seed."




Image credit: NASA/JPL/USGS

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This spectacular view of the Martian sunset was taken by the rover named Spirit: from Larry's Lookout in Columbia Hills on sol 489 of the Mars Exploration Rover Mission.




Image credit: NASA/JPL/Cornell/USGS

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On its climb up the Columbia Hills, the rover named Spirit studied this layered and tilted rocky ridge dubbed Larry's Lookout after Dr. Larry Crumpler of the MER Science Team and New Mexico Museum of Natural History & Science. Spirit's tracks can be seen in the foreground of this image taken on sol 454 during its journey to the summit.




Image credit: NASA/JPL/Cornell/USGS

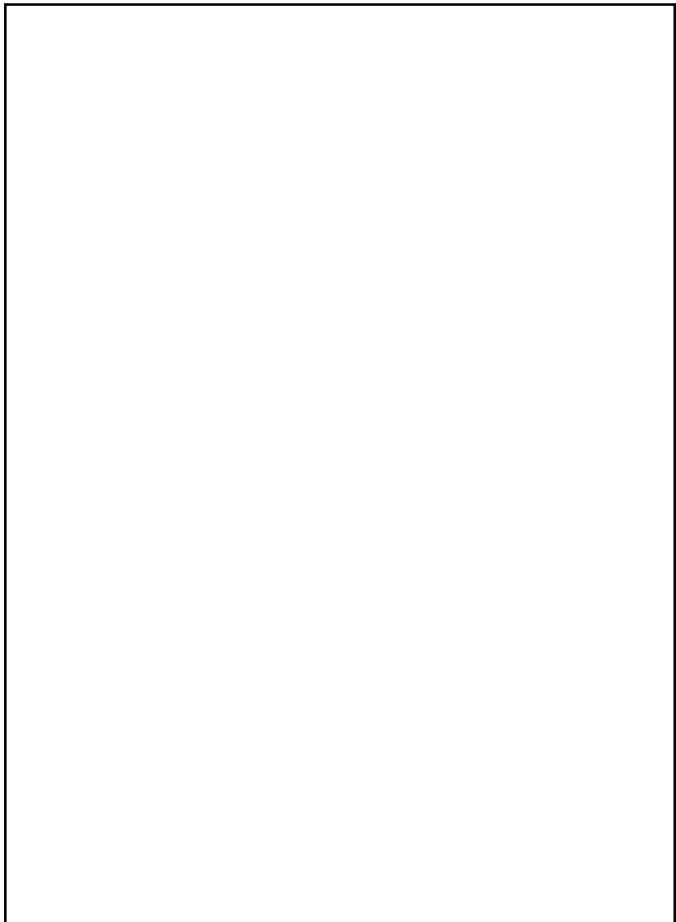
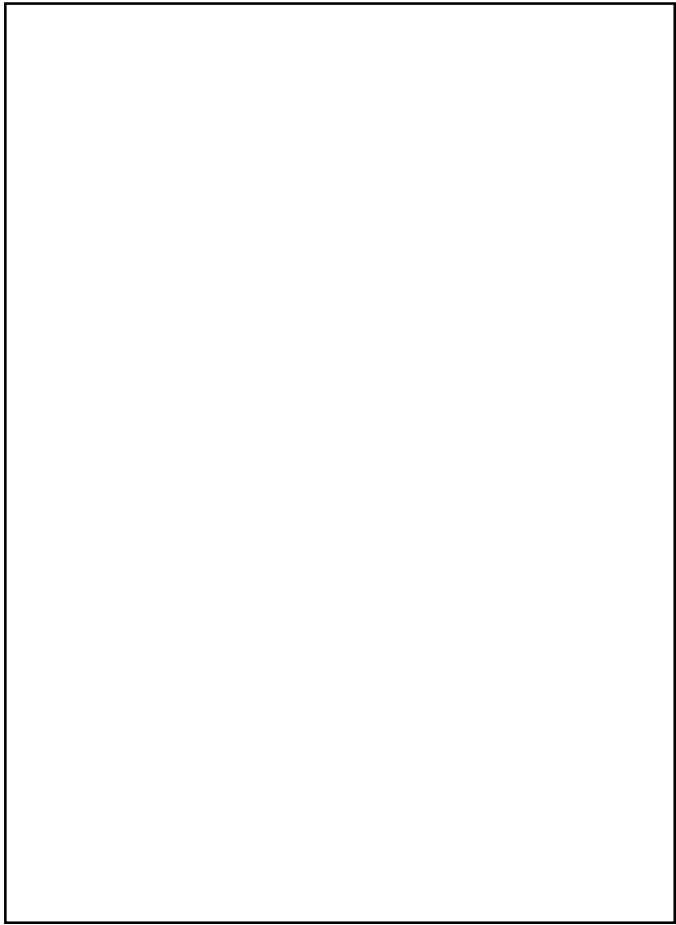
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This is the historic first rock on Mars to be examined inside its weathered exterior. The round hole was made with the RAT (rock abrasion tool), and the rock's interior was viewed with the microscopic imager of the rover named Spirit.

Image credit: NASA/JPL/Cornell

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Blank box for drawing

Four vertical lines for writing

Logos: The University of New Mexico, L.D.E.S.T.A.R. INDEPENDENT COLLEGE, NEW MEXICO MUSEUM OF NATURAL HISTORY & SCIENCE, and MARS SURFACE ROVERS

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