

Martianscape

Teacher Version

Adapted from the Athena Mars Exploration Rovers web site at athena.cornell.edu/kids/home_02.html

Introduction & Purpose

Scientists now believe there was once water on Mars. Several images from the Mars Global Surveyor mission have shown channels in the planet's surface that appear to have been formed by water erosion. This activity will demonstrate to your team how scientists can interpret landforms in order to draw conclusions about a planet's geological history.

Objective

Students will compare the different types of channels that can form on a planet's surface due to water erosion.

Materials Needed

- Aluminum cookie sheet
- Plaster of Paris
- Paper cups
- Popsicle stick
- Pitcher of water
- Sand
- Pencil or pen
- Optional: water-based paints and paintbrushes
- Idaho TECH Lab Notebook



Procedure

Complete directions for this activity are included in the [Student Version](#). Part of this activity involves predicting how different types of precipitation (*amounts or patterns*) cause different kinds of erosion. The students will have to think of a few aspects of rain that they can vary. If they have trouble, help get them started (ideas can include varying the angle of the tray, quantity, height, size of raindrops, etc.).

1. Be sure the students make predictions and write them down in their Lab Notebook before starting the rainfall simulation.
2. Have the students try a few different types of precipitation when creating their landscape (label different types on the cookie sheet), so they will be able to compare the landforms created. Compare the effects while the plaster is wet, and again when the plaster dries (it may take a day or two to completely dry).
3. If the students would like, you can have them paint their Martianscape when dry to approximate the surface of Mars.

Debriefing

1. First, have the students compare and contrast the channels formed by the Popsicle stick and the “rain.”
 - How are they similar?
 - How are they different?
 - Why do they think they are different? (Have your students compare the different kinds of erosion caused by the different types of precipitation.)
 - Can they distinguish between them? (Often, by looking at certain kinds of erosion, scientists can identify the type of precipitation that caused them.)
 - Can your students make any generalizations about different types of precipitation that could help predict what kind of erosion they create?
2. If the team has completed the “Crater Creation” activity, have the students compare and contrast the landforms created by impact craters and water erosion.
 - How are they different?
 - If they were standing on the surface of Mars looking at two landforms, one caused by an impact crater and the other by water erosion, could they distinguish between which processes created which landform?