

Martianscape

Student Version

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

Why should your team do this activity?

There was once water on Mars – that much is certain. How do scientists know that? They have seen channels on the Martian surface that are believed to have been created when water was in abundance sometime in Mars' past. Here's a way to create your own Martian channels and discover how after the water is gone, the effects of erosion (the slow wearing away of soil) are long-lasting.

The Necessities:

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|-------------------------|---------------------------|
| ★ Aluminum cookie sheet | Pitcher filled with water |
| ★ Plaster of Paris | Sand |
| ★ Paper cups | Pencil or pen |
| ★ Popsicle sticks | Idaho TECH Lab Notebook |



Directions:

1. Fill the aluminum cookie sheet with plaster and use a Popsicle stick to smooth it.
2. Poke several holes in the bottom of a paper cup (have your teacher help you).
3. In the next step, you will put water in the cup to simulate rainfall and watch how the water washes the plaster away. But first, your team should make some predictions. Think of a few different types of rainfall you can do with your paper cups. Will more plaster be washed away with bigger “raindrops” (*you might want to poke different types of holes in several paper cups*)? Will more plaster be washed away if it “rains” at different angles to the surface (by tilting the tray)? Write these predictions down in your Lab Notebook.
4. While positioning the tray at an angle, pour water from the pitcher into the cup, allowing it to “rain” down on your Martian landscape. Experiment with the different types of precipitation that you made predictions about. Mark the cookie sheet near where you “rained” a certain type of raindrop so you do not forget later.
5. In the corner, make a small channel with your Popsicle stick.
6. Sprinkle sand over the surface when you're done and allow the plaster to dry for a few days. Compare and observe the different channels. Make notes in your Lab Notebook about the different structures formed by the “rain.”
7. For a final touch, paint your Martianscape!

What did you find?

The channels you created with water look smoother and rounder than the one you made with the stick. These same types of observations clue scientists in on how the channels on Mars were formed. Close and thorough examination of all evidence and samples from Mars can determine many more details of Mars' past, completing the picture of the planet's geological history.

Further Explorations: Try making ridges and valleys in the plaster before it dries and then “rain” on them. How do the ridges and valleys affect the patterns of erosion caused by the rain? Is the erosion similar to erosion observed before? Are “river” channels created?