

## Native Mars Critter

### Directions:

After reading "If You Went to Mars" and "The Surface of Mars" you will create and illustrate a space critter that is native to Mars. You might want to complete the questions and descriptions regarding your space critter before drawing your picture. Please make your drawing very detailed and descriptive. Use your imagination and have fun with it!

My Mars Critter:



### Description and Questions

Use another page if more space is needed.

1. The critter's name:
2. Describe the habitat and climate in which your critter lives:
3. How does it move? Include both the form and method of locomotion.  
(For example: The miniature Mars Gopher leaps on powerful hind legs).
4. What does it eat or use as nutrients? Is it herbivorous, carnivorous, omnivorous, or other? What is its main food and how does it acquire this food?
5. What other creatures does it prey on, if any? How does it defend itself against predators?
6. How does your creature cope with Mars' extreme cold, unfiltered solar radiation, and other environmental factors?
7. Is it solitary or does it live in large groups? Describe its social behaviors.
8. What else would you like others to know about your critter?

## STUDENT SHEET

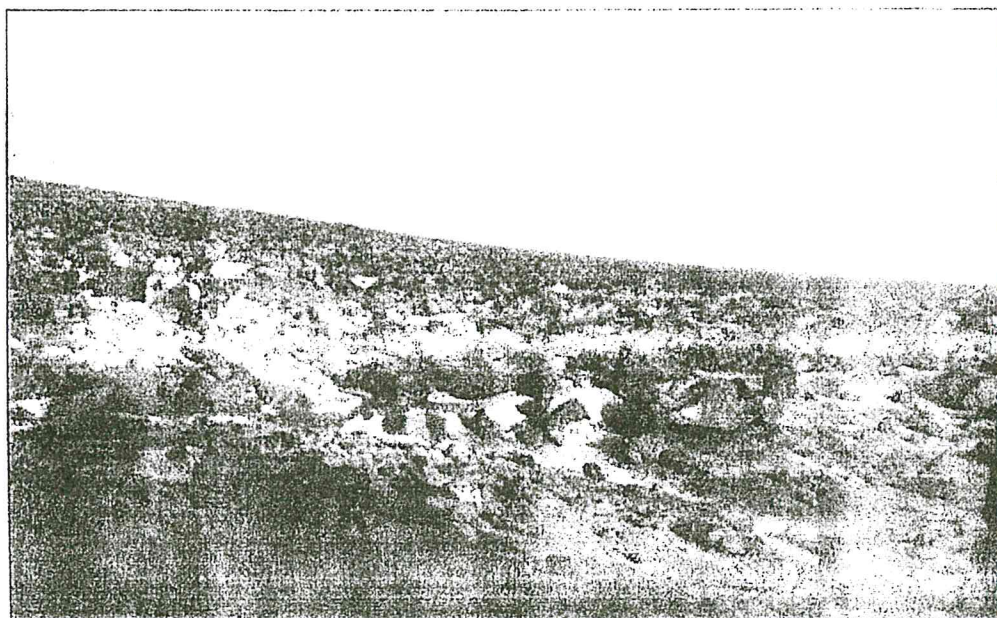
## *If You Went to Mars*

from "Guide to the Solar System,"

by The University of Texas, McDonald Observatory

Mars is more like Earth than any other planet in our solar system but is still very different. You would have to wear a space suit to provide air and to protect you from the Sun's rays because the planet's thin atmosphere does not block harmful solar radiation. Your space suit would also protect you from the bitter cold; temperatures on Mars rarely climb above freezing, and they can plummet to  $-129^{\circ}\text{C}$  (200 degrees below zero Fahrenheit). You would need to bring water with you; although if you brought the proper equipment, you could probably get some Martian water from the air or the ground.

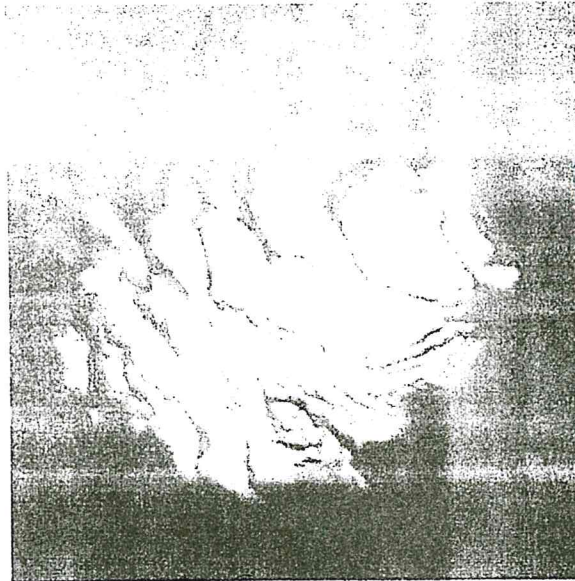
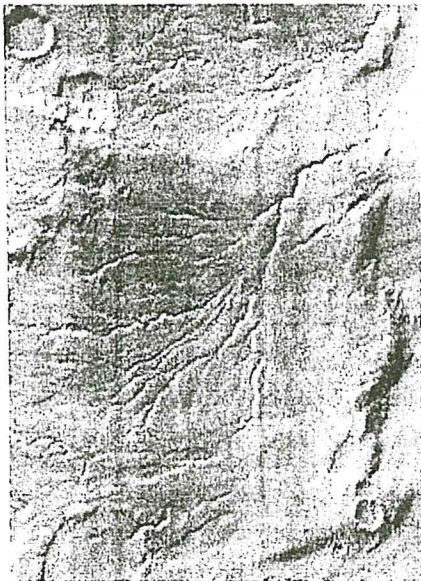
The Martian surface is dusty and red, and huge duststorms occasionally sweep over the plains, darkening the entire planet for days. Instead of a blue sky, a dusty pink sky would hang over you.





# The Surface of Mars

Mars is a cold desert. Long ago, liquid water flowed on the surface of Mars. Today, water still exists on Mars, but what we can see is ice. The polar caps of Mars are at least part water ice, like those of the Earth. Telescopes and spacecraft can see a type of clouds made of tiny crystals of ice, called cirrus clouds, drifting in the atmosphere of Mars. Frost can even cover the surface of rocks and soil in the morning, much like it does on cold mornings in many places here on Earth. Scientists who study Mars see evidence that Mars had much more water in its past, at least on the surface. What happened to that water?



*Water carved valleys billions of years old and the south polar cap of Mars. credit: Viking Orbiter, NASA*

Some of the water is believed to be frozen in the martian soil. Many regions on our own world have water frozen in the ground, either during the winter or, in very cold places, all year long. Water frozen in soil is simply called ground ice. If the ground ice remains throughout the year without melting, it is called permafrost. Permafrost is common in places like Siberia, northern Canada, and near the peaks of high mountains.

Mars is as cold, or colder, than the coldest places here on Earth. Any ground ice on Mars should stay frozen all year, and will be permafrost. However, finding the ground ice on Mars isn't easy. A dry layer of soil is believed to be on top of the icy soil, making it difficult to detect at the surface. One way to find the ice is to send a probe below the surface of Mars. Mars scientists have thought of several ways to search for permafrost on Mars. Some look at images of the surface of Mars taken by orbiting spacecraft like Mars Global Surveyor, which is currently in orbit around Mars. In these images, the scientists hope to find features similar to those made by permafrost here on the Earth, including wedge-shaped cracks in the ground that meet to form multisided shapes and look a lot like giant mud cracks. In

2001, NASA plans to send another orbiter to Mars. The Mars Surveyor 2001 orbiter has a special instrument called a Gamma Ray Spectrometer that will search for ground ice on Mars over the entire planet. This instrument is designed to "see" ice below the dry soil at the surface.

Another way to find the ice is to send a probe below the surface of Mars. Close to the poles, many Mars scientists think the dry layer of soil will be very thin, and the icy ground will be close to the surface. The Mars Microprobes, two grapefruit-sized spacecraft, were supposed to have impacted Mars at just such a place near the south pole, and penetrate up to about 1 meter (or 3 feet) into the soil. Unfortunately, the probes were never heard from. If they had survived and sent information back to us here on Earth, scientists might have been able to find ground ice on Mars. The dusty or sandy soil near the south pole may be dry, or it may contain ice. If the soil in the top meter is ice-rich, the probes were designed to detect the ice in three ways: by measuring how fast the probe decelerates. Ice will make soil harder, causing the probes to slow down more quickly than they would in ice-free soil; by collecting a soil sample and testing it for the presence of water; by measuring how quickly the probes cool off after impact.