

Water on Mars

Vocabulary:

geologist, jarosite, concretions, press conference, mineral, illusion

Sneaky Preview! True or False??

Mars is a wet planet today. T. F.

Two NASA rovers landed on Mars this year. T. F.

Looking at pictures of Mars can make you feel thirsty. T. F.

Some rocks on Mars are salty. T. F.

The two Mars rovers are named Lilo and Stich. T. F.

You be the scientist!

Go outside. Look around your schoolyard or your backyard at home. What evidence can you find that there is water on Earth? List at least six things. Has Opportunity found any of those things on Mars?

Warning: Looking at pictures of Mars can make you very thirsty. NASA spaceships have been taking pictures of Mars for almost 40 years. The photos show that Mars is a very dry planet.

There are vast lakes ... filled with dust. There are twisty-turning rivers ... as dry as a burnt match. And there are rain gullies ... but no rain. It looks like Mars was, once upon a time, very wet. But where did all the water go? It's a big mystery that puzzles scientists.

Some scientists think it's an illusion. "The pictures are fooling us," they say. "Those dry lakebeds are really craters. The riverbeds are lava flows. There never was any liquid water on Mars!" they argue. Other scientists believe that Mars used to have plenty of water. Then the water froze or evaporated, but no one knows why.

NASA's Mars rovers Spirit and Opportunity landed on Mars this year to find out who is right. Was Mars wet? Or was it always dry? Scientists want to know because water is a key ingredient for life. Life on Mars would need water, just as life on Earth does. Alien lifeforms might have been able to live on Mars if water was ever there.

On March 2, 2004, NASA scientists held a press conference. A press conference is a meeting where the scientists tell reporters what they have learned. They told reporters that Opportunity found signs of water on Mars.

Opportunity landed in a place called Meridiani Planum. Meridiani Planum is dry now, like the rest of the planet, but it used to be "drenched in water," according to the scientists. Opportunity found three things that proved water used to flow through Meridiani Planum:

First, the rocks at Meridiani Planum have salt in them. Rocks get salt in them by soaking in salty water. Salty rocks on Mars are evidence of a salt lake or sea.

Second, Opportunity found some tiny rock balls, about the size of blueberries. Geologists call these balls "concretions." On Earth they're found in places where water flows through rocks. The balls grow, like little pearls, from minerals in the water. (A mineral is a substance that is neither plant nor animal. Salt and baking soda are examples of minerals.)

Third, Opportunity found a mineral called jarosite. Jarosite contains iron and sulfur. On Earth, it is found in hot springs and lakes that have acid in them.

So NASA scientists believe Mars was wet. Meridiani Planum was "drenched." There was some acid in the water and some salt, too. Was there also life? Opportunity will keep working to answer that question—the biggest Mars mystery of all!

Water Wise Water Ways: You know that water is important to human life. If humans are to live on Mars, water will have to be a part of the colony. How important is water? List all the ways you have used water so far today. Now stretch your brain and list the ways that you used water last week-end. Pretty big list, huh?



Now comes the tough part. Keep a water journal for today. Write down every time you use water, guess about how much you use, and what you used it for. Toilets vary but they usually take about two gallons to flush. If you plan to take a bath, be prepared to measure your water! (Or have a parent help you to estimate.) Good Luck!

When you have finished, be prepared to advise your commander on how much water a colonist should be allowed each day.

MARS MATH: For a special gift, your grandmother gives you a trip to Mars. NASA's fastest spaceship will get you there in 6 months. When you get to Mars, you have to stay for 18 months or 1-½ years. (That's because Earth and Mars orbit the sun on different paths, and you have to wait 18 months until the two planets are close enough for the trip home.) Then, you go home. The return trip takes six months.

1. How old will you be when you get home?
2. Your grandmother is 66 years old now. How old will she be when you show her the pictures you took on the trip?
3. How old will your teacher be when you come back to visit and show your pictures to the class?
4. If you leave in April of the year 2004, what Earth month will it be when you land on Mars?
_____ What year will it be when you get home? _____
5. We will now change the subject, but it's still math. If you could take one box of toys, and the box is 12 inches long by 7 inches wide and 5 inches deep, what toys would you take?