



Ask A Scientist

Q: How did Mars get dust, dirt, and sand from other places?

A: Mars is a rocky planet like the Earth, Venus, and Mercury. Dust, dirt, and sand come from rocks getting broken down (what we call weathering). Several different things can break rocks down. For example, the Moon is covered with dust because meteorites

are always smacking into its surface and breaking the rocks up into powder. Mars has had a lot of meteorites strike its surface during its long history, so some of the dust comes from that source.

Mars also has an atmosphere. Chemical reactions between Mars' rocks and its atmosphere may also break rock down. Ice and frozen carbon dioxide near Mars' poles also break rocks down into sand and dust. Mars' atmosphere causes great dust storms to occur every few years. During these storms, dust gets blown into piles of sand and dust all over the planet.



Mars Terrain: Courtesy NASA/JPL

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Weathering

We usually think of rocks as being hard, solid, and unchanging. There are many forces at work on the earth's surface, however, breaking up rocks and wearing them away. When rocks are worn down by water, wind, or other means, that is called weathering.

Mechanical weathering - breaks the rock without changing its chemical makeup .

Materials: rocks, a can with a lid (like a coffee or shortening can)

1. Place rocks in a can with a lid. Fill the can about 1/4 full.
2. Cover the can with the lid. Shake the can very hard for about three minutes.
3. Take the lid off and observe what has formed in the bottom of the can. (Small pieces of rock and sand) How might weather do the same thing in nature? (Wind blows sand and small rocks against other rocks, wearing away the surface.)

Chemical weathering - changes the makeup of the rock through chemical reactions.

Materials: piece of chalk, vinegar (represents acid rain), eye dropper

1. Place the chalk on a paper towel
2. Put a few drops of vinegar on the chalk. Look and listen carefully. Vinegar is a weak acid. Acids can dissolve rocks that contain calcium carbonate like chalk, limestone and marble.



Do you have a science question about southeastern Idaho that you have been wanting to ask, but haven't? E-mail your questions to us at

askascientist@postregister.com