Start with a Book: Space Rangers

Why Is Mars Red?

Introduction

The soil (dust) on Mars contains iron, one of the elements found in nature. People have used iron to make things like tools and weapons for more than 3,000 years.

Astronomers believe that Mars once had liquid water and it has a tiny amount of oxygen. When iron mixes with water and oxygen, it produces iron oxide, or rust.

Rust is reddish brown in color. That's where Mars gets its name, the Red Planet, because it's soil is full of iron turned to rust.

Supplies

- Photograph of the Martian landscape (provided)
- Two jugs of water
- Small tray filled with 1-2 cups of light-colored sand
- Rusty nail
- Pens, pencils
- Crayons and/or colored pencils

Plain steel wool pads look like this:

WORK IN TEAMS OF 2-3 KIDS. FOR EACH TEAM:

- Plastic container or small tray
- About 1 cup of light-colored sand
- 1-2 plain steel wool pads (do NOT use soap pads or stainless steel pads)
- Worksheet to record observations (one for each child, see the template on page 4)

THIS EXPERIMENT TAKES 3 DAYS TO COMPLETE.

Why Is Mars Red?

Get kids thinking

Mars is sometimes called the Red Planet because of the color of its soil. How did the soil become red or rusty colored. Have you ever seen a rusty object — maybe the handlebars on your bike or an old nail you found in your neighborhood. **ASK KIDS:** Do you have any ideas about why the metal turned rusty?

Explain to the kids that water is the culprit! When water (from rain, for example) mixes with air (oxygen) and the iron in your bike handlebars or a nail, a chemical reaction starts. That chemical reaction changes iron to iron oxide, or rust. The color of your handlebars will turn from silver to rusty red or rusty brown. That's what happened on Mars.

IRON + OXYGEN + WATER = RUST

In this activity, kids will be creating their own Martian soil. **THIS EXPERIMENT TAKES 3 DAYS TO COMPLETE.**

Let's get started!

Give each pair of kids a container with sand. Also give them 2-3 pads of steel wool, which you've pulled apart. Explain that the sand represents the soil on Mars. Have the kids put the steel wool in the container and mix the sand and steel wool.

Go around the room with the water jugs and pour a little water into all the containers. The sand and the steel wool should be very damp, but there shouldn't be a layer of water in the container.

Tell the kids that they will be observing their sand over 3 days. Ask the kids to record what they see each day, in words and pictures. Give each child their own worksheet.

Use the extra container of sand as the group's "control" — to compare with each team's sand. On days 2 and 3, add a bit of water to keep the sand from drying out.

ASK KIDS: What happened during the experiment? Did the sand turn red? Why?

The steel wool contains iron and when mixed with water and air the iron starts to rust. The rust mixes with the sand to turn the whole mixture reddish-brown.

Why Is Mars Red?

Explain that there is a lot of iron in the ground on Mars. That is why we see Mars as a red planet. Pass the rusty nail around the class, so that the children get an idea of what rust looks like on 'real' objects, and what it feels like. **WHAT ELSE RUSTS?** Encourage the kids to think of other things that can rust.

Photo © First Grader At Last

More activities

VIDEO: WHY IS MARS RED? (MYSTERY DOUG)
youtube.com/watch?v=eAj_f6JjOUo

Why Is Mars Red?

My name: _____

Day 1

Describe what the sand looks like:

Draw what the sand looks like:

Day 2

Describe what the sand looks like:

Draw what the sand looks like:

Day 3

Describe what the sand looks like:

Draw what the sand looks like: