



Curiosity Guide #503

Rocks

Accompanies Curious Crew, Season 5, Episode 3 (#503)

Freezing Rocks

Investigation #7

Description

What happens when rocks freeze? Let's find out!

Materials

- 3 plastic bottles
- Several small pieces of each of the following rocks:
 - Granite
 - Limestone
 - Sandstone
- Water
- Freezer

Procedure

- 1) Place one kind of rock in each water bottle.
- 2) Put enough water in each bottle so the rocks are well covered.
- 3) Place all three bottles in the freezer.
- 4) Once the water in the bottles has frozen, remove the bottles from the freezer. Leave the bottles out to thaw.
- 5) Repeat the freezing and thawing process 3 to 5 times.
- 6) What changes do you notice among the rocks? Why?

My Results

Explanation

Water naturally expands when it freezes. When water gets into the pores of rocks and freezes, the water applies an outward pressure on the bonds of the rocks. The outward pressure causes the rocks to crack. Weaker rocks will split more quickly than will the harder rocks, but, in time, small bits of even the hardest rock will break away and get transported to begin the rock cycle once again.

Dig further: Over a long period of time, the sedimentary or igneous rock can end up deep underground from shifting tectonic plates on the earth. Rocks that are deep underground experience higher heat and pressure, and the rocks change into metamorphic rock. For example, limestone will eventually turn into marble if compressed and heated for a long period of time. Other examples of metamorphic rock include slate and gneiss that come from sedimentary slate. Squished metamorphic rocks usually have a hard, grainy texture. Don't rocks just rock?!

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