



Curiosity Guide #503

Rocks

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

Scratched Rocks

Investigation #8

Description

Let's find out what "hard as a rock" means!

Materials

- Assorted rocks of the following types
 - Granite
 - Quartzite
 - Obsidian
 - Coal
 - Marble
 - Limestone
- Shiny nail
- Gloves
- Protective goggles

Procedure

- 1) Put on goggles and gloves
- 2) Lay the rocks on the table.
- 3) Carefully hold the sides of one of the rocks firmly in place.
- 4) While holding the nail in your other hand, try to scratch a line in the rock with the tip of the nail. Be sure to drag the nail away from you and your fingers. This should be in a single motion, not a back and forth action.
- 5) Brush away any leftover sediment and examine the scratched rock.

- 6) Could you leave a mark? If yes, why? If no, why not?
- 7) Try again with some of the other rocks.

My Results

Explanation

Every rock can be measured by how hard its minerals are, using a scratch test. Geologists use the Mohs Scale as a measurement to identify rock hardness. The scale is a 1-10 range with 1 being as soft as talc and 10 being as hard as diamond. The entire order is talc, gypsum, calcite, fluorite, apatite, orthoclase, quartz, topaz, corundum, and diamond, and these example rocks can be used to scratch other rocks to determine which is harder. The nail in our investigation works like the tool geologists use, called a hardness pick. If the tool leaves a groove in the stone, the tool is harder than the stone. However, if no distinct groove is left behind, then the rock is harder than the tool. Sometimes the material of the tool will come apart on the harder rock! The granite, quartzite, and obsidian are harder than the hardness tool, while the coal, marble, and limestone are softer.

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