Do Rocks Dissolve?

# DO this first

Go to <https://wonderopolis.org/wonder/do-rocks-dissolve> and read the article or have Wonderopolis read the article to you by pressing this button:



# Activity

You are going to find evidence that rocks dissolve. Read the passage and find evidence that rocks DO dissolve. Use the highlighter to highlight all of the evidence that would help to answer the question, “Do rocks dissolve?”



Have you ever collected rocks? To some kids, collecting rocks might not seem all that interesting. But others know that it can be really cool to stumble upon a uniquely colored or shaped rock when you're at the park, at the beach, or simply at home. Where did it come from? And how long has it been around?

When you think of things that are solid and last forever, rocks probably come to mind. Whether it's a mountain, a stone courthouse, or a gravestone in a local cemetery, rocks do seem to have staying power.

In fact, rocks might even seem indestructible. If you look closely at old rocks, though, you'll see signs of wear. Although rocks are indeed sturdy materials, they're still not immune from the physical and chemical forces of nature that inevitably wear away at everything on Earth.

Scientists call the process that rocks undergo weathering. Weathering occurs in two main forms: mechanical and chemical. Mechanical weathering processes break rocks down into smaller pieces but do not change their chemical composition.

Chemical weathering processes, on the other hand, break down rocks chemically, changing them into different types of rocks and minerals. Some of those new materials can be dissolved by exposure to water and air, leading to erosion.

Mechanical and chemical weathering processes can occur simultaneously, but they're still extremely slow processes. Since it takes so long to break down and dissolve rocks, we see them as a lasting, nearly-indestructible material.

Let's take a look at a chemical weathering process that you're already somewhat familiar with…even if you don't realize it. When rain falls from the sky, some of the water mixes with carbon dioxide in the air or pockets of air in the soil. This mixture forms a weak acid called carbonic acid.

As carbonic acid filters down through the soil and comes into contact with cracks in the rock underground, it can react chemically with the rock, causing it to dissolve. Carbonic acid is particularly reactive with calcite, which is the primary mineral in limestone.

Over long periods of time, carbonic acid dissolves limestone, creating pits and holes and enlarging cracks and openings in the rock. This creates a unique type of topography known as karst topography. Common features of karst topography you're probably familiar with include caves, caverns, sinkholes, and springs.

Another common type of chemical weathering occurs as a result of acid rain. Acid rain forms when rain combines with nitrogen and sulfur to create nitric and sulfuric acids, which can dissolve calcium-based rocks such as marble and limestone. Acid rain tends to be a problem in areas with higher levels of pollution from coal-burning power plants.

Although weathering of rock might seem like a negative thing, it's actually a natural process that eventually creates valuable products. Weathered rock is the primary component of soil. Minerals from weathered rock sustain all sorts of plant life through the soil. We also wouldn't be able to visit super-cool caves without the chemical weathering of rock!