

Explore the Process of Weathering and Erosion with Google Maps

This activity will give you a brief overview of **mechanical** and **chemical** weathering, links to 360° views of different weathering processes through Google Maps, and a spot to record your observations.

Use the links below or visit this website to view all links: <https://goo.gl/wfzm7y>



Mechanical Weathering is a natural process where rock is broken down into smaller pieces by physical activity. When rock undergoes mechanical weathering, its chemical composition – what it is made of- is unchanged.

Abrasion is perhaps the most common form of mechanical weathering. When gravity, running water, or wind causes rocks to collide with each other, they break down into smaller pieces. Over millions of years, running water weathered rocks to form the famous Grand Canyon in Arizona. Wind smashed bits of sand and sediment into boulders in the Israeli desert, forming “mushroom rocks.” Glacial abrasion weathers rock as the glacier grinds across the surface. Waves breaking against a rocky coast will also cause weathering.

Ice wedging is a type of mechanical weathering that happens in cold climates. When liquid water enters a crack in the surface of a rock, it may then freeze. Freezing water expands, causing the rock to break into pieces. The formations at Bryce Canyon and Arches National Parks were formed when water seeped into cracks, froze, and wedged the rock into smaller pieces. Wind and water then carried those small bits of rock away. Carrying the weathered rock away is called **erosion**, which exposes more surface area to the forces of weathering. Plants and animals are also **organic agents** of mechanical weathering. When plants grow, their roots

Google Maps Link

Observation: Where did the link take you, and what caused the weathering you saw? Is there any evidence of erosion?

[Link 1](#)

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expand. If a plants roots expand into a crack in rock, that rock will eventually be wedged apart.

Chemical Weathering is the process by which rock is broken into much smaller pieces due to chemical reactions with the rock's environment. This breaking down of rock is caused by chemical reactions that act on different minerals in the rock. These reactions result in a new substance being formed.

Oxidation is the process by which elements in rock combine with oxygen. Rock that is rich in iron, such as magnetite, are oxidized by our air and water. When these rocks are oxidized, they turn reddish brown. You may recognize this process as rust.

When precipitation interacts with limestone, a process known as **carbonation** can take place. Carbonation occurs when water vapor combines with carbon dioxide in the atmosphere, forming a weak acid that reacts with and breaks down limestone. When this happens underground caves, such as Carlsbad Caverns, are formed. In areas where carbon dioxide pollution is high, a stronger acid can form leading to acid rain. A notable effect of acid rain is the corrosion of statues.

Lichens and mosses grow on essentially bare rock surfaces and contribute to chemical weathering of rock. The attachment of these organisms to the rock surface speeds up chemical breakdown of the mineral surface.

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