

Lesson #72

What is weathering?

Earthquakes and volcanic eruptions suddenly and quickly change Earth's surface. A process called weathering does this too—but very slowly. **Weathering** is a continuous process that breaks down rock over time. Water, ice, temperature changes, wind, and living things cause weathering. Two types of weathering are physical and chemical.

Physical weathering breaks rock into smaller and smaller pieces. It happens as rock expands in hot temperatures and then shrinks in cold temperatures. A continuous pattern of expanding and shrinking weakens the rock. Over time, it cracks apart and crumbles. Physical weathering also happens when water seeps into cracks and small holes in rock. As the temperature drops, the water freezes. Freezing makes water expand, which forces cracks in the rock. Over time, a cycle of freezing and thawing makes the rock split apart and crumble into smaller pieces.

Moving water causes physical weathering too. When water constantly runs over rock, it can soften and wear away. In rivers and streams where there is running water, rocks scrape against each other. They lose their rough edges. This creates smooth rounded rocks.



Natural stone arch created by weathering.

Plants cause physical weathering when their roots grow in the cracks of rocks. As the roots grow deeper, the cracks widen. You can observe this in the way tree roots break apart sidewalks.

Plants also cause chemical weathering. **Chemical weathering** happens when a chemical reaction dissolves rock. Some plants release chemicals that break down the rock's minerals. Over time, the chemicals change the makeup of the rock. Another cause of chemical weathering is acid rain. **Acid rain** is precipitation that forms when air pollution from burning fossil fuels combines with moisture in the air. Acid rain can dissolve limestone, sandstone, and marble.

Weathering slowly changes the appearance of Earth's landscape.